

Achten, Christine, and Thilo Hofmann. 2009. "Native polycyclic aromatic hydrocarbons (PAH) in coals-A hardly recognized source of environmental contamination." *The Science of the total environment* 407:2461-73.
doi: <https://doi.org/10.1016/j.scitotenv.2008.12.008>.

ADEM, 2017. Alabama Environmental Investigation and Remediation Guidance (AEIRG), Montgomery, AL. <https://adem.alabama.gov/programs/land/landforms/AEIRGInvestigation.pdf>.

Akritas, Michael G., Thomas F. Ruscitti, and G. P. Patil. 1994. "7 Statistical analysis of censored environmental data." In *Handbook of Statistics*, 221-242. Elsevier. doi:[https://doi.org/10.1016/S0169-7161\(05\)80009-4](https://doi.org/10.1016/S0169-7161(05)80009-4).

Ames, K. C., and E. A. Prych. 1995. Background concentrations of metals in soils from selected regions in the State of Washington. U. S. Geological Survey and Open-File Reports Section Earth Science Information Center. <http://pubs.er.usgs.gov/publication/wri954018>.

Anderson, T.W. 2003. *An Introduction to Multivariate Statistical Analysis*: Wiley, <https://books.google.com/books?id=Cmm9QgAACAAJ>.

Antweiler, Ronald C. 2015. "Evaluation of Statistical Treatments of Left-Censored Environmental Data Using Coincident Uncensored Data Sets. II. Group Comparisons." *Environmental Science & Technology* 49 (22):13439-13446.
doi: <https://doi.org/10.1021/acs.est.5b02385>.

Antweiler, Ronald C., and Howard E. Taylor. 2008. "Evaluation of Statistical Treatments of Left-Censored Environmental Data using Coincident Uncensored Data Sets: I. Summary Statistics." *Environmental Science & Technology* 42 (10):3732-3738.
doi: <https://doi.org/10.1021/es071301c>.

Arche Consulting. 2020. "Threshold calculator for metals in soil (v3.0)"
". <https://www.arche-consulting.be/tools/threshold-calculator-for-metals-in-soil/>.

Asmaryan, Shushanik, Vahagn Muradyan, Lilit Sahakyan, Armen Saghatelian, and Timothy Warner. 2014. "Development of remote sensing methods for assessing and mapping soil pollution with heavy metals." In *GlobalSoilMap: Basis of the Global Spatial Soil Information System - Proceedings of the 1st GlobalSoilMap Conference*, 429-432.
doi:<https://books.google.com/books?hl=en&lr=&id=S5CIAgAAQBAJ&oi=fnd&pg=PA429&ots=iointwnaMsl&sig=TauSNphv3Sr83LpAIUDeRzq0L-o#v=onepage&q&f=false>.

ASTM. 2009. ASTM D1452. Practice for Soil Exploration and Sampling by Auger Borings. ASTM International, West Conshohocken, PA. <https://www.astm.org/DATABASE.CART/HISTORICAL/D1452-09.htm>.

ASTM. 2013. ASTM D6169 / D6169M-13, Standard Guide for Selection of Soil and Rock Sampling Devices Used With Drill Rigs for Environmental Investigations. ASTM International, West Conshohocken, PA. https://www.astm.org/d6169_d6169m-21.html.

ASTM. 2014. ASTM D6282 / D6282M-14, Standard Guide for Direct Push Soil Sampling for Environmental Site Characterizations. ASTM International, West Conshohocken, PA. https://www.astm.org/d6282_d6282m-14.html.

ASTM. 2014. ASTM E2616-09(2014): Standard Guide for Remedy Selection Integrating Risk-Based Corrective Action and Non-Risk Considerations. ASTM International, West Conshohocken, PA. <https://www.astm.org/e2616-09r20.html>.

ASTM. 2015. ASTM D4700-15, Standard Guide for Soil Sampling from the Vadose Zone. ASTM International, West Conshohocken, PA. <https://www.astm.org/Standards/D4700.htm>.

ASTM. 2015. ASTM D6151 / D6151M-15, Standard Practice for Using Hollow-Stem Augers for Geotechnical Exploration and Soil Sampling. ASTM International, West Conshohocken, PA. https://www.astm.org/d6151_d6151m-15.html.

ASTM. 2016. ASTM D6914 / D6914M-16, Standard Practice for Sonic Drilling for Site Characterization and the Installation of Subsurface Monitoring Devices. ASTM International, West Conshohocken, PA. https://www.astm.org/d6914_d6914m-16.html.

ASTM. 2016. ASTM E178-16a, Standard Practice for Dealing With Outlying Observations. ASTM International, West Conshohocken, PA. <https://www.astm.org/Standards/E178.htm>.

ASTM. 2017. ASTM D6312-17, Standard Guide for Developing Appropriate Statistical Approaches for Groundwater Detection Monitoring Programs at Waste Disposal Facilities. ASTM International, West Conshohocken, PA. <https://www.astm.org/Standards/D6312.htm>.

ASTM. 2017. ASTM E456-13A(2017)e4, Standard Terminology Relating to Quality and Statistics. ASTM International, West Conshohocken, PA. <https://www.astm.org/Standards/E456.htm>.

ASTM. 2019. ASTM E177-19, Standard Practice for Use of the Terms Precision and Bias in ASTM Test Methods. ASTM International, West Conshohocken, PA. <https://www.astm.org/Standards/E177.htm>.

ASTM. 2020. ASTM D6286 / D6286M-20, Standard Guide for Selection of Drilling and Direct Push Methods for Geotechnical and Environmental Subsurface Site Characterization. ASTM International, West Conshohocken, PA. https://www.astm.org/d6286_d6286m-20.html.

ASTM. 2020. ASTM E1689-20, Standard Guide for Developing Conceptual Site Models for Contaminated Sites. ASTM International, West Conshohocken, PA. <https://www.astm.org/Standards/E1689.htm>.

ASTM. 2020. ASTM E3242-20, Standard Guide for Determination of Representative Sediment Background Concentrations. ASTM International, West Conshohocken, PA. <https://www.astm.org/Standards/E3242.htm>.

ATSDR, 2000. Toxicological Profile for Polychlorinated Biphenyls PCBs, Division of Toxicology/Toxicology Information Branch, Atlanta, Georgia. <https://www.atsdr.cdc.gov/toxprofiles/tp17.pdf>.

BC Environment, 2001. Identifying Populations – A guide for data analysts and interpreters on the identification of statistical populations. Contaminated Sites Statistical Applications Guidance Document No. 12-7, British Columbia Environment, British Columbia, CA. <https://www2.gov.bc.ca/assets/gov/environment/air-land-water/site-remediation/docs/guidance-documents/gd07.pdf>.

BC Environment, 2020. The British Columbia Field Sampling Manual – Part D1 – Soil Sampling and Investigations, British Columbia Ministry of the Environment and Climate Change Strategy, Victoria, B.C. <https://www2.gov.bc.ca/gov/content/environment/research-monitoring-reporting/monitoring/laboratory-standards-quality-assurance/bc-field-sampling-manual>.

Benotti, Mark, Loretta Fernandez, Graham Peaslee, Gregory Douglas, Allen Uhler, and Stephen Emsbo-Mattingly. 2020. “A forensic approach for distinguishing PFAS materials.” *Environmental Forensics* 21:1-15. doi: <https://doi.org/10.1080/15275922.2020.1771631>.

Blumer, Max. 1976. “Polycyclic Aromatic Compounds in Nature.” *Scientific American* 234:34-45. doi: <https://doi.org/10.1038/scientificamerican0376-34>.

Boehm, Paul, Jaana Pietari, Linda Cook, and Tarek Saba. 2018. “Improving rigor in polycyclic aromatic hydrocarbon source fingerprinting.” *Environmental Forensics*:1-13. doi: <https://doi.org/10.1080/15275922.2018.1474287>.

Boerngen, Josephine G., and Hansford T. Shacklette. 1981. Chemical analyses of soils and other surficial materials of the conterminous United States. U. S. Geological Survey. <http://pubs.er.usgs.gov/publication/ofr81197>.

Bowell, R. J. 1994. “Sorption of arsenic by iron oxides and oxyhydroxides in soils.” *Applied Geochemistry* 9 (3):279-286. doi: [https://doi.org/10.1016/0883-2927\(94\)90038-8](https://doi.org/10.1016/0883-2927(94)90038-8).

Boyle, R. W. 1974. “The use of major elemental ratios in detailed geochemical prospecting utilizing primary halos.” *Journal of Geochemical Exploration* 3 (4):345-369. doi: [https://doi.org/10.1016/0375-6742\(74\)90004-1](https://doi.org/10.1016/0375-6742(74)90004-1).

Brisson, M. R., and D. Popp. 2017. Detected or Not – Defining Laboratory Analytical Limits. *The Synergist*. <https://synergist.aiha.org/201711-detected-or-not>.

Bro, Rasmus, and Age K. Smilde. 2014. “Principal component analysis.” *Analytical Methods* 6 (9):2812-2831. doi: <https://doi.org/10.1039/C3AY41907J>.

Brooks, B., 2020. Soil Background Threshold Evaluation, Minnesota Pollution Control Agency, Environmental Analysis and Outcomes Division, St. Paul, MN.

Brusseau, Mark, R. Anderson, and Bo Guo. 2020. “PFAS concentrations in soils: Background levels versus contaminated sites.” *Science of The Total Environment* 740:140017. doi: <https://doi.org/10.1016/j.scitotenv.2020.140017>.

Buck, Robert, James Franklin, Urs Berger, Jason Conder, Ian Cousins, Pim De Voogt, Allan Jensen, Scott Mabury, and Stefan van Leeuwen. 2011. “Perfluoroalkyl and Polyfluoroalkyl Substances in the Environment: Terminology, Classification, and Origins.” *Integrated Environmental Assessment and Management* 7:513-41. doi: <https://doi.org/10.1002/ieam.258>.

Cal DTSC, 2008. Proven Technologies and Remedies Guidance – Remediation of Metals in Soils: Appendix B Strategies for Establishing and Using Background Estimates of Metals in Soils, Department of Toxic Substances Control, Sacramento, CA. https://dtsc.ca.gov/wp-content/uploads/sites/31/2018/11/Appdx_B_083108.pdf.

Cal DTSC, 2009. Arsenic Strategies Determination of Arsenic Remediation Development of Arsenic Cleanup Goals, California Department of Toxic Substances Control, Sacramento, California, January 16, 2009. <https://dtsc.ca.gov/wp-content/uploads/sites/31/2018/01/Arsenic-Cleanup-Goals-Jan09-A.pdf>.

Cal DTSC, 2009. Use of northern and southern California polycyclic aromatic hydrocarbon (PAH) studies in the manufactured gas plant site cleanup process, California Department of Toxic Substances Control, Sacramento, California, JULY 1, 2009. <https://dtsc.ca.gov/wp-content/uploads/sites/31/2021/06/MGP-PAH-Advisory-070109-21A.pdf>.

CCME, 2007. Reference Method for the Canada Wide Standard for Petroleum Hydrocarbons in Soil – Tier 1 Method, Canadian Council of Ministers of the Environment, Winnipeg, Manitoba. <http://www.ccme.ca>.

Chambers, J.M., W.S. Cleveland, B. Kleiner, and P. Tukey. 1983. *Graphical Methods for Data Analysis*. New York: Chapman and Hall/CRC. doi:<https://doi.org/10.1201/9781351072304>.

Checkai, Ron, Eric Van Genderen, José Paulo Sousa, Gladys Stephenson, and Erik Smolders. 2014. “Deriving site-specific

clean-up criteria to protect ecological receptors (plants and soil invertebrates) exposed to metal or metalloid soil contaminants via the direct contact exposure pathway." *Integrated Environmental Assessment and Management* 10 (3):346-357. doi: <https://doi.org/10.1002/ieam.1528>.

Chen, Ming, Gerco Hoogeweg, and W. Harris. 2001. "Arsenic Background Concentrations in Florida, U.S.A. Surface Soils: Determination and Interpretation." *Environmental Forensics - ENVIRON FORENSICS* 2:117-126. doi: <https://doi.org/10.1006/enfo.2001.0050>.

Cochran, William G. . 1997. *Sampling Techniques, 3rd Edition, Wiley Series in Probability and Mathematical Statistics-Applied*. New York: John Wiley & Sons, <https://www.wiley.com/en-us/Sampling+Techniques%2C+3rd+Edition-p-9780471162407>.

Cook, P. D. 1998. "Estimating Background Concentrations of Inorganic Analytes from On-Site Soil Sample Data." In, edited by K. Hoddinott, 3-22. West Conshohocken, PA: ASTM International. doi:<https://doi.org/10.1520/STP13283S>.

Cornell, R.M., and U Schwertmann. 2003. "The Iron Oxides: Structure, Properties, Reactions, Occurrences and Uses, Second Edition." In.: Wiley-VCH Verlag GmbH & Co. KGaA. doi:<https://doi.org/10.1002/3527602097>.

Creaser, C. S., A. R. Fernandes, S. J. Harrad, T. Hurst, and E. A. Cox. 1989. "Background levels of polychlorinated biphenyls in British soils - II." *Chemosphere* 19 (8):1457-1466. doi: [https://doi.org/10.1016/0045-6535\(89\)90094-5](https://doi.org/10.1016/0045-6535(89)90094-5).

De Oliveira, Vinicius, Cleide Abreu, Ricardo Coelho, and Leônidas Melo. 2014. "Cadmium background concentrations to establish reference quality values for soils of Sao Paulo State, Brazil." *Environmental Monitoring and Assessment* 186. doi: 10.1007/s10661-013-3462-2.

Douglas, Gregory S., Stephen D. Emsbo-Mattingly, Scott A. Stout, Allen D. Uhler, and Kevin J. McCarthy. 2007. "CHAPTER 9 - CHEMICAL FINGERPRINTING METHODS." In *Introduction to Environmental Forensics (Second Edition)*, edited by Brian L. Murphy and Robert D. Morrison, 311-454. Burlington: Academic Press. doi:<https://doi.org/10.1016/B978-012369522-2/50010-5>.

Douglas, Gregory S., Stephen D. Emsbo-Mattingly, Scott A. Stout, Allen D. Uhler, and Kevin J. McCarthy. 2015. "Chapter 8 - Hydrocarbon Fingerprinting Methods." In *Introduction to Environmental Forensics (Third Edition)*, edited by Brian L. Murphy and Robert D. Morrison, 201-309. San Diego: Academic Press. doi:<https://doi.org/10.1016/B978-0-12-404696-2.00008-4>.

Dworian, Paul. 1996. "Interference by Natural Organics in Diesel Analyses." Eighth International Conference on Cold Regions Engineering, Fairbanks, Alaska, August 12-16. <https://cedb.asce.org/CEDBsearch/record.jsp?dockkey=0102157>.

Elmendorf, D. L., C. E. Haith, G. S. Douglas, and Roger Prince. 1994. "Relative rates of biodegradation of substituted polycyclic aromatic hydrocarbons." In *Bioremediation of Chlorinated and Polycyclic Aromatic Hydrocarbons Compounds*, 188-202. Lewis Publisher.

Fleischhauer, Henry L., and Nic Korte. 1990. "Formulation of cleanup standards for trace elements with probability plots." *Environmental Management* 14 (1):95-105. doi: <https://doi.org/10.1007/BF02394023>.

Galarneau, Elisabeth. 2008. "Source specificity and atmospheric processing of airborne PAHs: Implications for source apportionment." *Atmospheric Environment* 42 (35):8139-8149. doi: <https://doi.org/10.1016/j.atmosenv.2008.07.025>.

Geiselbrecht, Allison, Shahrokh Rouhani, Karen Thorbjornsen, Douglas Blue, Steven Nadeau, Tessa Gardner-Brown, and Steven Brown. 2019. "Important Considerations in the Derivation of Background at Sediment Sites." *Integrated Environmental Assessment and Management* 15. doi: <https://doi.org/10.1002/ieam.4124>.

Gholizadeh, Asa, Mehdi Saberioon, Eyal Ben-Dor, and Lubos Boruvka. 2018. "Monitoring of Selected Soil Contaminants using Proximal and Remote Sensing Techniques: Background, State-of-the-Art and Future Perspectives." *Critical Reviews in Environmental Science and Technology* 48:243-278. doi: <https://doi.org/10.1080/10643389.2018.1447717>.

Gibbons, Robert D. 1994. *Statistical Methods for Groundwater Monitoring*. John Wiley & Sons. doi:<https://doi.org/10.1002/9780470172940>.

Grubbs, Frank E. 1969. "Procedures for Detecting Outlying Observations in Samples."

Halil, Aral, and C. Sarac. 1988. "Partitioning of Geochemical Populations by Sinclair's Method. An Application on a Geochemical Stream Sediment Data from the Belgium Ardennes." *Communications, University of Ankara Faculty of Sciences Series C, Vol 6*:313 - 323, <https://dspace.ankara.edu.tr/xmlui/bitstream/handle/20.500.12575/62120/16191.pdf?sequence=1&isAllowed=y>.

Hawkes, H.E. and J.S. Webb. 1962. *Geochemistry in Mineral Exploration*. New York, NY: Harper & Row.

Hayden, R. E., P.J. Remington, M.A Theobals, and J.F. Wiley. 1985. Methods for designing treatments to reduce interior noise of predominant sources and paths in a single engine light aircraft. Bolt Beranek and Newman Inc. Cambridge, MA: National Aeronautics and Space Administration, Langley Research Center. <https://core.ac.uk/download/pdf/42837965.pdf>.

Helsel, Dennis R. 2005. *Nondetects and data analysis: Statistics for censored environmental data*: John Wiley & Sons, <http://pubs.er.usgs.gov/publication/70180734>.

Helsel, Dennis R., and Timothy A. Cohn. 1988. "Estimation of descriptive statistics for multiply censored water quality data." *Water Resources Research* 24 (12):1997-2004. doi: <https://doi.org/10.1029/WR024i012p01997>.

Hewett, P., and G. H. Ganser. 2007. "A comparison of several methods for analyzing censored data." *Annals of Occupational Hygiene* 51 (7):611-32. doi: <https://doi.org/10.1093/annhyg/mem045>.

HI DOH, 2011. Update to Soil Action Levels for Inorganic Arsenic and Recommended Soil Management Practices, Updated September 2012, Department of Health, Honolulu, Hawaii. <https://health.hawaii.gov/heer/files/2019/11/hdoharsenicsoilactionlevelsnov2011revsept2012.pdf>.

HI DOH, 2012. Hawaiian Islands Soil Metal Background Evaluation Report, Department of Health Hazard Evaluation and Emergency Response, Honolulu, Hawaii. <https://health.hawaii.gov/heer/files/2012/05/Hawaiian-Islands-Soil-Metal-Background-Evaluation-Report-May-2012.pdf>.

Hindersmann, Benjamin, and Christine Achten. 2018. "Urban soils impacted by tailings from coal mining: PAH source identification by 59 PAHs, BPCA and alkylated PAHs." *Environmental Pollution* 242:1217-1225. doi: <https://doi.org/10.1016/j.envpol.2018.08.014>.

Hoaglin, David, Frederick Mosteller, and John W. Tukey. 1983. *Understanding Robust and Exploratory Data Analysis*. Vol. 96: John Wiley and Sons.

Hornung, Richard W., and Laurence D. Reed. 1990. "Estimation of Average Concentration in the Presence of Nondetectable Values." *Applied Occupational and Environmental Hygiene* 5 (1):46-51. doi: <https://doi.org/10.1080/1047322X.1990.10389587>.

Horstmann, M., M. S. McLachlan, and M. Reissinger. 1993. "Investigations of the origin of PCDD/F in municipal sewage sludge." *Chemosphere* 27 (1):113-120. doi: [https://doi.org/10.1016/0045-6535\(93\)90283-B](https://doi.org/10.1016/0045-6535(93)90283-B).

IDEM, 2012. Remediation Closure Guide, Indiana Department of Environmental Management, Office of Land Quality, Indianapolis, IN. https://www.in.gov/idem/cleanups/files/remediation_closure_guide.pdf.

IDEQ, 2014. Statistical Guidance for Determining Background and Ground Water Quality and Degradation, Idaho Department of Environmental Quality, Boise, ID. <https://www2.deq.idaho.gov/admin/LEIA/api/document/download/7087>.

IDEQ, 2018. Idaho Risk Evaluation Manual for Petroleum Releases, Idaho Department of Environmental Quality, Boise, ID. file:///C:/Users/jrocc/AppData/Local/Temp/MicrosoftEdgeDownloads/f3705aa2-8af1-468d-880a-73711105aee5/idaho-risk-evaluation-manual-for-petroleum-releases-2018.pdf.

Iglewicz, B., and D.C. Hoaglin. 1993. *How to Detect and Handle Outliers*: ASQC Quality Press, <https://books.google.com/books?id=silnAQAAIAAJ>.

ISO. 2017. Standard 17025 - General requirements for the competence of testing and calibration laboratories. International Organization for Standardization. <https://www.iso.org/standard/66912.html>.

ITRC, 2007. Triad Implementation Guide, Interstate Technology Regulatory Council, Characterization Sampling, and Monitoring Team, Washington, D.C. <http://www.itrcweb.org/GuidanceDocuments/SCM-3.pdf>.

ITRC, 2012. ISM-1 - Incremental Sampling Methodology, Interstate Technology Regulatory Council, Remediation Process Optimization Team, Washington, D.C. https://www.itrcweb.org/GuidanceDocuments/ISM-1_2012_with_Clarifications.pdf.

ITRC, 2013. GSMC-1 - Groundwater Statistics and Monitoring Compliance: Statistical Tools for the Project Life Cycle, Interstate Technology Regulatory Council, Groundwater Statistics and Monitoring Compliance Team, Washington, D.C. [ITRC GSMC-1 - Welcome: Using this Online Guidance \(itrcweb.org\)](https://www.itrcweb.org/GSMC-1-Welcome-Using-this-Online-Guidance)

ITRC, 2015. Risk-3 - Decision Making at Contaminated Sites: Issues and Options in Human Health Risk Assessment, Interstate Technology Regulatory Council, Risk Assessment Team, Washington, D.C. www.itrcweb.org/risk-3.

ITRC, 2017. BCS-1 - Bioavailability of Contaminants in Soil, Interstate Technology Regulatory Council, Bioavailability in Contaminated Soil Team, Washington, D.C. <https://bcs-1.itrcweb.org/1-introduction/>.

ITRC, 2018. TPH Risk Evaluation at Petroleum- Contaminated Sites, Interstate Technology Regulatory Council, TPH Risk Evaluation Team, Washington, D.C. <https://tphrisk-1.itrcweb.org/>.

ITRC, 2019. ASCT-1 Implementing Advanced Site Characterization Tools, Interstate Technology Regulatory Council, Advanced Site Characterization Tools Team, Washington, D.C. <https://asct-1.itrcweb.org>.

ITRC, 2020. History and Use of Per- and Polyfluoroalkyl Substances (PFAS), Interstate Technology Regulatory Council, PFAS Team, Washington, D.C. <https://pfas-1.itrcweb.org/fact-sheets/>.

ITRC, 2020. ISM-1 Clarifications - Clarifications to ITRC 2012 ISM-1 Guidance, Interstate Technology Regulatory Council, Remediation Process Optimization Team, Washington, D.C. https://www.itrcweb.org/GuidanceDocuments/ISM-1_Clarifications.pdf.

ITRC, 2020. ISM-2 – Incremental Sampling Methodology Update, Interstate Technology Regulatory Council, Remediation Process Optimization Team, Washington, D.C. <https://ism-2.itrcweb.org/>.

ITRC, 2020. Naming Conventions and Physical and Chemical Properties of Per- and Polyfluoroalkyl Substances (PFAS), Interstate Technology Regulatory Council, PFAS Team, Washington, D.C. <https://pfas-1.itrcweb.org/fact-sheets/>.

ITRC, 2021. PFAS Technical and Regulatory Guidance Document, Interstate Technology Regulatory Council, PFAS Team, Washington, D.C. <https://pfas-1.itrcweb.org/>.

Johnson, Glenn W., Robert Ehrlich, William Full, and Scott Ramos. 2007. "Principal Components Analysis and Receptor Models in Environmental Forensics." In *Introduction to Environmental Forensics*, edited by Brian L. Murphy and Robert D. Morrison. New York, New York: Elsevier.

Johnson, Glenn W., I. I. John F. Quensen, Jeffrey R. Chiarenzelli, and M. Coreen Hamilton. 2006. "Chapter 10 – Polychlorinated Biphenyls." In *Environmental Forensics Contaminant Specific Guide*, edited by Robert D. Morrison and Brian L. Murphy, 187-225. Burlington: Academic Press. doi:<https://doi.org/10.1016/B978-012507751-4/50032-X>.

Johnson, Richard A., and Dean W. Wichren. 2015. *Applied Multivariate Statistical Analysis (5th Edition)*. Englewood Cliffs: Prentice Hall.

Kabata-Pendias, Alina. 2010. *Trace elements in soils and plants: Fourth edition*. doi:<https://doi.org/10.1201/b10158>.

Katsoyiannis, Athanasios, and Knut Breivik. 2014. "Model-based evaluation of the use of polycyclic aromatic hydrocarbons molecular diagnostic ratios as a source identification tool." *Environmental Pollution* 184:488-494. doi: <https://doi.org/10.1016/j.envpol.2013.09.028>.

KDHE, 2010. Determining Background Levels for Chemicals of Concern, Kansas Department of Health and Environment, Bureau of Environmental Remediation/Remedial Section, (BER Policy # BER-RS-038 (Revised)). <https://www.kdhe.ks.gov/documentcenter/view/322>.

KEEC, 2004. Kentucky Guidance for Ambient Background Assessment, Kentucky Energy & Environment Cabinet, Natural Resources and Environmental Protection Cabinet. <https://eec.ky.gov/Environmental-Protection/Waste/superfund/Documents/AmbientBackgroundAssessment.pdf>.

Kim, Kyoung-Ho, Seong-Taek Yun, Hyun-Koo Kim, and Ji-Wook Kim. 2015. "Determination of natural backgrounds and thresholds of nitrate in South Korean groundwater using model-based statistical approaches." *Journal of Geochemical Exploration* 148:196-205. doi: <https://doi.org/10.1016/j.gexplo.2014.10.001>.

Larsen, Randolph K., and Joel E. Baker. 2003. "Source Apportionment of Polycyclic Aromatic Hydrocarbons in the Urban Atmosphere: A Comparison of Three Methods." *Environmental Science & Technology* 37 (9):1873-1881. doi: <https://doi.org/10.1021/es0206184>.

Levinson, A.A. 1974. *Introduction to Exploration Geochemistry*. Calgary: Applied Publishing.

Li, An, Jae-Kil Jang, and Peter A. Scheff. 2003. "Application of EPA CMB8.2 Model for Source Apportionment of Sediment PAHs in Lake Calumet, Chicago." *Environmental Science & Technology* 37 (13):2958-2965. doi: <https://doi.org/10.1021/es026309v>.

Li, Shi, Stuart Batterman, Feng-Chiao Su, and Bhramar Mukherjee. 2013. "Addressing extrema and censoring in pollutant and exposure data using mixture of normal distributions." *Atmospheric environment (Oxford, England : 1994)* 77:10.1016/j.atmosenv.2013.05.004. doi: <https://doi.org/10.1016/j.atmosenv.2013.05.004>.

Lima, Ana, John Farrington, and Christopher Reddy. 2005. "Combustion-Derived Polycyclic Aromatic Hydrocarbons in the Environment—A Review." *Environmental Forensics – ENVIRON FORENSICS* 6:109-131. doi: <https://doi.org/10.1080/15275920590952739>.

Loo, Mark van der. 2010. "Distribution based outlier detection in univariate data."

MADEP, 2002. Technical Update: Background Levels of Polycyclic Aromatic Hydrocarbons and Metals in Soil. 310 CMR 40.0006, Massachusetts Department of Environmental Protection, Boston, MA. <https://www.mass.gov/doc/technical-update-background-levels-of-polycyclic-aromatic-hydrocarbons-and-metals-in-soil-0/download>.

Marchant, B. P., S. Newman, R. Corstanje, K. R. Reddy, T. Z. Osborne, and R. M. Lark. 2009. "Spatial monitoring of a non-stationary soil property: phosphorus in a Florida water conservation area." *European Journal of Soil Science* 60 (5):757-769. doi: <https://doi.org/10.1111/j.1365-2389.2009.01158.x>.

Maronna, Ricardo, Douglas Martin, and Victor Yohai. 2006. "Robust Statistics: Theory and Methods." doi: <https://doi.org/10.1002/0470010940>.

Matschullat, Jörg, R. Ottenstein, and Clemens Reimann. 2000. "Geochemical background – Can we calculate it?" *Environmental Geology* 39:990-1000. doi: <https://doi.org/10.1007/s002549900084>.

Matzke, B. D., Wilson J. E., Newburn L. L., Dowson S. T., Hathaway J. E., Segó L. H., Bramer L. M., and Pulsipher B. A., 2014. Visual Sample Plan Version 7.0 User's Guide (PNNL-23211), Pacific Northwest National Laboratory, Richland, Washington. <https://vsp.pnnl.gov/docs/PNNL-23211.pdf>.

Mayes, B. A., E. McConnell, B. Neal, M. Brunner, S. Hamilton, T. Sullivan, A. C. Peters, M. Ryan, J. Toft, A. W. Singer, J. Brown, R. Menton, and J. A. Moore. 1998. "Comparative Carcinogenicity in Sprague-Dawley Rats of the Polychlorinated Biphenyl Mixtures Aroclors 1016, 1242, 1254, and 1260." *Toxicological sciences : an official journal of the Society of Toxicology* 41:62-76. doi: <https://doi.org/10.1006/toxs.1997.2397>.

McKillup, Steve. 2012. *Statistics Explained: An Introductory Guide for Life Scientists*. Cambridge and New York: Cambridge University Press.

McLachlan, Geoffrey J. 2004. *Discriminant Analysis and Statistical Pattern Recognition*: Wiley Interscience.

McLean, J., and B. E. Bledsoe, 1992. Ground Water Issue: Behavior of Metals in Soils, Office of Research and Development, Washington, D.C., (EPA/540/S-92/018). <https://nepis.epa.gov/Exe/ZyNET.exe/10002DSF.TXT?ZyActionD=ZyDocument&Client=EPA&Index=1991+Thru+1994&Docs=&Query=&Time=&EndTime=&SearchMethod=1&TocRestrict=n&Toc=&TocEntry=&QField=&QFieldYear=&QFieldMonth=&QFieldDay=&IntQFieldOp=0&ExtQFieldOp=0&XmlQuery=&File=D%3A%5Czyfiles%5CIndex%20Data%5C91thru94%5Ctxt%5C00000003%5C10002DSF.txt&User=ANONYMOUS&Password=anonymous&SortMethod=h%7C-&MaximumDocuments=1&FuzzyDegree=0&ImageQuality=r75g8/r75g8/x150y150g16/i425&Display=hpfr&DefSeekPage=x&SearchBack=ZyActionL&Back=ZyActionS&BackDesc=Results%20page&MaximumPages=1&ZyEntry=1&SeekPage=x&ZyURL>.

Meijer, S. N., W. A. Ockenden, A. Sweetman, K. Breivik, J. O. Grimalt, and K. C. Jones. 2003. "Global Distribution and Budget of PCBs and HCB in Background Surface Soils: Implications for Sources and Environmental Processes." *Environmental Science & Technology* 37 (4):667-672. doi: <https://doi.org/10.1021/es025809l>.

Menzie, Charles A., Bonnie B. Potocki, and Joseph Santodonato. 1992. "Exposure to carcinogenic PAHs in the environment." *Environmental Science & Technology* 26 (7):1278-1284. doi: <https://doi.org/10.1021/es00031a002>.

Morrison, Jean M., Martin B. Goldhaber, Lopaka Lee, JoAnn M. Holloway, Richard B. Wanty, Ruth E. Wolf, and James F. Ranville. 2009. "A regional-scale study of chromium and nickel in soils of northern California, USA." *Applied Geochemistry* 24 (8):1500-1511. doi: <https://doi.org/10.1016/j.apgeochem.2009.04.027>.

Morrison, R. D., and B. L. Murphy. 2006. *Environmental Forensics: Third Edition*. Burlington, MA: Academic Press.

MPCA, 2016. Background Threshold Value (BTV) Evaluation, Remediation and Environmental Analysis and Outcomes Divisions, Saint Paul, MN. <https://www.pca.state.mn.us/waste/risk-based-site-evaluation-guidance>.

MPCA, 2016. Soil Reference Value (SRV) Technical Support Document, Remediation and Environmental Analysis and Outcomes Divisions, Saint Paul, MN. <https://www.pca.state.mn.us/waste/risk-based-site-evaluation-guidance>.

MTDEQ, 2005. Action Level for Arsenic in Surface Soil, Montana Department of Environmental Quality Remediation Division, Helena, MT.

Myers, Jonathan, and Karen Thorbjornsen. 2004. "Identifying Metals Contamination in Soil: A Geochemical Approach." *Soil and Sediment Contamination: An International Journal* 13 (1):1-16. doi: <https://doi.org/10.1080/10588330490269732>.

Nam, Jae, Andrew Sweetman, and Kevin Jones. 2009. "Polynuclear aromatic hydrocarbons (PAHs) in global background soils." *Journal of environmental monitoring : JEM* 11:45-8. doi: <https://doi.org/10.1039/b813841a>.

NELAC. 2016. Volume 1: Management and Technical Requirements for Laboratories Performing Environmental Analysis The NELAC Institute (TNI). https://www.nelac-institute.org/content/CSDP/standards.php?ap3=1_2.

Noémi, Barabás, Pierre Goovaerts, and Peter Adriaens. 2004. "Modified Polytropic Vector Analysis To Identify and Quantify a Dioxin Dechlorination Signature in Sediments. 2. Application to the Passaic River." *Environmental Science & Technology* 38 (6):1821-1827. doi: <https://doi.org/10.1021/es026229r>.

Nysen, Ruth, Christel Faes, Pietro Ferrari, Philippe Verger, and Marc Aerts. 2015. "Parametric and semi-nonparametric model strategies for the estimation of distributions of chemical contaminant data."

Ohio EPA, 2013. Discrete Soil Sampling, Ohio EPA Division of Environmental Response and Revitalization, Columbus, Ohio. <https://epa.ohio.gov/portals/30/rules/FSOP%202.1.1,%20Discrete%20Soil%20Sampling,%2012-13%20FINAL.pdf>.

Pal, Arundhati, and A. K. Paul. 2008. "Microbial extracellular polymeric substances: Central elements in heavy metal bioremediation." *Indian journal of microbiology* 48:49-64. doi: <https://doi.org/10.1007/s12088-008-0006-5>.

Panno, S.V., W.R. Kelly, A.T. Martinsek, and K.C. Hackley. 2007. Database for estimating background and threshold nitrate concentrations using probability graphs. Illinois Department of Natural Resources Illinois State Geological Survey. Illinois State Geological Survey. <http://hdl.handle.net/2142/50299>.

Panno, Samuel, Walton Kelly, Adam Martinsek, and Keith Hackley. 2006. "Estimating Background and Threshold Nitrate Concentrations Using Probability Graphs." *Ground water* 44:697-709. doi: <https://doi.org/10.1111/j.1745-6584.2006.00240.x>.

Papastergios, Georgios, J. L. Fernandez-Turiel, Anestis Filippidis, and Domingo Gimeno. 2011. "Determination of geochemical background for environmental studies of soils via the use of HNO₃ extraction and Q-Q plots." *Environmental earth sciences* 64:743-751. doi: <https://doi.org/10.1007/s12665-010-0894-7>.

Popovic, M., H. Nie, David Chettle, and F. McNeill. 2007. "Random left censoring: A second look at bone lead concentration measurements." *Physics in medicine and biology* 52:5369-78. doi: <https://doi.org/10.1088/0031-9155/52/17/018>.

Rauert, Cassandra, Mahiba Shoieb, Jasmin K. Schuster, Anita Eng, and Tom Harner. 2018. "Atmospheric concentrations and trends of poly- and perfluoroalkyl substances (PFAS) and volatile methyl siloxanes (VMS) over 7 years of sampling in the Global Atmospheric Passive Sampling (GAPS) network." *Environmental Pollution* 238:94-102. doi: <https://doi.org/10.1016/j.envpol.2018.03.017>.

Reimann, Clemens, Peter Filzmoser, and Robert Garrett. 2005. "Background and threshold: Critical comparison of methods of determination." *The Science of the total environment* 346:1-16. doi: <https://doi.org/10.1016/j.scitotenv.2004.11.023>.

Reimann, Clemens, and Robert G. Garrett. 2005. "Geochemical background—concept and reality." *Science of The Total Environment* 350 (1):12-27. doi: <https://doi.org/10.1016/j.scitotenv.2005.01.047>.

Renez, Andrew N., Robert G. Garrett, Inez M. Kettles, Eric C. Grunsky, and R J McNeil. 2011. "Using soil geochemical data to estimate the range of background element concentrations for ecological and human-health risk assessments." Workshop on the role of geochemical data in environmental and human health risk assessment, Halifax. <https://geoscan.nrcan.gc.ca/starweb/geoscan/servlet.starweb?path=geoscan/fulle.web&search1=R=288746>.

Rousseeuw, Peter J., and Annick M. Leroy. 1987. *Robust Regression and Outlier Detection*. USA: John Wiley & Sons, Inc. doi: <https://doi.org/10.1002/0471725382>.

Rousseeuw, Peter J., and Bert Zomeren. 1990. "Unmasking Multivariate Outliers and Leverage Points." *Journal of The American Statistical Association - J AMER STATIST ASSN* 85:633-639. doi: <https://doi.org/10.1080/01621459.1990.10474920>.

Schmoyer, R. L., J. J. Beauchamp, C. C. Brandt, and F. O. Hoffman. 1996. "Difficulties with the lognormal model in mean estimation and testing." *Environmental and Ecological Statistics* 3 (1):81-97. doi: <https://doi.org/10.1007/BF00577325>.

Shacklette, Hansford T., and Josephine G. Boerngen. 1984. "Element Concentrations in Soils and Other Surficial Materials of the Conterminous United States." U. S. Geological Survey, Professional Paper 1270. https://pubs.usgs.gov/pp/1270/pdf/PP1270_508.pdf.

She, Nian. 1997. "Analyzing Censored Water Quality Data Using a Non-Parametric Approach." *JAWRA Journal of the American Water Resources Association* 33 (3):615-624. doi: <https://doi.org/10.1111/j.1752-1688.1997.tb03536.x>.

Shields, Walter J., Yves Tondeur, Laurie Benton, and Melanie R. Edwards. 2006. "14 - Dioxins and Furans." In *Environmental Forensics*, edited by Robert D. Morrison and Brian L. Murphy, 293-312. Burlington: Academic Press. doi: <https://doi.org/10.1016/B978-012507751-4/50036-7>.

Siemering, Geoffrey S., and Robert Thiboldeaux. 2021. "Background concentration, risk assessment and regulatory threshold development: Polycyclic aromatic hydrocarbons (PAH) in Milwaukee, Wisconsin surface soils." *Environmental Pollution* 268:115772. doi: <https://doi.org/10.1016/j.envpol.2020.115772>.

Sinclair, A. J. 1974. "Selection of threshold values in geochemical data using probability graphs." *Journal of Geochemical Exploration* 3 (2):129-149. doi: [https://doi.org/10.1016/0375-6742\(74\)90030-2](https://doi.org/10.1016/0375-6742(74)90030-2).

Sinclair, A. J. 1983. "Chapter 3 - Univariate Analysis." In *Handbook of Exploration Geochemistry*, edited by R. J. Howarth, 59-81. Elsevier Science B.V. doi: <https://doi.org/10.1016/B978-0-444-42038-1.50009-5>.

Sinclair, A. J. 1991. "A fundamental approach to threshold estimation in exploration geochemistry: probability plots revisited." *Journal of Geochemical Exploration* 41 (1):1-22. doi: [https://doi.org/10.1016/0375-6742\(91\)90071-2](https://doi.org/10.1016/0375-6742(91)90071-2).

Sinclair, A.J. 1976. *Applications of Probability Graphs in Mineral Exploration*: Association of Exploration Geochemists, <https://books.google.com/books?id=Ou0DAQAAIAAJ>.

Singh, A. K., Anita Singh, and Engelhardt Me, 1997. *The Lognormal Distribution in Environmental Applications*, Office of Research and Development, 01/01. <https://nepis.epa.gov/Exe/ZyNET.exe/P10078OC.TXT?ZyActionD=ZyDocument&Client=EPA&Index=1995+Thru+1999&Docs=&Query=&Time=&EndTime=&SearchMethod=1&TocRestrict=n&Toc=&TocEntry=&QField=&QFieldYear=&QFieldMonth=&QFieldDay=&IntQFieldOp=0&ExtQFieldOp=0&XmlQuery=&File=D%3A%5Czyfiles%5CIndex%20Data%5C95thru99%5CTxt%5C00000026%5CP10078OC.txt&User=ANONYMOUS&Password=anonymous&SortMethod=h%7C-&MaximumDocuments=1&FuzzyDegree=0&ImageQuality=r75g8/r75g8/x150y150q16/i425&Display=hpfr&DefSeekPage=x&>

[SearchBack=ZyActionL&Back=ZyActionS&BackDesc=Results%20page&MaximumPages=1&ZyEntry=1&SeekPage=x&ZyPURL](#)

- Singh, A., and J.M. Nocerino. 1995. "Robust Procedures for the Identification of Multiple Outliers." In *The Handbook of Environmental Chemistry*, edited by Einax J., 229-277. Berlin, Heidelberg: Springer.
doi:https://doi.org/10.1007/978-3-540-49148-4_8.
- Singh, Anita. 1996. "Outliers and robust procedures in some chemometric applications." *Chemometrics and Intelligent Laboratory Systems* 33 (2):75-100. doi: [https://doi.org/10.1016/0169-7439\(95\)00087-9](https://doi.org/10.1016/0169-7439(95)00087-9).
- Singh, Anita, A. K. Singh, and Ross Iaci. 2002. "Estimation of the Exposure Point Concentration Term Using a Gamma Distribution."
- Singh, Anita, Ashok K. Singh, and George Flatman. 1994. "Estimation of background levels of contaminants." *Mathematical Geology* 26 (3):361-388. doi: <https://doi.org/10.1007/BF02089229>.
- Singh, Sunita 2016. "Remote sensing applications in soil survey and mapping: A Review " *International Journal of Geomatics and Geosciences* 7 (2):192:203, <http://www.ipublishing.co.in/jggsarticles/volveven/EIJGGS7015.pdf>.
- Sinha, P., M. B. Lambert, and V. L. Trumbull. 2006. "Evaluation of statistical methods for left-censored environmental data with nonuniform detection limits." *Environ Toxicol Chem* 25 (9):2533-40. doi: <https://doi.org/10.1897/05-548r.1>.
- Slonecker, E. Terrence, and Gary B. Fisher. 2014. An evaluation of remote sensing technologies for the detection of fugitive contamination at selected Superfund hazardous waste sites in Pennsylvania. U. S. Geological Survey. Reston, VA. <http://pubs.er.usgs.gov/publication/ofr20141081>.
- Smith, David B., Federico Solano, Laurel G. Woodruff, William F. Cannon, and Karl J. Ellefsen. 2019. Geochemical and mineralogical maps, with interpretation, for soils of the conterminous United States. U. S. Geological Survey. Reston, VA. <http://pubs.er.usgs.gov/publication/sir20175118>.
- Smith, David, William Cannon, Laurel Woodruff, Federico Solano, and K.J Ellefsen. 2014. Geochemical and mineralogical maps for soils of the conterminous United States: U.S. Geological Survey Open-File Report 2014-1082. U.S. Geological Survey. <https://pubs.usgs.gov/of/2014/1082/>.
- Smith, David, William Cannon, Laurel Woodruff, Federico Solano, James Kilburn, and David Fey. 2013. Geochemical and mineralogical data for soils of the conterminous United States: U.S. Geological Survey Data Series 801. U.S. Geological Survey. <https://pubs.usgs.gov/ds/801/>.
- Sposito, Garrison. 2016. *The Chemistry of Soils. Third Edition*: Oxford University Press.
- Stensvold, Krista A. 2012. "Distribution and variation of arsenic in Wisconsin surface soils, with data on other trace elements." *Scientific Investigations Report*, <https://pubs.usgs.gov/sir/2011/5202/>.
- Stout, Scott A, and Allen Uhler. 2003. "Distinguishing "Background" Hydrocarbons from Contamination Using Chemical Fingerprinting." *Environmental Claims Journal* 15:241-259. doi: <https://doi.org/10.1080/713609448>.
- Stout, Scott A., and Stephen D. Emsbo-Mattingly. 2008. "Concentration and character of PAHs and other hydrocarbons in coals of varying rank - Implications for environmental studies of soils and sediments containing particulate coal." *Organic Geochemistry* 39 (7):801-819. doi: <https://doi.org/10.1016/j.orggeochem.2008.04.017>.
- Stout, Scott A., Stephen D. Emsbo-Mattingly, Gregory S. Douglas, Allen D. Uhler, and Kevin J. McCarthy. 2015. "Beyond 16 Priority Pollutant PAHs: A Review of PACs used in Environmental Forensic Chemistry." *Polycyclic Aromatic Compounds* 35 (2-4):285-315. doi: <https://doi.org/10.1080/10406638.2014.891144>.
- Stout, Scott A., and Thomas P. Graan. 2010. "Quantitative Source Apportionment of PAHs in Sediments of Little Menomonee River, Wisconsin: Weathered Creosote versus Urban Background." *Environmental Science & Technology* 44 (8):2932-2939. doi: <https://doi.org/10.1021/es903353z>.
- Stout, Scott A., A. D. Uhler, and S. D. Emsbo-Mattingly. 2004. "Comparative evaluation of background anthropogenic hydrocarbons in surficial sediments from nine urban waterways." *Environ Sci Technol* 38 (11):2987-94. doi: <https://doi.org/10.1021/es040327q>.
- Stout, Scott A., A.D. Uhler, K.J. McCarthy, and S.D Emsbo-Mattingly. 2002. "Chemical Fingerprinting of Hydrocarbons." In *Introduction to Environmental Forensics*, edited by B. Murphy and R. Morrison, 135-260. Boston, MA: Academic Press.
- Stout, Scott A., and Zhendi Wang. 2008. "Diagnostic compounds for fingerprinting petroleum in the environment." In *Environmental Forensics, Issues in Environmental Science and Technology*, 54-104. The Royal Society of Chemistry.
- Stumm, W, and J. J. Morgan. 1996. *Aquatic Chemistry: Chemical Equilibria and Rates in Natural Waters, 3rd Edition*: Wiley-Interscience doi:[https://doi.org/10.1016/s0016-7037\(97\)81133-7](https://doi.org/10.1016/s0016-7037(97)81133-7).
- Taggart, Joseph E., Jr. 2002. *Analytical methods for chemical analysis of geologic and other materials, U.S. Geological Survey [electronic resource] / by Joseph E. Taggart, Jr., editor*. Edited by Survey Geological, U.S. Geological Survey open-file report ;

02-223. Denver, Colo: U.S. Dept. of the Interior, U.S. Geological Survey.

Thorbjornsen, Karen. 2008. "Building a Better Background Data Set: The Importance of Considering Geochemistry." 2008 Joint Meeting of The Geological Society of America, Soil Science Society of America, American Society of Agronomy, Crop Science Society of America, Gulf Coast Association of Geological Societies with the Gulf Coast Section of SEPM, Pittsburgh, PA. <https://gsa.confex.com/gsa/2008AM/webprogram/Paper150295.html>.

Thorbjornsen, Karen, and Jonathan Myers. 2007. "Identification of Metals Contamination in Firing-Range Soil Using Geochemical Correlation Evaluation." *Soil & Sediment Contamination: An International Journal* 16:337-349. doi: <https://doi.org/10.1080/15320380701404391>.

Thorbjornsen, Karen, and Jonathan Myers. 2007. "Identifying Metals Contamination in Groundwater Using Geochemical Correlation Evaluation." *Environmental Forensics* 8:25-35. doi: <https://doi.org/10.1080/15275920601180529>.

Thorleifson, L., Kenneth L. Harris, H. Hobbs, C. Jennings, A. R. Knaeble, R. Lively, B. A. Lusardi, and G. Meyer. 2007. "OFR07-01, Till geochemical and indicator mineral reconnaissance of Minnesota."

Tobiszewski, Marek, and Jacek Namieśnik. 2012. "PAH diagnostic ratios for the identification of pollution emission sources." *Environmental Pollution* 162:110-119. doi: <https://doi.org/10.1016/j.envpol.2011.10.025>.

Townsend, Donald I. 1983. "Change of isomer ratio and fate of polychlorinated-p-dioxins in the environment." *Chemosphere* 12 (4):637-643. doi: [https://doi.org/10.1016/0045-6535\(83\)90221-7](https://doi.org/10.1016/0045-6535(83)90221-7).

Tukey, John W. 1977. *Exploratory Data Analysis*. Reading, PA: Addison-Wesley Publishing Company.

Uhler, A. D., and S. Emsbo-Mattingly. 2006. "Environmental Stability of PAH Source Indices in Pyrogenic Tars." *Bulletin of environmental contamination and toxicology* 76:689-96. doi: <https://doi.org/10.1007/s00128-006-0975-1>.

USDON. 2002. Guidance For Environmental Background Analysis, Volume I: Soil. In *NFESC User's Guide UG-2049-ENV*, edited by U.S. Department of the Navy (US DON), Naval Facilities Engineering Command. Prepared by Battelle Memorial Institute, Earth Tech, Inc., and NewFields, Inc., Washington D.C.

USDON. 2003. Guidance for Environmental Background Analysis. Vol II: Sediment. In *NFESC User's Guide UG-2054-ENV*, edited by U.S. Department of the Navy (USDON), Naval Facilities Engineering Command. Prepared by Battelle Memorial Institute, Earth Tech, Inc., and NewFields, Inc., Washington D.C.

file:///C:/Users/jrocc/AppData/Local/Temp/MicrosoftEdgeDownloads/dd20f213-ddb9-4be4-ba3c-83278554e076/navfacesc-ev-ug-2054-env-bkgrd-seds-200304.pdf.

USEPA, 1979. EPA's Final PCB Ban Rule: Over 100 Questions & Answers To Help You Meet These Requirements, U.S. Environmental Protection Agency, Office of Toxic Substances, Washington,

D.C. <https://nepis.epa.gov/Exe/ZyNET.exe/910154VW.TXT?ZyActionD=ZyDocument&Client=EPA&Index=1976+Thru+1980&Docs=&Query=&Time=&EndTime=&SearchMethod=1&TocRestrict=n&Toc=&TocEntry=&QField=&QFieldYear=&QFieldMonth=&QFieldDay=&IntQFieldOp=0&ExtQFieldOp=0&XmlQuery=&File=D%3A%5Czyfiles%5CIndex%20Data%5C76thru80%5Ctxt%5C00000023%5C910154VW.txt&User=ANONYMOUS&Password=anonymous&SortMethod=h%7C-&MaximumDocuments=1&FuzzyDegree=0&ImageQuality=r75g8/r75g8/x150y150g16/i425&Display=hpfr&DefSeekPage=x&SearchBack=ZyActionL&Back=ZyActionS&BackDesc=Results%20page&MaximumPages=1&ZyEntry=1&SeekPage=x&ZyURL>.

USEPA, 1989. Risk Assessment Guidance for Superfund Volume I Human Health Evaluation Manual (Part A), U.S. Environmental Protection Agency, Office of Emergency and Remedial Response, Washington, D.C., (EPA/540/1-89/002). https://www.epa.gov/sites/production/files/2015-09/documents/rags_a.pdf.

USEPA, 1992. Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA - Interim Final, U.S. Environmental Protection Agency, Office of Emergency and Remedial Response, Washington, D.C., (PE89-184626; EPA/540/G-89/004; OSWER Directive 9355.3-01), October. <https://semspub.epa.gov/work/HQ/100001529.pdf>.

USEPA, 1992. Guidance for Data Useability in Risk Assessment (Part A) Final, U.S. Environmental Protection Agency, Office of Emergency and Remedial Response, Washington, D.C., (Publication: 9285.7-09A, PB92 - 963356), April. <https://semspub.epa.gov/work/05/424356.pdf>.

USEPA, 1992. Guidance for Performing Site Inspections under CERCLA. Interim Final. Chapter 4, U.S. Environmental Protection Agency, Office of Emergency and Remedial Response, Washington, D.C., (EPA/540-R-92-021. Directive 9345.1-05). <https://nepis.epa.gov/Exe/ZyNET.exe/2000IRVN.TXT?ZyActionD=ZyDocument&Client=EPA&Index=1991+Thru+1994&Docs=&Query=&Time=&EndTime=&SearchMethod=1&TocRestrict=n&Toc=&TocEntry=&QField=&QFieldYear=&QFieldMonth=&QFieldDay=&IntQFieldOp=0&ExtQFieldOp=0&XmlQuery=&File=D%3A%5Czyfiles%5CIndex%20Data%5C91thru94%5Ctxt%5C00000014%5C2000IRVN.txt&User=ANONYMOUS&Password=anonymous&SortMethod=h%7C-&MaximumDocuments=1&FuzzyDegree=0&ImageQuality=r75g8/r75g8/x150y150g16/i425&Display=hpfr&DefSeekPage=x&SearchBack=ZyActionL&Back=ZyActionS&BackDesc=Results%20page&MaximumPages=1&ZyEntry=1&SeekPage=x&ZyURL>

RL.

USEPA, 1992. Hazard Ranking System Guidance Manual, Interim Final. Chapter 5, U.S. Environmental Protection Agency, Office of Solid Waste and Emergency Response, Washington, D.C., (EPA 540-R-92-026, PB92-963377, Publication 9345.1-07). <https://semspub.epa.gov/work/HQ/100002484.pdf>.

USEPA, 1994. Selecting and Using Reference Information in Superfund Ecological Risk Assessments, U.S. Environmental Protection Agency, Office of Solid Waste and Emergency Response, Washington, D.C., (EPA/540/F-94/050; PB94-963319). <https://www.epa.gov/sites/production/files/2015-09/documents/v2no4.pdf>.

USEPA, 1995. Determination of Background Concentrations of Inorganics in Soils and Sediments at Hazardous Waste Sites. Engineering Forum Issue, U.S. Environmental Protection Agency, Office of Research and Development, Washington, D.C., (EPA/540/S-96/500). https://www.epa.gov/sites/production/files/2015-06/documents/determine_background_concentrations.pdf.

USEPA, 1995. Establishing Background Levels, OSWER Office of Emergency and Remedial Response Quick Reference Fact Sheet, U.S. Environmental Protection Agency, Office of Emergency and Remedial Response, Washington, D.C., (EPA/540/F-94/031, PB94-963314, Directive 9285.7-20FS). <https://semspub.epa.gov/work/11/174014.pdf>.

USEPA, 1996. Soil Screening Guidance: User's Guide, Second Edition, U.S. Environmental Protection Agency, Office of Emergency and Remedial Response, Washington, D.C., (EPA/540/R-96/018). <https://semspub.epa.gov/work/HQ/175238.pdf>.

USEPA, 1997. Ecological Risk Assessment Guidance for Superfund: Process for Designing and Conducting Ecological Risk Assessment. Interim Final, Office of Solid Waste and Emergency Response, Washington, D.C., (EPA 540-R-97-006, OSWER 9285.7-25, PB97-963211). <https://semspub.epa.gov/work/HQ/157941.pdf>.

USEPA, 1998. Guidelines for Ecological Risk Assessment. U.S. Environmental Protection Agency, Office of Solid Waste and Emergency Response, Washington, D.C., (EPA/630/R-95/002F). https://www.epa.gov/sites/production/files/2014-11/documents/eco_risk_assessment1998.pdf.

USEPA, 2000. Data Quality Objectives Process for Hazardous Waste Site Investigations EPA QA/G-4HW - Final, U.S. Environmental Protection Agency, Office of Environmental Information, Washington, D.C., (EPA/600/R-00/007), January. <https://www.epa.gov/sites/default/files/2015-07/documents/g4hw-final.pdf>.

USEPA, 2001. Eco Update - The Role of Screening-Level Risk Assessments and Refining Contaminants of Concern in Baseline Ecological Risk Assessments., U.S. Environmental Protection Agency, Office of Research and Development, Washington, D.C., (Publication 9345.0-14. EPA 540/F-01/014). <https://clu-in.org/download/contaminantfocus/sediments/eco-update-slera0601.pdf>.

USEPA, 2001. Risk Assessment Guidance for Superfund Volume I Human Health Evaluation Manual (Part D, Standardized Planning, Reporting, and Review of Superfund Risk Assessments), U.S. Environmental Protection Agency, Office of Research and Development, Washington, D.C. <https://www.epa.gov/sites/production/files/2018-03/documents/175137.pdf>.

USEPA, 2002. Guidance for Choosing a Sampling Design for Environmental Data Collection: Use in the Development of a Quality Assurance Project Plan (EPA QA/G-5S), U.S. Environmental Protection Agency, Office of Environmental Information, Washington, D.C., (EPA/240/R-02/005). <https://www.epa.gov/sites/production/files/2015-06/documents/g5s-final.pdf>.

USEPA, 2002. Guidance for Comparing Background and Chemical Concentrations in Soil for CERCLA Sites, U.S. Environmental Protection Agency, Office of Emergency and Remedial Response, Washington, D.C., (EPA 540-R-01-003; OSWER 9285.7-41). <https://www.epa.gov/sites/production/files/2015-11/documents/background.pdf>.

USEPA, 2002. Guidance for Quality Assurance Project Plans, U.S. Environmental Protection Agency, Office of Environmental Information, Washington, D.C., (EPA/240/R-02/009). <https://www.epa.gov/sites/production/files/2015-06/documents/g5-final.pdf>.

USEPA, 2002. Role of Background in the CERCLA Cleanup Program, U.S. Environmental Protection Agency, Office of Solid Waste and Emergency Response; Office of Emergency and Remedial Response, Washington, D.C., (OSWER 9285.6-07P). https://www.epa.gov/sites/production/files/2015-11/documents/bkgpol_jan01.pdf.

USEPA, 2003. Exposure and Human Health Reassessment Of 2,3,7,8-Tetrachlorodibenzo-P-Dioxin TCDD and related compounds, U.S. Environmental Protection Agency, Office of Research and Development, Washington, D.C., (EPA/600/P-00/001). <https://cfpub.epa.gov/ncea/risk/recordisplay.cfm?deid=87843>.

USEPA, 2006. Data Quality Assessment: Statistical Methods for Practitioners, U.S. Environmental Protection Agency, Office of Environmental Information, Washington, DC, (EPA/240/B-06/003). <https://nepis.epa.gov/Exe/ZyPDF.cgi/900B0D00.PDF?Dockey=900B0D00.PDF>.

USEPA, 2006. Guidance on Systematic Planning Using the Data Quality Objective Process, U.S. Environmental Protection Agency, Office of Environmental Information, Washington, D.C.,

(EPA/240/B-06/001). <https://www.epa.gov/quality/guidance-systematic-planning-using-data-quality-objectives-process-epa-qa-g-4>

USEPA, 2006. IDL- MDL- PQL; What the "L" is going on?; What does all this alphabet soup really mean?, U.S. Environmental Protection Agency, Region III Quality Assurance, Washington, D.C., (MDL Factsheet - Revision No.:2.5). <https://cfpub.epa.gov/ncea/risk/recordisplay.cfm?deid=159286>.

USEPA, 2006. An Inventory of Sources and Environmental Releases of Dioxin-Like Compounds in the United States for the Years 1987, 1995 and 2000, U.S. Environmental Protection Agency, Office of Research and Development, Washington, DC, (EPA/600/P-03/002F). <https://cfpub.epa.gov/ncea/risk/recordisplay.cfm?deid=159286>.

USEPA, 2007. Estimation of relative bioavailability of lead in soil and soil-like materials using in vivo and in vitro methods, U.S. Environmental Protection Agency, Office of Solid Waste and Emergency Response, Washington, D.C., (OSWER 9285.7-77). <https://nepis.epa.gov/Exe/ZyPURL.cgi?Dockey=93001C2U.TXT>.

USEPA, 2007. Pilot Survey of Levels of Polychlorinated Dibenzop-dioxins, Polychlorinated Dibenzofurans, Polychlorinated Biphenyls, and Mercury in Rura ISoils of the United States, U.S. Environmental Protection Agency, Office of Research and Development, Washington, D.C., (EPA/600/R-05/048F). https://cfpub.epa.gov/si/si_public_record_Report.cfm?Lab=NCEA&dirEntryId=150944&CFID=27805128&CFTOKEN=30961662.

USEPA, 2007. Report of the Federal Advisory Committee on Detection and Quantitation Approaches and Uses in Clean Water Act Programs, U.S. Environmental Protection Agency, Federal Advisory Committee on Detection and Quantitation Approaches and Uses in Clean Water Act Programs, Washington, D.C., (MDL Factsheet - Revision No.:2.5). https://www.epa.gov/sites/production/files/2015-10/documents/detection-quant-faca_final-report_2012.pdf.

USEPA, 2009. Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities: Unified Guidance, U.S. Environmental Protection Agency, Office of Resource Conservation and Recovery, Washington, DC, (EPA/530/R-09/007). <https://nepis.epa.gov/Exe/ZyPURL.cgi?Dockey=P10055GQ.TXT>.

USEPA, 2011. Environmental Cleanup Best Management Practices: Effective Use of the Project Life Cycle Conceptual Site Model, U.S. Environmental Protection Agency, Office of Solid Waste and Emergency Response, Washington, D.C., (EPA 542-F-11-011). <https://www.epa.gov/sites/production/files/2015-04/documents/csm-life-cycle-fact-sheet-final.pdf>.

USEPA, 2012. Recommendations for Default Value for Relative Bioavailability of Arsenic in Soil, U.S. Environmental Protection Agency, Office of Solid Waste and Emergency Response, Washington, D.C., (OSWER 9200.1-113). <https://www.epa.gov/superfund/soil-bioavailability-superfund-sites-guidance#arsenic>.

USEPA, 2012. Standard Operating Procedures Soil Sampling, U.S. Environmental Protection Agency, U.S. EPA Environmental Response Team, Washington, D.C. <https://nepis.epa.gov/Exe/ZyNET.exe/P100C9V4.TXT?ZyActionD=ZyDocument&Client=EPA&Index=2000+Thru+2005&Docs=&Query=&Time=&EndTime=&SearchMethod=1&TocRestrict=n&Toc=&TocEntry=&QField=&QFieldYear=&QFieldMonth=&QFieldDay=&IntQFieldOp=0&ExtQFieldOp=0&XmlQuery=&File=D%3A%5Czyfiles%5CIndex%20Data%5C00thru05%5Ctxt%5C00000028%5CP100C9V4.txt&User=ANONYMOUS&Password=anonymous&SortMethod=h%7C-&MaximumDocuments=1&FuzzyDegree=0&ImageQuality=r75g8/r75g8/x150y150g16/i425&Display=hpfr&DefSeekPage=x&SearchBack=ZyActionL&Back=ZyActionS&BackDesc=Results%20page&MaximumPages=1&ZyEntry=1&SeekPage=x&ZyURL>.

USEPA, 2013. ProUCL Version 5.0 Technical Guide, Statistical Software for Environmental Applications for Data Sets with and without Nondetect Observations, U.S. Environmental Protection Agency, Office of Research and Development, Washington, DC, (EPA/600/R-07/041). https://www.epa.gov/sites/production/files/2015-03/documents/proucl_v5.0_tech.pdf.

USEPA, 2014. Soil Sampling, U.S. Environmental Protection Agency, Region 4 Science and Ecosystem Support Division, Washington, D.C., (SESDPROC-300-R3). <https://www.epa.gov/sites/production/files/2015-06/documents/Soil-Sampling.pdf>.

USEPA. 2015. "EPA Contract Laboratory Program Statement of Work for inorganic Superfund Methods Multi-Media, Multi-Concentration SOM02.3." accessed 5/1/2021. https://19january2017snapshot.epa.gov/clp/epa-contract-laboratory-program-statement-work-inorganic-superfund-methods-multi-media-multi-0_.html.

USEPA, 2015. ProUCL Version 5.1 Technical Guide, Statistical Software for Environmental Applications for Data Sets with and without Nondetect Observations, U.S. Environmental Protection Agency, Office of Research and Development, Washington, DC, (EPA/600/R-07/041). https://19january2017snapshot.epa.gov/sites/production/files/2016-05/documents/proucl_5.1_tech-guide.pdf.

USEPA, 2015. ProUCL Version 5.1 User Guide, Statistical Software for Environmental Applications for Data Sets with and

without Nondetect Observations, U.S. Environmental Protection Agency, Office of Research and Development, Washington, DC, (EPA/600/R-07/041). https://www.epa.gov/sites/production/files/2016-05/documents/proucl_5.1_user-guide.pdf.

USEPA, 2016. Definition and Procedure for the Determination of the Method Detection Limit, Revision 2, U.S. Environmental Protection Agency, Office of Water, Washington, D.C., (EPA 821-R-16-006). https://www.epa.gov/sites/production/files/2016-12/documents/mdl-procedure_rev2_12-13-2016.pdf.

USEPA, 2016. National Functional Guidelines for High Resolution Superfund Methods Data Review, U.S. Environmental Protection Agency, Office of Water, Washington, D.C., (OEM 9200.3-115; EPA 542-B-16-001). https://www.epa.gov/sites/production/files/2016-05/documents/hrsm_nfg.pdf.

USEPA, 2017. National Functional Guidelines for Inorganic Superfund Methods Data Review, U.S. Environmental Protection Agency, Office of Superfund Remediation and Technology Innovation (OSRTI), Washington, D.C., (OLEM 9355.0-135; EPA-540-R-2017-001). https://www.epa.gov/sites/production/files/2017-01/documents/national_functional_guidelines_for_inorganic_superfund_methods_data_review_01302017.pdf.

USEPA, 2017. National Functional Guidelines for Organic Superfund Methods Data Review, U.S. Environmental Protection Agency, Office of Superfund Remediation and Technology Innovation (OSRTI), Washington, D.C., (OLEM 9355.0-136; EPA-540-R-2017-002). https://www.epa.gov/sites/production/files/2017-01/documents/national_functional_guidelines_for_organic_superfund_methods_data_review_013072017.pdf.

USEPA, 2018. Frequently Asked Questions About the Development and Use of Background Concentrations at Superfund Sites: Part One, General Concepts, Office of Superfund Remediation and Technology Innovation, Washington, D.C., (OLEM Directive 9200.2- 141 A). <https://semspub.epa.gov/work/HQ/100001657.pdf>.

USEPA. 2020. "The SW-846 Compendium." U.S. Environmental Protection Agency, accessed October 11, 2020. <https://www.epa.gov/hw-sw846/sw-846-compendium>.

USEPA. 2021. "Documents for Recommended Toxicity Equivalency Factors for Human Health Risk Assessments of Dioxin and Dioxin-Like Compounds." U.S. Environmental Protection Agency, accessed December 28, 2020. <https://www.epa.gov/risk/documents-recommended-toxicity-equivalency-factors-human-health-risk-assessments-dioxin-and#:~:text=EPA%20recommends%20the%20use%20of,cancer%20and%20non%2Dcancer%20effects>.

van Buuren, Beverly H. 2017. "Introduction to Reporting Limits." Moss Landing, CA: Marine Pollution Studies Laboratory at the Moss Landing Marine Laboratories. Presentation. https://acwi.gov/monitoring/webinars/mpsl_qa_services_intro_rls_012517.pdf.

Van den Berg, M., L. S. Birnbaum, M. Denison, M. De Vito, W. Farland, M. Feeley, H. Fiedler, H. Hakansson, A. Hanberg, L. Haws, M. Rose, S. Safe, D. Schrenk, C. Tohyama, A. Tritscher, J. Tuomisto, M. Tysklind, N. Walker, and R. E. Peterson. 2006. "The 2005 World Health Organization reevaluation of human and Mammalian toxic equivalency factors for dioxins and dioxin-like compounds." *Toxicol Sci* 93 (2):223-41. doi: <https://doi.org/10.1093/toxsci/kfl055>.

VSP Development Team, 2020. Visual Sample Plan: A Tool for Design and Analysis of Environmental Sampling; Version 7.13, Pacific Northwest National Laboratory. <https://www.pnnl.gov/projects/visual-sample-plan>.

Wang, Zhen, Jingwen Chen, Fulin Tian, Ping Yang, Xianliang Qiao, and Ziwei Yao. 2010. "Application of Factor Analysis with Nonnegative Constraints for Source Apportionment of Soil Polycyclic Aromatic Hydrocarbons (PAHs) in Liaoning, China." *Environmental Forensics* 11 (1-2):161-167. doi: <https://doi.org/10.1080/15275920903558968>.

Wang, Zhendi, C. Yang, F. Kelly-Hooper, B. P. Hollebone, X. Peng, C. E. Brown, M. Landriault, J. Sun, and Z. Yang. 2009. "Forensic differentiation of biogenic organic compounds from petroleum hydrocarbons in biogenic and petrogenic compounds cross-contaminated soils and sediments." *Journal of Chromatography A* 1216 (7):1174-1191. doi: <https://doi.org/10.1016/j.chroma.2008.12.036>.

Wang, Zhendi, C. Yang, Z. Yang, B. Hollebone, C. E. Brown, M. Landriault, J. Sun, S. M. Mudge, F. Kelly-Hooper, and D. G. Dixon. 2012. "Fingerprinting of petroleum hydrocarbons (PHC) and other biogenic organic compounds (BOC) in oil-contaminated and background soil samples." *Journal of Environmental Monitoring* 14 (9):2367-2381. doi: <https://doi.org/10.1039/C2EM30339F>.

Wei, Lifei, Yangxi Zhang, Ziran Yuan, Zhengxiang Wang, Feng Yin, and Liqin Cao. 2020. "Development of Visible/Near-Infrared Hyperspectral Imaging for the Prediction of Total Arsenic Concentration in Soil." *Applied Sciences* 10:2941. doi: <https://doi.org/10.3390/app10082941>.

Whitney, Philip R. 1975. "Relationship of manganese-iron oxides and associated heavy metals to grain size in stream sediments." *Journal of Geochemical Exploration* 4 (2):251-263. doi: [https://doi.org/10.1016/0375-6742\(75\)90005-9](https://doi.org/10.1016/0375-6742(75)90005-9).

Winegardner, Duane. 2019. *An Introduction to Soils for Environmental Professionals*.

doi:<https://doi.org/10.1201/9781315137322>.

Wischkaemper, H.K., A.F. Beliveau, and R.W R.W. Henderson, 2013. U.S. EPA Region 4 technical services section issue paper for polychlorinated biphenyl characterization at Region 4 Superfund sites, U.S. Environmental Protection Agency, U.S. EPA Region 4/Technical Services Section, Athens, GA, (EPA 600/R-11/005A).

https://www.epa.gov/sites/default/files/2015-09/documents/r4_issue_paper_for_pcbs_5-15-2013.pdf

Wolfe, Douglas A. 2010. "Ranked set sampling." *WIREs Computational Statistics* 2 (4):460-466.

doi: <https://doi.org/10.1002/wics.92>.

Xue, Wen, Sae Yun Kwon, Stephan E. Grasby, Elsie M. Sunderland, Xin Pan, Ruiyang Sun, Ting Zhou, Haiyu Yan, and Runsheng Yin. 2019. "Anthropogenic influences on mercury in Chinese soil and sediment revealed by relationships with total organic carbon." *Environmental Pollution* 255:113186. doi: <https://doi.org/10.1016/j.envpol.2019.113186>.

Zoffoli, Hugo José Oliveira, Carlos Alberto Alves Varella, Nelson Moura Brasil do Amaral-Sobrinho, Everaldo Zonta, and Alfredo Tolón-Becerra. 2013. "Method of median semi-variance for the analysis of left-censored data: Comparison with other techniques using environmental data." *Chemosphere* 93 (9):1701-1709.

doi: <https://doi.org/10.1016/j.chemosphere.2013.05.041>.

Zou, Yonghong, Lixia Wang, and Erik R. Christensen. 2015. "Problems in the fingerprints based polycyclic aromatic hydrocarbons source apportionment analysis and a practical solution." *Environmental Pollution* 205:394-402.

doi: <https://doi.org/10.1016/j.envpol.2015.05.029>.

Zuo, Q., Y. H. Duan, Y. Yang, X. J. Wang, and S. Tao. 2007. "Source apportionment of polycyclic aromatic hydrocarbons in surface soil in Tianjin, China." *Environmental Pollution* 147 (2):303-310. doi: <https://doi.org/10.1016/j.envpol.2006.05.029>.

Dunn, W.J., D.L. Stalling, and S. Wold. 1984. "The use of Simca Pattern Recognition in the Analysis of Complex Chromatographic Data." In *QSAR in Environmental Toxicology*, edited by Kaiser K.L.E.: Springer, Dordrecht.

doi:https://doi.org/10.1007/978-94-009-6415-0_6.