

**567—135.16(455B) Laboratory analytical methods for petroleum contamination of soil and water.**

**135.16(1) General.** When analyzing for petroleum or hazardous substances, owners and operators of UST systems must use a laboratory certified under 567—Chapter 83. In addition they must ensure that all samples are properly preserved and shipped within 72 hours of collection to a laboratory certified under 567—Chapter 83. This rule provides acceptable analytical procedures for petroleum substances and required information that must be provided in all laboratory reports.

**135.16(2) Laboratory report.** All laboratory reports must contain the following information:

*a.* Laboratory name, address, telephone number and Iowa laboratory certification number. If analytical work is subcontracted to another laboratory, the analytical report from the certified lab which analyzed the sample must be submitted and include the information required in this subrule.

*b.* Medium sampled (soil, water).

*c.* Client submitting sample (name, address, telephone number).

*d.* Sample collector (name, telephone number).

*e.* UST site address.

*f.* Client's sample location identifier.

*g.* Date sample was collected.

*h.* Date sample was received at laboratory.

*i.* Date sample was analyzed.

*j.* Results of analyses and units of measure.

*k.* Detection limits.

*l.* Methods used in sample analyses (preparation method, sample detection method, and quantitative method).

*m.* Laboratory sample number.

*n.* Analyst name.

*o.* Signature of analyst's supervisor.

*p.* Condition in which the sample was received at the laboratory and whether it was properly sealed and preserved.

*q.* Note that analytical results are questionable if a sample exceeded an established holding time or was improperly preserved. (The recommended holding time for properly cooled and sealed petroleum contaminated samples is 14 days, except for water samples containing volatile organic compounds which have a 7-day holding time unless acid-preserved.)

*r.* Laboratory reports required by this chapter for tank closure investigations under 567—135.15(455B) and site checks under 135.6(3) or Tier 1 or Tier 2 assessments under 567—135.9(455B) to 567—135.11(455B) must include a copy of the chromatograms and associated quantitation reports for the waste oil, diesel and gasoline standard used by the laboratory in analyzing submitted samples. The laboratory analytical report for each sample must state whether the sample tested matches the laboratory standard for waste oil, diesel or gasoline or that the sample cannot be reliably matched with any of these standards. A copy of the chromatograms and associated quantitation reports for only the soil and groundwater samples with the maximum concentrations of BTEX and TEH must be included.

**135.16(3) Analysis of soil and water for high volatile petroleum compounds (i.e., gasoline, benzene, ethylbenzene, toluene, xylene).** Sample preparation and analysis shall be by Method OA-1, "Method for Determination of Volatile Petroleum Hydrocarbons (gasoline)," revision 12/01/2019, state hygienic laboratory at the University of Iowa, or EPA Method 8260D, "Test Methods for Evaluating Solid Waste," 3rd Edition—Update 6, July 2018. Copies of Method OA-1 are available from the department.

**135.16(4) Analysis of soil and water for low volatile petroleum hydrocarbon contamination (i.e., all grades of diesel fuel, fuel oil, kerosene, oil, and mineral spirits).** Sample preparation and analysis shall be by Method OA-2, "Determination of Extractable Petroleum Products (and Related Low Volatility Organic Compounds)," revision 12/01/2019, state hygienic laboratory at the University of Iowa. Copies of Method OA-2 are available from the department.

**135.16(5) Analysis of soil gas for volatile petroleum hydrocarbons.** Analysis of soil gas for volatile petroleum hydrocarbons shall be conducted in accordance with the National Institute for Occupational

Safety and Health (NIOSH) Method 1501, Issue 3, March 15, 2003, or a department-approved equivalent method.

**135.16(6)** *Analytical methods for methyl tertiary-butyl ether (MTBE)*. Analysis of water for MTBE must be conducted by a laboratory certified under 567—Chapter 83 for petroleum analyses.

*a.* Sample preparation and analysis shall be by U.S. Environmental Protection Agency Method 8260D, “Test Methods for Evaluating Solid Waste,” 3rd Edition—Update 6, July 2018.

*b.* Laboratories performing the analyses must run standards for MTBE on a routine basis, and standards for other possible compounds like ethyl tertiary-butyl ether (ETBE), tertiary-amyl methyl ether (TAME), di-isopropyl ether (DIPE), and tertiary-butyl alcohol (TBA) to be certain of their identification should they be detected.

*c.* Laboratories must run a method detection limit study and an initial demonstration of capability for MTBE. These records must be kept on file.

*d.* The minimum detection level for MTBE in water is 15 ug/L.

[ARC 5625C, IAB 5/19/21, effective 6/23/21]