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Standard Guide for Managing Liquid and Debris from Petroleum Underground Storage Tank Containment Sumps¹

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1. Scope

1.1 This guide covers the management of *liquid* and *debris* removed from petroleum underground storage tank *containment sumps*.

1.1.1 This guide does not address and may not be applicable to water bottoms removed from a petroleum underground storage tank.

1.1.2 The liquid waste-stream specific to petroleum underground storage tank *sumps* is presumed to not contain heavy metals or halogens under normal conditions. The handling of wastes that contain heavy metals or halogens are not contemplated by this guide.

1.2 *Units*—The values stated in SI units are to be regarded as standard. The values given in parentheses after SI units are provided for information only and are not considered standard.

1.3 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety, health, and environmental practices and determine the applicability of regulatory limitations prior to use.*

1.4 *This international standard was developed in accordance with internationally recognized principles on standardization established in the Decision on Principles for the Development of International Standards, Guides and Recommendations issued by the World Trade Organization Technical Barriers to Trade (TBT) Committee.*

2. Referenced Documents

2.1 ASTM Standards:²

D5854 Practice for Mixing and Handling of Liquid Samples of Petroleum and Petroleum Products

E1990 Guide for Performing Evaluations of Underground Storage Tank Systems for Operational Conformance with

40 CFR, Part 280 Regulations

E2681 Guide for Environmental Management of Underground Storage Tank Systems Storing Regulated Substances

E3197 Terminology Relating to Examination of Fire Debris

2.2 *United States of America Environmental Protection Agency (EPA)*³

40 CFR 258.2 Definitions

40 CFR part 261 Identification and listing of hazardous waste

40 CFR §261.20 General

40 CFR §261.21 Ignitability characteristics

40 CFR §261.22 Characteristic of corrosivity

40 CFR §261.23 Characteristic of reactivity.

40 CFR §261.24 Toxicity characteristics

40 CFR §261.31 Hazardous wastes from non-specific sources.

40 CFR §261.33(e) Discarded commercial chemical products, off-specification species, container residues, and spill residues thereof.

40 CFR part 262 Standards Applicable to Generators of Hazardous Waste

40 CFR part 268 Land Disposal Restrictions

40 CFR part 282 Approved Underground Storage Tank ProgramS

Method 1311 Toxicity Characteristic Leaching Procedure

2.3 *United States Department of Transportation (DOT)*⁴

40 CFR §280.35 Periodic testing of spill prevention equipment and containment sumps used for interstitial monitoring of piping and periodic inspection of overfill prevention equipment.

40 CFR §280.36 Periodic operation and maintenance walk-through inspections

49 CFR part 172 Hazardous Materials Table, Special Provisions, Hazardous Materials communications, Emergency Response Information, Training Requirements, and Security Plans

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² For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at www.astm.org/contact. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

³ Available from United States Environmental Protection Agency (EPA), William Jefferson Clinton Bldg., 1200 Pennsylvania Ave., NW, Washington, DC 20460, <http://www.epa.gov>.

⁴ Available from United States Department of Transportation (DOT), 1200 New Jersey Ave., SW, Washington DC, 2059, <http://www.transportation.gov>.

2.4 *United States Department of Labor*⁵
 29 CFR 1910.1200 Hazard communication

2.5 *United States Code*:⁶
 42 U.S. Code § 6921 Identification and listing of hazardous waste
 42 U.S. Code § 6901 Congressional findings
 42 U.S. Code § 6903 Definitions

3. Terminology

3.1 Definitions:

3.1.1 *acute hazardous waste, n*—a waste listed in 40 CFR §261.31 or §261.33(e).

3.1.2 *characteristic hazard, n*—a solid waste that exhibits any characteristic identified in 40 CFR §§261.21 – 261.24.

3.1.2.1 *Discussion*—Characteristics of *hazardous waste* include ignitability (40 CFR §261.21), corrosivity (40 CFR §261.22), reactivity (40 CFR §261.23) and toxicity (40 CFR §261.24).

3.1.3 *containment sump, n*—a subsurface pit or hollow surrounding below ground tank system components designed to be liquid tight.

3.1.3.1 *Discussion*—includes components commonly known as *spill containment equipment*, transition *sumps*, submersible turbine pump (STP) *sumps*, under dispenser containment (UDC) *sumps* and piping *sumps*.

3.1.4 *debris, n*—settled or suspended matter such as sand, gravel, trash or other unwanted solid matter in a *containment sump* including *liquid* solutions and mixtures.

3.1.5 *disposal, v*—the discharge, deposit, injection, dumping, spilling, leaking, or placing of any hazardous substances, or petroleum products or their derivatives into or on any land or water so that such hazardous substances, petroleum products or their derivatives, or any constituent thereof may enter the environment or be emitted into the air or discharged into any waters including ground water.

3.1.6 *evaporation, v*—the process by which water becomes a vapor.

3.1.7 *flammable, adj*—capable of being easily ignited and of burning quickly.

3.1.8 *flammable liquid, n*—a liquid having a flash point below 38 °C (100 °F)

3.1.9 *generator, n*—means any person, by site, whose act or process produces *hazardous waste* identified or listed in 40 CFR part 261 or whose act first causes a *hazardous waste* to become subject to regulation.

3.1.10 *hazardous waste, n*—any solid waste having the characteristics identified under or listed pursuant to section 3001 of RCRA, as amended, (42 U.S.C. § 6921) (but not including any waste the regulation of which under RCRA (42 U.S.C. §§ 6901-6992k) has been suspended by Act of Congress).

3.1.10.1 *Discussion*—RCRA is sometimes also identified as the Solid Waste Disposal Act. RCRA defines a *hazardous waste*, at 42 U.S.C. § 6903, as: “a solid waste, or combination of solid wastes, which because of its quantity, concentration, or physical, chemical, or infectious characteristics may: (A) cause, or significantly contribute to an increase in mortality or an increase in serious irreversible, or incapacitating reversible, illness, or (B) pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported, or disposed of, or otherwise managed.”

3.1.10.2 *Discussion*—42 U.S.C. § 6921 (a) directs the Administrator of the USEPA to promulgate criteria for identifying the characteristics of *hazardous waste*. The criteria are found in 40 CFR §261.21-40. Characteristics include ignitability, corrosivity, reactivity and toxicity.

3.1.11 *liquid, n*—a state of matter characterized by the material flowing freely, with a definite volume but indefinite shape which is determined by its container, and which is difficult to compress.

3.1.11.1 *Discussion*—*liquid* does not include powders or other materials that are composed entirely of solid particles.

3.1.12 *LNAPL, n*—Light Non Aqueous Phase *Liquid*, is less dense than water and its concentration exceeds its solubility in water.

3.1.12.1 *Discussion*—*LNAPL* is also referred to as free product.

3.1.13 *NPDES, n*—National Pollutant Discharge Elimination System

3.1.13.1 *Discussion*—Permit program created by the Clean Water Act to address water pollution by regulating point source discharges of pollutants to waters of the United States.

3.1.14 *NPDES permit, n*—a license for a facility to discharge a specified amount of a pollutant into a receiving water under certain conditions.

3.1.15 *petroleum, n*—a substance, generally liquid, occurring naturally in the earth and composed mainly of mixtures of chemical compounds of carbon and hydrogen with or without other nonmetallic elements such as sulfur, oxygen, and nitrogen; the compounds that compose petroleum may be in the gaseous, liquids, or solid state, depending on their nature and on the existent conditions of temperature and pressure. **D5854**

3.1.15.1 *Discussion*—This standard addresses tank systems regulated under 40 CFR 280 which utilizes a unique definition of petroleum under the term “regulated substances” as: Petroleum, including crude oil or any fraction thereof that is liquid at standard conditions of temperature and pressure (60 °F and 14.7 pounds per square inch absolute). The term regulated substance includes but is not limited to petroleum and petroleum-based substances comprised of a complex blend of hydrocarbons, such as motor fuels, jet fuels, distillate fuel oils, residual fuel oils, lubricants, petroleum solvents, and used oils.

3.1.16 *POTW, n*—Publicly owned treatment works

⁵ Available from the United States Department of Labor (<https://www.osha.gov/laws-regs/regulations/standardnumber/1910>).

⁶ <https://uscode.house.gov/browse.xhtml>

3.1.16.1 *Discussion*—These facilities process domestic and industrial wastewaters. The effluent from these facilities is subject to an NPDES permit issued under the authority of the Clean Water Act. Federally-owned wastewater treatment plants are not POTWs.

3.1.17 *RCRA, n*—Resource, Conservation, and Recovery Act 42 USC 6901 et seq., as amended by the Hazardous and Solid Waste Amendments of 1984.

3.1.17.1 *Discussion*—The federal regulations promulgated under RCRA for the management of hazardous wastes are found in title 40 of the Code Federal Regulations (CFR) parts 261 through 282.

3.1.18 *recycle, v*—to process in order to regain material for human use.

3.1.19 *solid waste, n*—the term is defined in 40 CFR 258.2.

3.1.19.1 *Discussion*—As with the US EPA definition, *solid waste* may physically be a solid, liquid, or gas. Gasoline and diesel fuel are generally not *solid wastes* when recycled as fuel.

3.1.20 *sump, n*—a pit or hollow designed to create working space around, or containment of below ground tank system components.

3.1.21 *treatment, v*—any method, technique, or process designed to change the physical, chemical or biological character of a waste to neutralize the waste, render it less hazardous, make it safer to transport or manage, or reduce its volume.

3.1.22 *very small quantity generator (VSQG), n*—a generator who generates 100 kilograms of *hazardous waste* or less, or one kilogram or less of acutely *hazardous waste*, in a calendar month.

3.1.22.1 *Discussion*—Requirements for VSQGs include:

3.1.22.2 *Discussion*—VSQGs must identify all the *hazardous waste* generated.

3.1.22.3 *Discussion*—VSQGs may not accumulate more than 1,000 kilograms of *hazardous waste* at any time.

3.1.22.4 *Discussion*—States authorized to implement the RCRA program as well as Tribal *hazardous waste* management programs may have different and more stringent definition of VSQG.

3.1.23 *volatile, adj*—readily evaporated into the vapor state.

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3.2 Definitions of Terms Specific to This Standard:

3.2.1 *accumulation, v*—short term containment of a *hazardous waste* in the control of the person who generated such waste in a manner which does not constitute *disposal*, which is in containers at or near the point of generation in the process, and which otherwise complies with Federal Regulations.

3.2.2 *sump liquid, n*—surface water, groundwater, condensate, or test liquid, and any debris in, or removed from, petroleum underground storage tank *containment sumps* that may have come in contact with *petroleum* and may exhibit a *characteristic hazard*.

3.2.3 *test liquid, n*—any *liquid* introduced into a containment sump to perform a tightness test of the *sump*.

3.2.4 *wipe, n*—a woven or non-woven shop towel, rag, pad, or swab made of wood pulp, fabric, cotton, polyester blends, or other material.

4. Significance and Use

4.1 This guide helps regulators, *POTW* operators, tank owners/operators and service providers to develop protocols for proper management including handling and disposal of *sump liquids*.

4.2 *Liquid* and *debris* may come in contact with *petroleum* that has leaked from the primary UST system into a *containment sump*.

4.2.1 *Liquid* and *debris* in a *containment sump* that may have come in contact with *petroleum* are referred to as *sump liquids* in this guide.

4.2.2 Federal regulations found in 40 CFR 280.36 require that owners and operators remove *liquid* or *debris* from *containment sumps*.

4.2.2.1 Guide **E1990** provides guidance to comply with the requirements of 40 CFR 280.36 relating to *liquid* and *debris* in *containment sumps*.

4.2.2.2 Guide **E2681** provides guidance for environmental management of UST systems including inspections for, and removal of, *liquid* and *debris* from *containment sumps*.

4.2.3 When disposed, *sump liquids* may be *hazardous wastes* pursuant to federal regulations. States with delegated authority can have their own regulations related the management of *hazardous wastes*. Tribes, states, and other non-federal governmental entities can have unique *hazardous waste* management statutes and regulations applicable to the management and disposal of *sump liquids*.

4.2.3.1 RCRA, 40 CFR §261 governs the identification and listing of *hazardous waste* while Subpart C, 40 CFR §261.20 identifies the characteristics of *hazardous waste*.

4.2.4 The recommended procedure for determining whether *sump liquids* may be *hazardous wastes*, are found in **Appendix X1**.

4.2.5 A discussion of *sump* test water characterization is found in **Appendix X2**.

4.3 *Sump liquids* should be handled and processed or disposed properly and in compliance with the applicable state, Tribal or federal regulations. RCRA is a federal regulation addressing *hazardous wastes* but it is generally a state-implemented statute and most states have their own programs that can be more stringent than the federal regulations. This guide does not supersede requirements of the authority having jurisdiction, if any such requirements exist. Specifically, some states and Tribes might have more stringent requirements for VSQGs or might have lower thresholds for VSQG and *small quantity generator* categories.

4.3.1 *Sump liquid* should not be disposed on-site unless it has been determined that the *sump liquid* is not a *hazardous waste* or the authority having jurisdiction has authorized the on-site disposal.