

USEFUL REFERENCES FOR FINDING AVERAGE LEVELS OF METALS/ELEMENTS IN THE CONTERMINOUS UNITED STATES; HUMAN HEALTH EFFECTS FROM EXPOSURES TO TOXIC SUBSTANCES

Shacklette, H.T., and Boerngen, J. G., 1984. Element concentrations in soils and other surficial materials of the conterminous United States: U.S. Geological Paper 1270, 105 p. <http://pubs.usgs.gov/pp/1270>

Human Soil Screening Levels (SSLs can be found at: http://www.epa.gov/earth1r6/6pd/rcra_c/pd-n/screen.htm . Researchers have shown that people have health problems at much lower levels of exposure than the EPA SSLs, as evidenced by OSHA's reduction of threshold levels from those previously thought to be safe. There is ongoing research into the links between exposures and human health.

EPA's Ecological Soil Screening Levels (EcoSSLs) are considerably lower for plants, birds, mammals, and soil invertebrates. See ONFCI's EcoSSL comparison chart or other further data at: <http://www.epa.gov/ecotox/ecossl/> . Since humans share the same environment, it seems more logical to use EcoSSLs as a standard to also protect human health because there is no instance in which humans do not co-exist with plant and animal life.

Agency for Toxic Substances and Disease Registry (ATSDR) ToxFAQ's – <http://www.atsdr.cdc.gov/toxfaq.html>

Agency for Toxic Substances and Disease Registry (ATSDR) Toxicological Profiles (by element) can be found on the website for the Center for Disease Control (CDC) – www.cdc.gov by inserting "Toxicological Profile for (each element)" into their search engine.

Center for Disease Control (CDC) – The CDC's human health exposure reports are available at: <http://www.cdc.gov/exposurereport/>

The National Report on Human Exposure to Environmental Chemicals, Third Report <http://www.cdc.gov/exposurereport/results.htm> (contains information on metals and other toxic exposures)

* Holmgren, G.G.S., Meyer, M.W., Chaney, R.L., and Daniels, R.B., 1983, Cadmium, lead, zinc, copper, and nickel in agricultural soils of the United States: Journal of Environmental Quality, v. 22, p. 335-348

Smith et al. (2005): Smith, D.B., Cannon, W.F., Woodruff, L.G., Garrett, R.G., Klassen, R., Kilburn, J.E., Horton, J.D., King, H.D., Goldhaber, M.B., and Morrison, J.M., 2005. Major- and trace-element concentrations in soils from two continental-scale transects of the United States and Canada: U.S. Geological Survey Open-File Report 2005-1253, 22 p. (Available at: <http://pubs.usgs.gov/of/2005/1253/>)

Contact your state EPA or Board of Health to see if background soil levels for your state are available.