
DRAFT **BUSTR Five-Year Review**

Rules 1, 2, 3, 4, 9, 10, 11, 12, 13, 14, 15, 16, and 17

**Ohio Department of Commerce
Division of State Fire Marshal
Bureau of Underground Storage Tank Regulations**



**Department
of Commerce**

Division of State Fire Marshal

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1301:7-9-01 **Applicability.**

- (A) For the purpose of prescribing rules pursuant to section 3737.02 and section 3737.882 of the Revised Code, the state fire marshal hereby ~~adapts~~ adopts this chapter in accordance with Chapter 119- of the Revised Code to implement the underground storage tank program and corrective action program for releases from underground petroleum storage tanks. This rule is adopted by the state fire marshal in accordance with Chapter 119- of the Revised Code and shall not be considered a part of the "Ohio Fire Code."
- (B) Nothing in this chapter shall exempt owners and operators of underground storage tank systems from complying with any other applicable federal, state or local laws and regulations, including but not limited to the "Ohio Fire Code" as the term is defined paragraph (A)(1) of rule 1301:7-7-01 of the Administrative Code or the "Ohio Building Code" as the term is defined in paragraph 101.1 of rule 4101:1-1-01 of the Administrative Code. If the provisions of the "Ohio Fire Code" address similar requirements or are in conflict with the requirements of this chapter, then the provisions of this chapter shall apply.
- (C) The following underground storage tank systems are exempt from the requirements of this chapter:
- (1) Any UST system holding hazardous wastes listed or identified under chapter 3745-51 of the Administrative Code, or a mixture of such hazardous wastes and other regulated substances;
 - (2) Any wastewater treatment tank system that is part of a wastewater treatment facility regulated under section 402 or 307(b) of the federal Water Pollution Control Act (33 U.S.C.A. 1251 and following);
 - (3) Equipment or machinery that contains regulated substances for operational purposes such as hydraulic lift tanks and electrical equipment tanks;
 - (4) Any UST system whose capacity is one hundred ten gallons or less;
 - (5) Any UST system containing a de minimis concentration of regulated substances; and
 - (6) Any emergency spill or overflow containment UST system that is expeditiously emptied after use.
- (D) Notwithstanding paragraphs (A)(1) to (A)(5) of rule 1301:7-9-06 of the Administrative Code ~~and paragraphs (A)(1) to (A)(5) of rule 1301:7-9-08 of the Administrative Code~~, no owner or operator shall install an UST system listed in paragraphs (A)(1) to (A)(5) of rule 1301:7-9-06 of the Administrative Code for the purpose of storing a regulated substance unless the UST system complies with all of the following:
- (1) The UST system is installed and constructed in such a manner so as to prevent releases of the regulated substance due to corrosion or structural failure for the operational life of the UST system;
 - (2) The UST system is cathodically protected against corrosion, constructed of noncorrodible material, steel clad with a noncorrodible material, or designed in a manner to prevent a release or threatened release of any stored substance; and
 - (3) Is constructed or lined with material that is compatible with the stored substance.

HISTORY: Eff 11-5-90; 1-22-93; 3-1-05

Rule promulgated under: RC 119.03

Rule authorized by: RC 3737.88

Rule amplifies: RC 3737.88

R.C. 119.032 review dates: 11/24/2004 and 03/01/2010

1301:7-9-02 **Definitions.**

(A) Purpose.

For the purpose of prescribing rules pursuant to sections 3737.88 to 3737.882 of the Revised Code, the state fire marshal hereby adopts this rule to establish definitions of words and phrases related to underground storage tanks. This rule is adopted by the state fire marshal in accordance with Chapter 119- of the Revised Code and shall not be considered a part of the "Ohio Fire Code."

(B) Definitions.

When used in this chapter of the Administrative Code, the following terms shall have the meanings given below:

- (1) ~~"Abandonment" means permanently taking an UST system out of service for more than twelve months but not out of the ground.~~

"Accredited laboratory" means a laboratory accredited to perform laboratory analyses as outlined in this chapter of the Administrative Code using prescribed USEPA test methods through one of the following programs:

(a) Ohio Environmental Protection Agency Division of Drinking and Ground Waters;

(b) Ohio Environmental Protection Agency Voluntary Action Program;

(c) National Environmental Laboratory Accreditation Program;

(d) American Association of Laboratory Accreditation; or,

(e) another state environmental protection agency program approved by the state fire marshal.

- (2) "Ancillary equipment" means any devices including, without limitation, such devices as piping, fittings, flanges, valves, and pumps used to distribute, meter, or control the flow of regulated substances to and from an UST.
- (3) "Beneath the surface of the ground" means beneath the ground surface or otherwise covered with earthen materials.
- (4) "Bureau chief" means the chief of the bureau of underground storage tank regulations within the division of the state fire marshal.
- (5) "Cathodic protection" is a technique to prevent corrosion of a metal surface by making that surface the cathode of an electrochemical cell. An UST system can be cathodically protected, without limitation, through the application of either galvanic anodes or impressed current.
- (6) "Cathodic protection tester" means a person who can demonstrate an understanding of the principles and measurements of all common types of cathodic protection systems as applied to buried or submerged metal piping and UST systems. At a minimum, such persons shall have education and experience in soil resistivity, stray current, structure-to-soil potential, and component electrical isolation measurements of buried metal piping and UST systems.

- (7) "Certified installer" or "installer" means an individual certified by the state fire marshal under the requirements of rule 1301:7-9-11 of the Administrative Code to supervise the installation of, performance of major repairs on site to, closure-in-place of, removal of, performance of modifications of, placing out of service for more than ninety days of, or the change in service of UST systems.
- (8) "Certified UST inspector" means an individual certified by the state fire marshal under the requirements of rule 1301:7-9-15 of the Administrative Code to inspect the installation of, performance of major repairs on site to, closure-in-place of, removal of, performance of modifications of, placing out of service for more than ninety days of, or the change in service of UST systems.
- (9) "Change in service" means a change in the substances managed in the UST system from regulated substances to non-regulated substances, without closure in place or permanent removal of the UST system.
- (10) "Closure-in-place" or "close-in-place" means the abandonment of an UST system by permanently taking an UST system out of service but not out of the ground in compliance with this chapter of the Administrative Code.
- (11) "Compatible" means the ability of two or more substances to maintain their respective physical and chemical properties upon contact with one another for the design life of the UST system under conditions likely to be encountered in the UST.
- (12) "Connected piping" means all underground piping including valves, elbows, joints, flanges, and flexible connectors attached to an UST system through which regulated substances flow. For the purpose of determining how much piping is connected to any individual UST system, the piping that joins two UST systems should be allocated equally between them.
- (13) "Consumptive use" with respect to heating fuel means consumed on the premises.
- (14) "Corrective action" means any action necessary to protect human health and the environment in the event of a release of petroleum into the environment, including, without limitation, any action necessary to monitor, assess, and evaluate the release. In the instance of a suspected release, the term includes, without limitation, an investigation to confirm or disprove the occurrence of the release. In the instance of a confirmed release, the term includes, without limitation, the initial corrective action taken under section 3737.88 or 3737.882 of the Revised Code, or orders issued under those sections, and any initial corrective action taken under this chapter of the Administrative Code and any action taken consistent with a remedial action to clean up contaminated ground water, surface water, soils, and subsurface material and to address the residual effects of a release after the initial corrective action is taken.
- (15) "Corrosion expert" means a person who, by reason of thorough knowledge of the physical sciences and the principles of engineering and mathematics acquired by a professional education and related practical experience, is qualified to engage in the practice of corrosion control on buried or submerged metal piping systems and metal tanks. Such a person shall be accredited or certified as being qualified by the national association of corrosion engineers or be a registered professional engineer who has certification or licensing that includes education and experience in corrosion control of buried or submerged metal piping systems and metal tanks.

- (16) "Dielectric material" means a material that does not conduct direct electrical current. Dielectric coatings are used to electrically isolate UST systems from the surrounding soils. Dielectric bushings are used to electrically isolate portions of the UST system.
- (17) "Electrical equipment" means underground equipment that contains dielectric fluid that is necessary for the operation of equipment such as transformers and buried electrical cable.
- (18) "Excavation zone" means the volume containing the UST system and backfill material bounded by the ground surface, walls, and floor of the pit and trenches into which the UST system is placed at the time of installation.
- (19) "Existing UST system" means an UST system used to contain an accumulation of regulated substances or for which installation has commenced on or before the effective date of this rule. Installation is considered to have commenced if:
- (a) The owner or operator has obtained all federal, state, and local approvals or permits necessary to begin physical construction of the site or installation of the UST system; and if,
 - (b) One of the following has occurred:
 - (i) Either a continuous on-site physical construction or installation program has begun; or,
 - (ii) The owner or operator has entered into contractual obligations, which cannot be cancelled or modified without substantial loss, for physical construction at the site or installation of the UST system to be completed within a reasonable time.
- (20) "Farm tank" is a tank located on a tract of land devoted to the production of crops or raising animals, including fish, and associated residences and improvements. A farm tank shall be located on the farm property. "Farm" includes fish hatcheries, rangeland and nurseries with growing operations.
- (21) "Flow-through process tank" is a tank that forms an integral part of a production process through which there is a steady, variable, recurring, or intermittent flow of materials during the operation of the process. Flow-through process tanks do not include tanks used for the storage of materials prior to their introduction into the production process or for the storage of finished products or by-products from the production process.
- (22) "Free product" means a separate liquid hydrocarbon phase that has a measured thickness of greater than one one-hundredth of a foot.
- (23) "Gathering lines" means any pipeline, equipment, facility, or building used in the transportation of oil or gas during oil or gas production or gathering operations.
- (24) "Hazardous substance" means any substance listed in rule 1301:7-9-03 of the Administrative Code, but not including any substance regulated as a hazardous waste under Chapters 3745-50 to 3745-69 of the Administrative Code, or any mixture of such substance and petroleum which is not contained in a petroleum UST system.
- (25) "Hazardous substance UST system" means an underground storage tank system that contains a hazardous substance.

- (26) "Heating fuel" means petroleum that is No. 1, No 2, No. 4-light, No. 4-heavy, No. 5-light, No. 5-heavy, and No. 6 technical grades of fuel oil; other residual fuel oils including, without limitation, Navy Special Fuel Oil and Bunker C; and other fuels when used as substitutes for one of these fuel oils. Heating fuel is typically used in the operation of heating equipment, boilers, or furnaces.
- (27) "Hydraulic lift tank" means a tank holding hydraulic fluid for a closed-loop mechanical system that uses compressed air or hydraulic fluid to operate lifts, elevators, and other similar devices.
- (28) "Liquid trap" means sumps, well cellars, and other traps used in association with oil and gas production, gathering, and extraction operations including gas production plants, for the purpose of collecting oil, water, and other liquids. These liquid traps may temporarily collect liquids for subsequent disposition or reinjection into a production or pipeline stream, or may collect and separate liquids from a gas stream.
- (29) "Maintenance" means the normal operational upkeep to prevent an underground storage tank system from releasing product.
- (30) "~~Major Repair~~ repair" means the restoration of a tank or an underground storage tank system component that has caused a release of a product from the underground storage tank system. ~~"Major repair" also means the upgrading of a tank or an underground storage tank system component, or the modification of a tank or an underground storage tank system component.~~ "Major repair" does not include modifications, upgrades, or routine maintenance ~~or~~ for normal operational upkeep to prevent an underground storage tank system from releasing a product.
- (31) "Modification" means work performed on UST system components that have not leaked such as adding, altering, replacing, or retrofitting the following:
- (a) USTs and any components fixed to UST openings;
 - (b) Containments located over USTs, under dispensers or at intermediate points excluding spill prevention equipment;
 - (c) Piping components that routinely contain regulated substances ~~up to and including shear valves at dispenser~~;
 - (d) Underground vent lines excluding stage two vapor recovery components;
 - (e) Flexible connector lines located outside of accessible containments;
 - (f) UST lining components; and
 - (g) Release detection systems.
- (32) "Motor fuel" means petroleum or a petroleum-based substance that is motor gasoline, aviation gasoline, No. 1 or No. 2 diesel fuel, or any grade of gasohol, and is typically used in the operation of a motor engine.
- (33) "Native soils" means any soil or other materials outside of the backfill material used at the time of the original installation of the UST system.

- (34) "New UST system" means an UST system that will be used to contain an accumulation of regulated substances and for which installation has commenced after the effective date of this rule.
- (35) "Noncommercial purposes" with respect to motor fuel means not for resale.
- (36) "On the premises where stored" with respect to heating oil means UST systems located on the same property where the stored heating oil is used.
- (37) "Operational life" refers to the period beginning when installation of the UST system has commenced until the time the UST system is properly closed under this chapter.
- (38) "Operator" means the person in daily control of, or having responsibility for the daily operation of, the UST system.
- (39) "Out of service" means the normal operation and use of the UST system or any portion of the UST system is discontinued ~~and no longer fulfilling its designed function.~~
- (40) "Overfill" is a release that occurs when a tank is filled beyond its capacity, resulting in a discharge of the regulated substance to the environment.
- (41) "Owner" means:
- (a) In the instance of an underground storage tank system in use on November 8, 1984, or brought into use after that date, the person who owns the underground storage tank system;
 - (b) In the instance of an underground storage tank system in use before November 8, 1984, but no longer in use on that date, the person who owned the underground storage tank system immediately before the discontinuation of its use.

The term includes any person who holds, or, in the instance of an underground storage tank in use before November 8, 1984, but no longer in use on that date, any person who held immediately before the discontinuation of its use, a legal, equitable, or possessory interest of any kind in an underground storage tank system or in the property on which the underground storage tank system is located, including, without limitation, a trust, vendor, vendee, lessor, or lessee. The term does not include any person who, without participating in the management of an underground storage tank system and without otherwise being engaged in petroleum production, refining, or marketing, holds indicia of ownership in an underground storage tank system primarily to protect the person's security interest in it.

- (42) "Permanent removal" means permanently taking an UST system or any of its components out of service by taking it out of the ground in compliance with this chapter.
- (43) "Person", in addition to the meaning in section 3737.01 of the Revised Code, means the United States and any department, agency, or instrumentality thereof.
- (44) "Petroleum" means petroleum, including crude oil or any fraction thereof, that is a liquid at the temperature of sixty degrees Fahrenheit and the pressure of fourteen and seven-tenths pounds per square inch absolute. The term includes, without limitation, motor fuels, jet fuels, distillate fuel oils, residual fuel oils, lubricants, petroleum solvents, and used oils.

- (45) "Petroleum UST system" means an underground storage tank system that contains petroleum or a mixture of petroleum with de ~~minimus~~ minimis quantities of other regulated substances.
- (46) "Pipe" or "piping" means a hollow cylinder or tubular conduit that is constructed of man-made materials.
- (47) "Pipeline facilities" are new and existing pipe rights-of-way and any associated equipment, including, without limitation, gathering lines; facilities; or buildings.
- (48) "Political subdivision" means a municipal corporation, township, county, school district, or other body corporate and politic responsible for governmental activities in a geographic area smaller than that of the state.
- (49) "Regulated substance" means:
- (a) Any hazardous substance; and
 - (b) Petroleum.
- (50) "Release" means:
- ~~(a) Any any~~ any spilling, leaking, emitting, discharging, escaping, leaching or disposing of a petroleum product from an UST system into ground water, a surface water body, subsurface soils soil or otherwise into the environment;
 - ~~(b) Any spilling, leaking, emitting, discharging, escaping or disposal of a petroleum product into ground water, a surface water body, subsurface soils or otherwise into the environment while transferring or attempting to transfer petroleum products into an UST system; or~~
 - ~~(c) Chemical(s) of concern in subsurface soils or ground water on an UST site found in concentrations above the action levels specified in paragraph (J) of this rule and confirmed through laboratory analysis of samples from an UST site.~~
- (51) "Release detection" means determining whether a release of a regulated substance has occurred from the UST system into the environment or into the interstitial space between the UST system and its secondary barrier or secondary containment around it.
- ~~(52) "Repair" means to restore a tank or UST system component that has caused a release of product from the UST system.~~
- ~~(53)~~(52) "Residential tank" is a tank located on property used primarily for dwelling purposes.
- ~~(54)~~(53) "Routine maintenance or normal operational upkeep" means work performed to maintain or to prevent an underground storage tank system from releasing a regulated substance. Work on the following components shall constitute routine maintenance or normal operational upkeep on existing UST systems provided that the component has not caused a release:
- (a) Drop tubes;
 - (b) Overfill containment devices;

- (c) Spill prevention equipment;
- (d) Fill caps and adapters;
- (e) Cathodic protection components;
- (f) Stage one vapor recovery components;
- (g) Submersible pump components ~~provided that no product lines are disconnected; and~~
- (h) Individual leak detection monitoring units, probes, sensors or line leak detectors that are maintained with like components;
- (i) Flexible connector lines located inside of accessible containments; and
- (j) Shear valves.

~~(55)~~(54) "Septic tank" is a water-tight covered receptacle designed to receive or process, through liquid separation or biological digestion, the sewage discharged from a building sewer. The effluent from such receptacle is distributed for disposal through the soil and settled solids and scum from the tank are pumped out periodically and hauled to a treatment facility.

~~(56)~~(55) "Spill" means:

- (a) a release resulting from improper ~~transfer~~ ~~dispensing~~ practices to an UST system including, without limitation, the disconnecting of a delivery hose from a tank's fill pipe before the hose has drained completely, or
- (b) any spilling, leaking, emitting, discharging, escaping, or disposal of a petroleum product into ground water, a surface water body, subsurface soil or otherwise into the environment while transferring or attempting to transfer petroleum products into an UST system.

~~(57)~~(56) "Spill prevention equipment" means a spill containment manhole or spill bucket installed at a fill pipe that catches and holds drips and spills of regulated substance that can occur when a delivery hose is removed from the fill pipe after delivery of a regulated substance to an UST.

~~(58)~~(57) "State" means the state of Ohio, including, without limitation, the general assembly, the supreme court, the offices of all elected state officers, and all departments, boards, offices, commissions, agencies, colleges, universities, institutions, and other instrumentalities of the state of Ohio. "State" does not include political subdivisions.

~~(59)~~(58) ~~"Storm water~~ Storm water or wastewater collection system" means piping, pumps, conduits, and any other equipment necessary to collect and transport the flow of surface water run-off resulting from precipitation, or domestic, commercial, or industrial wastewater to and from retention areas or any areas where treatment is designated to occur. The collection of storm water and wastewater does not include treatment except where incidental to conveyance.

~~(60)~~(59) "Supervise" means being physically on site and having the authority to direct other persons engaged in carrying out the installation of, making major repairs on site to, closure-in-place of, removal of, performance of modifications of, placing out of service for more than ninety days of,

or the change in service of UST systems as well as having the authority to exercise independent judgment regarding the recommendation of activities to such other persons.

~~(61)~~(60) "Surface impoundment" is a natural topographic depression, man-made excavation, or diked area formed primarily of earthen materials, although it may be lined with man-made materials, that is not an injection well.

~~(62)~~(61) "Tank" is a stationary device designed to contain an accumulation of regulated substances that is constructed of man-made materials.

~~(63)~~(62) "Temporarily out of service" means the normal operation and use of the UST system is deliberately, but temporarily, discontinued for ninety days or less.

~~(64)~~(63) "Underground area" means an underground room, such as a basement, cellar, shaft, or vault, providing enough space for physical inspection of the exterior of the tank situated on or above the surface of the floor.

~~(65)~~ "Upgrade" means the addition or retrofit of some systems such as cathodic protection, lining, or spill and overfill controls to improve the ability of an underground storage tank system to prevent the release of product.

~~(66)~~(64) "Underground storage tank" or "UST" means one or any combination of tanks, including the underground pipes connected thereto, that are used to contain an accumulation of regulated substances the volume of which, including the volume of the underground pipes connected thereto, is ten per cent or more beneath the surface of the ground.

The term does not include any of the following:

- (a) Pipeline facilities, including gathering lines, regulated under the "Natural Gas Pipeline Safety Act of 1968," 82 Stat. 720, 49 U.S.C.A. 2001, as amended;
- (b) Farm or residential tanks of one thousand one hundred gallons or less capacity used for storing motor fuel for noncommercial purposes;
- (c) Tanks used for storing heating fuel for consumptive use on the premises where stored;
- (d) Surface impoundments, pits, ponds, or lagoons;
- (e) Storm or waste water collection systems;
- (f) Flow-through process tanks;
- (g) Storage tanks located in underground areas, including without limitation, basements, cellars, mine workings, drifts, shafts, or tunnels, when the tanks are located on or above the surface of the floor;
- (h) Septic tanks;
- (i) Liquid traps or associated gathering lines directly related to oil or gas production and gathering operations.

~~(67)~~(65) "Underground storage tank system" or "UST system" means an underground storage tank and the connected underground piping, underground ancillary equipment, and containment system, if any.

~~(68)~~(66) "~~UST~~" or "~~UST system~~" means an underground storage tank or an underground storage tank system. "Underground storage tank site" or "UST site" means the parcel of property where an UST system is or was formerly located.

~~(69)~~(67) "Wastewater treatment tank" means a tank that is designed to receive and treat an influent wastewater through physical, chemical, or biological methods.

HISTORY: Eff 5-9-88; 10-2-90; 3-1-05; 12-31-05

Rule promulgated under: RC 119.03

Rule authorized by: RC 3737.88

Rule amplifies: RC 3737.88

R.C. 119.032 review dates: 12/31/2010

Reporting requirements for hazardous substances and list of hazardous substances.**(A) Purpose.**

For the purpose of prescribing rules pursuant to section 3737.88 of the Revised Code, the fire marshal hereby adopts this rule to establish reporting requirements for underground storage tank systems that contain hazardous substance(s) and to list those substances which are hereby identified as hazardous substances. This rule is adopted by the fire marshal in accordance with Chapter 119- of the Revised Code and shall not be considered a part of the "Ohio Fire Code".

(B) Definitions.

For the purpose of this rule:

(1) "Release of a hazardous substance" means:

- (a) Any spilling, leaking, emitting, discharging, escaping, leaching or disposing of a hazardous substance(s) from an underground storage tank system into the ground water, a surface water body, subsurface soils or otherwise into the environment;
- (b) Any spilling, leaking, emitting, discharging, escaping, or disposing of a hazardous substance(s) into ground water, a surface water body, subsurface soils or otherwise into the environment while transferring or attempting to transfer a hazardous substance(s) into an underground storage tank system; or
- (c) Contamination of subsurface soils or ground water on the UST site by a hazardous substance(s) found and confirmed through laboratory analysis of samples from the UST site.

(2) "Suspected release of a hazardous substance" means evidence of a release of a hazardous substance(s) obtained through one or more of the following events:

- (a) The monitoring results from a release detection method required by rule 1301:7-9-07 of the Administrative Code that a release of a hazardous substance(s) may have occurred unless:
 - (i) The monitoring device is found to be defective, and is immediately recalibrated or replaced, and additional monitoring does not confirm the initial result; or
 - (ii) In the case of inventory control, a second month of data does not confirm the initial result;
- (b) Unusual operating conditions observed by the owners and operators unless system equipment is found to be defective but not leaking, and is immediately repaired or replaced. Such unusual operating conditions shall include, without limitation, the erratic behavior of hazardous substance(s) dispensing equipment, the sudden loss of hazardous substance(s) from the UST system or an unexplained presence of water in the tank.
- (c) The presence of free hazardous substance(s) discovered during removal of an UST system or part thereof or in an excavation on the UST site or on property nearby the UST site;

- (d) The discovery of hazardous substance(s) vapors within or along building foundations or other subsurface manmade structures such as building foundations, basements, pedestrian tunnels, utility vaults, sewer lines, or the like, or in a drinking water well located on the UST site or on property nearby the UST site;
- (e) The presence of free hazardous substance(s) in a monitoring or an observation well located on the UST site or on property nearby the UST site; or
- (f) The presence of hazardous substance(s) observed on a surface water body located on the UST site or on property nearby the UST site suspected to have arisen from a release from an UST system.
- (g) The presence of free hazardous substance(s) discovered in an UST secondary containment system on the UST site.

~~(3) "UST site" means the parcel of property where an UST system is or had been located.~~

(C) Reporting of releases of a hazardous substance and suspected releases of a hazardous substance.

- (1) Owners and operators shall report a release of a hazardous substance or suspected release of a hazardous substance to the fire marshal and the local fire department within twenty-four hours of discovery by the owner or operator. Spills or overfills of twenty-five gallons or less that do not reach a surface water body and that are cleaned up within twenty-four hours need not be reported.
- (2) Complying with paragraph (C)(1) of this rule does not relieve the owners and operators from complying with any other applicable federal, state, or local reporting requirements, laws, or regulations.

(D) The substances listed in the following table are hazardous substances except that any listed substance regulated as a hazardous waste under Chapters 3745-50 to 3745-69 of the Administrative Code shall not be considered a hazardous substance for the purposes of this chapter. The numbers to the right of the substances are the chemical abstracts service registry numbers for the substances.

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|------------------------------------|--------|
| Acenaphthene | 83329 |
| Acenaphthylene | 208968 |
| Acetaldehyde | 75070 |
| Acetaldehyde, chloro | 107200 |
| Acetaldehyde, trichloro | 75876 |
| Acetamide, N- (aminothioxomethyl)- | 591082 |
| Acetamide, N- (4-ethoxyphenyl)- | 62442 |
| Acetamide, N-9H-fluoren-2-yl- | 53963 |
| Acetamide, 2-fluoro- | 640197 |
| Acetic acid | 64197 |
| Acetic acid, ethyl ester | 141786 |
| Acetic acid, fluoro-, sodium salt | 62748 |
| Acetic acid, lead salt | 301042 |
| Acetic acid, thalium(1) salt | 563688 |

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|---|----------------------------|
| Acetic anhydride | 108247 |
| Acetimidic acid, N-(methylcarbomoyl oxy] thio, methyl ester | 16752775 |
| Acetone | 67641 |
| Acetone cyanohydrin | 75865 |
| Acetonitrile | 75058 |
| 3-(alpha-Acetylbenzyl)-4- hydroxycoumarin and salts | 81812 |
| Acetophenone | 98862 |
| 2-Acetylaminofluorene | 53963 |
| Acetyl bromide | 506967 |
| Acetyl chloride | 75365 |
| 1-Acetyl-2-thiourea | 591082 |
| Acrolein | 107028 |
| Acrylamide | 79061 |
| Acrylic acid | 79107 |
| Acrylonitrile | 107131 |
| Adipic acid | 124049 |
| Alanine, 3-[p-bis(2-chloroethyl)amino] phenyl-,L- | 148823 |
| Aldicarb | 116063 |
| Aldrin | 309002 |
| Allyl alcohol | 107186 |
| Allyl chloride | 107051 |
| Aluminum phosphide | 20859738 |
| Aluminum sulfate | 10043013 |
| 5-(Aminomethyl)-3-isoxazolol | 2763964 |
| 4-Aminopyridine | 504245 |
| Amitrole | 61825 |
| Ammonia | 7664417 |
| Ammonium acetate | 631618 |
| Ammonium benzoate | 1863631 1863634 |
| Ammonium bicarbonate | 1066337 |
| Ammonium bichromate | 7789095 |
| Ammonium bifluoride | 1341497 |
| Ammonium bisulfite | 10192300 |
| Ammonium carbamate | 1111780 |
| Ammonium carbonate | 506876 |
| Ammonium chloride | 12125029 |
| Ammonium chromate | 7788989 |
| Ammonium citrate, dibasic | 3012655 |
| Ammonium fluoborate | 13826830 |
| Ammonium fluoride | 12125018 |
| Ammonium hydroxide | 1336216 |
| Ammonium oxalate | 6009707 |
| | 5972736 |
| | 14258492 |
| Ammonium picrate | 131748 |
| Ammonium silcofluoride | 16919190 |
| Ammonium sulfamate | 7773060 |
| Ammonium sulfide | 12135761 |

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|--|--------------------|
| Ammonium sulfite | 10196040 |
| Ammonium tartrate | 14307438 |
| | 3164292 |
| Ammonium thiocyanate | 1762954 |
| Ammonium thiosulfate | 7783188 |
| Ammonium vanadate | 7803556 |
| Amyl acetate | 628637 |
| iso- | 123922 |
| sec- | 626380 |
| tert- | 625161 |
| Aniline | 62533 |
| Anthracene | 120127 |
| Antimony** | 7440360 |
| ANTIMONY & COMPOUNDS | |
| Antimony pentachloride | 7647189 |
| Antimony potassium tartrate | 28300745 |
| Antimony tribromide | 7789619 |
| Antimony trichloride | 10025919 |
| Antimony trifluoride | 7783564 |
| Antimony trioxide | 1309644 |
| Aroclor 1016 | 12674112 |
| Aroclor 1221 | 11104282 |
| Aroclor 1232 | 11141165 |
| Aroclor 1242 | 53469219 |
| Aroclor 1248 | 12672296 |
| Aroclor 1254 | 11097691 |
| Aroclor 1260 | 11096825 |
| Arsenic** | 7440382 |
| Arsenic acid | 1327522 |
| | 7778394 |
| ARSENIC & COMPOUNDS | |
| Arsenic disulfide | 1303328 |
| Arsenic (III) oxide | 1327533 |
| Arsenic (V) oxide | 1303282 |
| Arsenic pentoxide | 1303282 |
| Arsenic trichloride | 7784341 |
| Arsenic trioxide | 1327533 |
| Arsenic trisulfide | 1303339 |
| Arsine, diethyl- | 692422 |
| Asbestos*** | 1332214 |
| Auramine | 492808 |
| Azaserine | 115026 |
| Aziridine | 151564 |
| Azirino (2',3':3,4) pyrrolo(1,2-a) indole-4,7-dione,6-amino-8- [[(aminocarbonyl) oxy)methyl] -1,1a,2,8,8a,8b-hexahydro-8a- methoxy-5-methyl- | 50077 |
| Barium cyanide | 542621 |
| Benz(j)aceanthrylene, 1,2 dihydro-3-methyl | 56495 |

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| Benz(c)acridine | 225514 |
| 3,4-Benzacridine | 225514 |
| Benzal chloride | 98873 |
| Benz(a)anthracene | 56553 |
| 1,2-Benzanthracene | 56553 |
| 1,2-Benzanthracene, 7,12-dimethyl- | 57976 |
| Benzenamine | 62533 |
| Benzenamine, 4,4'-carbonimidoylbis(N,N-dimethyl- | 492808 |
| Benzenamine, 4-chloro- | 106478 |
| Benzenamine, 4-chloro-2-methyl-hydrochloride | 3165933 |
| Benzenamine, N,N-dimethyl-4-phenylazo | 60117 |
| Benzenamine, 4,4'-methyl-enebis(2-chloro-) | 101144 |
| Benzenamine, 2-methyl-, hydrochloride | 636215 |
| Benzenamine, 2-methyl-5-nitro- | 99558 |
| Benzenamine, 4-nitro- | 100016 |
| Benzene | 71432 |
| Benzene, 1-bromo-4-phenoxy- | 101553 |
| Benzene chloro- | 108907 |
| Benzene, chloromethyl- | 100447 |
| Benzene, 1,2-dichloro- | 95501 |
| Benzene, 1,3-dichloro- | 541731 |
| Benzene, 1,4-dichloro- | 106467 |
| Benzene, dichloromethyl- | 98873 |
| Benzene, 2,4-diisocyanatomethyl | 584849 |
| | 91087 |
| | 26471625 |
| Benzene, dimethyl | 1330207 |
| m- | 108383 |
| o- | 95476 |
| p- | 106423 |
| Benzene, hexachloro- | 118741 |
| Benzene, hexahydro- | 110827 |
| Benzene, hydroxy- | 108952 |
| Benzene, methyl- | 108883 |
| Benzene, 1-methyl-2,4-dinitro- | 121142 |
| Benzene, 1-methyl-2,6-dinitro- | 606202 |
| Benzene, 1,2-methylenedioxy-4-allyl- | 94597 |
| Benzene, 1,2-methylenedioxy-4-propenyl- | 120581 |
| Benzene, 1,2-methylenedioxy-4-propyl- | 94586 |
| Benzene, 1-methylethyl- | 98828 |
| Benzene, nitro- | 98953 |
| Benzene, pentachloro- | 608935 |
| Benzene, pentachloronitro- | 82688 |
| Benzene, 1,2,4,5-tetrachloro- | 95943 |
| Benzene, trichloromethyl | 98077 |
| Benzene, 1,3,5-trinitro- | 99354 |
| Benzeneacetic acid, 4-chloro-alpha (4-chloro phenyl)-alpha-hydroxy-, ethyl ester | 510156 |

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| 1,2-Benzenedicarboxylic acid anhydride | 85449 |
| 1,2-Benzenedicarboxylic acid, [bis(2-ethylhexyl)] ester ester | 1178617 117817 |
| 1,2-Benzenedicarboxylic acid, dibutyl ester | 84742 |
| 1,2-Benzenedicarboxylic acid, diethyl ester | 84662 |
| 1,2 Benzenedicarboxylic acid, dimethyl ester | 131113 |
| 1,2-Benzenedicarboxylic acid, di-n-octyl ester | 117840 |
| 1,3-Benzenediol | 108463 |
| 1,2-Benzenediol, 4-[1-hydroxy-2-(methylamino) ethyl] | 51434 |
| Benzenesulfonic acid chloride | 98099 |
| Benzenesulfonyl chloride | 98099 |
| Benzenethiol | 108985 |
| Benzidine | 12875 92875 |
| 1,2-Benzisothiazolin 3-one,1,1-dioxide, and salts | 81072 |
| Benzo(a)anthracene | 56553 |
| Benzo(b)fluoranthene | 205992 |
| Benzo(k)fluoranthene | 207089 |
| Benzo(j,k)fluorene | 206440 |
| 1,3-Benzodioxol-4-ol,2,2-dimethyl-, (Bendiocarb phenol) | 22961826 |
| 1,3-Benzodioxol-4-ol,2,2-dimethyl-, methyl carbamate (Bendiocarb) | 22781233 |
| 7-Benzofuranol,2,3-dihydro-2,2-dimethyl-(Carbonfuran phenol) | 1563388 |
| Benzoic acid | 65050 65850 |
| Benzoic acid, 2-hydroxy-, compd. with (3aS-cis)-1,2,3,3a,8,8a-hexahydro-1,3a,8-trimethylpyrrolo [2,3-b] indol-5-yl methylcarbamate ester (1:1) (Physostigmine salicylate) | 57647 |
| Benzonitrile | 100470 |
| Benzo(ghi)perylene | 191242 |
| Benzo(a)pyrene | 50328 |
| 3,4-Benzopyrene | 50328 |
| p-Benzoquinone | 106514 |
| Benzotrichloride | 98077 |
| Benzoyl chloride | 98884 |
| 1,2-Benzphenanthrene | 218019 |
| Benzyl chloride | 100447 |
| Beryllium** | 7440417 |
| BERYLLIUM & COMPOUNDS | |
| Beryllium chloride | 7787475 |
| Beryllium dust | 7440417 |
| Beryllium fluoride | 7787497 |
| Beryllium nitrate | 13597994 |
| | 7787555 |
| alpha - BHC | 319846 |
| beta - BHC | 319857 |
| gamma - BHC | 58899 |
| delta - BHC | 319868 |
| 2,2'-Bioxirane | 1464535 |
| (1,1'-Biphenyl)-4,4' diamine | 92875 |
| (1,1'-Biphenyl)-4,4' diamine, 3,3' dichloro- | 91941 |

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| (1,1'-Bipheynl)-4,4' diamine, 3,3'- dimethoxy- | 119904 |
| (1,1'-Biphenyl)-4,4'- diamine, 3,3'- dimethyl- | 119937 |
| Bis(2-chloroethoxy) methane | 111911 |
| Bis(2-cloroethyl) ether | 111444 |
| Bis(2-chloroisopropyl) ether | 108601 |
| Bis(chloromethyl) ether | 542881 |
| Bis(dimethylthiocarbamoyl) disulfide | 137268 |
| Bis(2-ethylhexyl) phthalate | 117817 |
| Bromine cyanide | 506683 |
| Bromoacetone | 598312 |
| Bromoform | 75252 |
| 4-Bromophenyl phenyl ether | 101553 |
| Brucine | 357573 |
| 1,3-Butadiene, 1,1,2,3,4-hexachloro-1 | 87683 |
| Butanamine, N-butyl-N-nitroso | 924163 |
| Butanoic acid, 4-[bis(2-chloroethyl)amino] benzene | 305033 |
| 1-Butanol | 71363 |
| 2-Butanone | 78933 |
| 2-Butanone peroxide | 1338234 |
| 2-Butenal | 123739 |
| | 4170303 |
| 2-Butene, 1,4-dichloro- | 764410 |
| Butyl acetate | 123864 |
| iso- | 110190 |
| sec- | 105464 |
| tert- | 540885 |
| n-Butyl alcohol | 71363 |
| Butylamine | 109739 |
| iso- | 78819 |
| sec- | 513495 |
| sec- | 13952846 |
| tert- | 75649 |
| Butyl benzyl phthalate | 85687 |
| n-Butyl phthalate | 84742 |
| Butyric acid | 107926 |
| iso- | 79312 |
| Cacodylic acid | 75605 |
| Cadmium** | 7440439 |
| Cadmium acetate | 543908 |
| CADMIUM & COMPOUNDS | |
| Cadmium bromide | 7789426 |
| Cadmium chloride | 10108642 |
| Calcium arsenate | 7778441 |
| Calcium arsenite | 52740166 |
| Calcium carbide | 75207 |
| Calcium chromate | 13765190 |
| Calcium cyanide | 592018 |
| Calcium dodecylbenzene sulfonate | 26264062 |

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| Calcium hypochlorite | 7778543 |
| Camphene, octachloro- | 8001352 |
| Captan | 133062 |
| Carbamic acid, ethyl ester | 51793 51796 |
| Carbamic acid, methylnitroso, ethyl ester | 615532 |
| Carbamic acid, [1-[(butylamino) carbonyl] -1H-benzimidazol-2-yl, methyl ester (Benomyl) | 17804352 |
| Carbamic acid, (3-chlorophenyl)-, 4-chloro-2-butynyl ester (Barban) | 101279 |
| Carbamic acid, [(dibutylamino)thio]methyl-, 2,3-dihydro-2,2-dimethyl-7-benzofuranyl ester (Carbosulfan) | 55285148 |
| Carbamic acid, dimethyl-,1-[dimethylamino)carbonyl] -5-methyl-1H-pyrazol-3-yl ester (Dimetilan) | 644644 |
| Carbamic acid, dimethyl-, 3-methyl-1-(1-methylethyl)- 1H-pyrazol-5-yl ester (Isolan) | 119380 |
| Carbamic acid, 1H-benzimidazol-2-yl, methyl ester (Carbendazim) | 10605217 |
| Carbamic acid, methyl-,3-methylethyl ester (Metolcarb) | 1129415 |
| Carbamic acid, phenyl-, 1-methylphenyl ester (Propham) | 122429 |
| Carbamic acid, [1,2-phenylenebis (iminocarbonothioyl)] bis-, dimethyl ester (Thiophanate-methyl) | 23564058 |
| Carbamide, N-ethyl-N-nitroso- | 759739 |
| Carbamide, N-methyl-N-nitroso- | 684935 |
| Carbamide, thio- | 62566 |
| Carbamimidoseleonic acid | 630104 |
| Carbamoyl chloride, dimethyl- | 79447 |
| Carbamothioic acid, bis(1-methylethyl)-, S-(2,3,3-trichloro-2-propenyl) ester (Triallate) | 2303175 |
| Carbamothioic acid, dipropyl-, S-(phenylmethyl) ester (Prosulfocarb) | 52888809 |
| Carbaryl | 63252 |
| Carbofuran | 1563662 |
| Carbon bisulfide | 75150 |
| Carbon disulfide | 75150 |
| Carbonic acid, dithalium (I) salt | 6533739 |
| Carbonochloridic acid, methyl ester | 79221 |
| Carbon oxyfluoride | 353504 |
| Carbon tetrachloride | 56235 |
| Carbonyl chloride | 75445 |
| Carbonyl fluoride | 353504 |
| Chloral | 75876 |
| Chlorambucil | 305033 |
| CHLORDANE (TECHNICAL MIXTURE AND METABOLITES) | |
| Chlordane | 57749 |
| Chlordane, technical | 57749 |
| CHLORINATED BENZENES | |
| CHLORINATED ETHANES | |
| CHLORINATED NAPHTHALENE | |

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| CHLORINATED PHENOLS | |
| Chlorine | 7782505 |
| Chlorine cyanide | 506774 |
| Chlornaphazine | 494031 |
| Chloroacetaldehyde | 107200 |
| CHLOROALKYL ETHERS | |
| p-Chloroaniline | 106478 |
| Chlorobenzene | 108907 |
| 4-Chloro-m-cresol | 50507 59507 |
| p-Chloro-m-cresol | 59507 |
| Chlorodibromomethane | 124481 |
| 1-Chloro-2,3-epoxypropane | 106898 |
| Chloroethane | 75003 |
| 2-Chloroethyl vinyl ether | 110758 |
| Chloroform | 67663 |
| Chloromethyl methyl ether | 107302 |
| beta-Chloronaphthalene | 91587 |
| 2-Chloronaphthalene | 91587 |
| 2-Chlorophenol | 95578 |
| o-Chlorophenol | 95578 |
| 4-Chlorophenyl phenyl ether | 70057232 |
| 1-(o-Chlorophenyl) thiourea | 5344821 |
| 3-Chloropropionitrile | 542767 |
| Chlorosulfonic acid | 7790945 |
| 4-Chloro-o-toluidine, hydrochloride | 3165933 |
| Chlorpyrifos | 2921882 |
| Chromic acetate | 1066304 |
| Chromic acid | 11115745 |
| | 7738945 |
| Chromic acid, calcium salt | 13765190 |
| Chromic sulfate | 10101538 |
| Chromium** | 7440473 |
| CHROMIUM AND COMPOUNDS | |
| Chromous chloride | 10049055 |
| Chrysene | 218019 |
| Cobaltous bromide | 7789437 |
| Cobaltous formate | 544183 |
| Cobaltous sulfamate | 14017415 |
| Coke Oven Emissions | N.A. |
| Copper** | 7440508 |
| COPPER AND COMPOUNDS | |
| Copper Cyanide | 544923 |
| Coumaphos | 56724 |
| Creosote | 8001589 |
| Cresol(s) | 1319773 |
| m- | 108394 |
| o- | 95487 |
| p- | 106445 |

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| Cresylic acid | 1319773 |
| m- | 108394 |
| o- | 95487 |
| p- | 106445 |
| Crotonaldehyde | 123739 |
| CROTONALDEHYDE | 4170303 |
| Cumene | 98828 |
| Cupric acetate | 142712 |
| Cupric acetoarsenite | 12002038 |
| Cupric chloride | 7447394 |
| Cupric nitrate | 3251238 |
| Cupric oxalate | 5893663 |
| Cupric sulfate | 7758987 |
| Cupric sulfate ammoniated | 10380297 |
| Cupric tartrate | 815827 |
| CYANIDES | |
| Cyanides (soluble cyanide salts), not elsewhere specified | 57125 |
| Cyanogen | 460195 |
| Cyanogen bromide | 506683 |
| Cyanogen chloride | 506774 |
| 1,4-Cyclohexadienedione | 106514 |
| Cyclohexane | 110827 |
| Cyclohexanone | 108941 |
| 1,3-Cyclopentadiene,1,2,3,4,5,5-hexachloro- | 77474 |
| Cyclophosphamide | 50180 |
| 2,4-D Acid | 94757 |
| 2,4-D Esters | 94111 |
| | 94791 |
| | 94804 |
| | 1320189 |
| | 1928387 |
| | 1928616 |
| | 1929733 |
| | 2971382 |
| | 25168267 |
| | 53467111 |
| 2,4-D, salts and esters | 94757 |
| Daunomycin | 20830813 |
| DDD | 72548 |
| 4,4'DDD | 72548 |
| DDE | 72559 |
| | 3547044 |
| 4,4'DDE | 72559 |
| DDT | 50293 |
| 4,4'DDT | 50293 |
| DDT AND METABOLITES | |
| Decachlorooctahydro-1,3,4-metheno-2H- cyclobuta[c,d]-pentalen-2-one | 143500 |

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| Diallate | 2303164 |
| Diamine | 302012 |
| Diaminotoluene | 95807 |
| | 25376458 |
| | 496720 |
| | 823405 |
| Diazinon | 5333415 333415 |
| Dibenz[a,h]anthracene | 53703 |
| 1,2:5,6-Dibenzanthracene | 53703 |
| Dibenzo[a,h]anthracene | 53703 |
| 1,2:7,8-Dibenzopyrene | 189559 |
| Dibenz[a,i]pyrene | 189559 |
| 1,2-Dibromo-3-chloropropane | 96128 |
| Dibutyl phthalate | 84742 |
| Di-n-butyl phthalate | 84742 |
| Dicamba | 1918009 |
| Dichlobenil | 1194656 |
| Dichlone | 117806 |
| S-(2,3-Dichloroallyl) diisopropyl-thiocarbamate | 2303164 |
| 3,5-Dichloro-N-(1,1-dimethyl-2-propynyl) benzamide | 23950585 |
| Dichlorobenzene (mixed) | 25321226 |
| 1,2-Dichlorobenzene | 95501 |
| 1,3-Dichlorobenzene | 541731 |
| 1,4-Dichlorobenzene | 106467 |
| m-Dichlorobenzene | 541731 |
| o-Dichlorobenzene | 95501 |
| p-Dichlorobenzene | 106467 |
| DICHLOROBENZIDINE | |
| 3,3'-Dichlorobenzidine | 91941 |
| Dichlorobromomethane | 75274 |
| 1,4-Dichloro-2-butene | 764410 |
| Dichlorodifluoromethane | 75718 |
| Dichlorodiphenyl dichloroethane | 72548 |
| Dichlorodiphenyl trichloroethane | 50293 |
| 1,1-Dichloroethane | 75343 |
| 1,2-Dichloroethane | 107062 |
| 1,1-Dichloroethylene | 75354 |
| 1,2-trans-Dichloroethylene | 156605 |
| Dichloroethyl ether | 111444 |
| 2,4-Dichlorophenol | 120832 |
| 2,6-Dichlorophenol | 87650 |
| 2,4-Dichlorophenoxy acetic acid, salts and esters | 94757 |
| Dichlorophenylarsine | 696286 |
| Dichloropropane | 26638197 |
| 1,1-Dichloropropane | 78999 |
| 1,3-Dichloropropane | 142289 |
| 1,2-Dichloropropane | 78875 |
| N-,2,3-DICHLOROPROPANOL | 616239 |

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| Dichloropropane -Dichloropropene (mixture) | 8003198 |
| Dichloropropene | 26952238 |
| 2,3-Dichloropropene | 78886 |
| 1,3-Dichloropropene | 542756 |
| 2,2-Dichloropropionic acid | 75990 |
| Dichlorvos | 62737 |
| Dieldrin | 60571 |
| 1,2:3,4-Diepoxybutane | 1464535 |
| Diethylamine | 109897 |
| Diethylarsine | 692422 |
| 1,4-Diethylene dioxide | 123911 |
| N,N-Diethylhydrazine | 1615801 |
| O,O-Diethyl S-[2-(ethylthio) ethyl]phosphrodithioate | 298044 |
| O,O Diethyl S-methyl dithiophosphate | 3288582 |
| Diethyl-p-nitrophenyl phosphate | 311455 |
| Ddiethyl phthalate | 84662 |
| O,O-Diethyl O-pyrazinyl phosphorothioate | 297972 |
| Diethylstilbestrol | 56531 |
| 1,2-Dihydro-3,6-pyridazinedione | 123331 |
| Dihydrosafrole | 94586 |
| Diisopropyl fluorophosphate | 55914 |
| Dimethoate | 60515 |
| 3,3-Dimethoxybenzidine | 119904 |
| Dimethylamine | 124403 |
| Dimethylaminoazobenzene | 60117 |
| 7,12-Dimethylbenz(a) anthracene | 59796 57976 |
| 3,3-Dimethylbenzidine | 119937 |
| alpha, alpha-Dimethylbenzylhydro peroxide | 81059 80159 |
| 3,3-Dimethyl-1-(methylthio)-2-butanone, O-[(methylamino)carbonyl] oxime | 39196184 |
| Dimethylcarbamoyl chloride | 79447 |
| 1,1-Dimethylhydrazine | 57147 |
| 1,2-Dimethylhydrazine | 540378 540738 |
| O,O-Dimethyl O-p-nitrophenyl phosphorothioate | 298000 |
| Dimethylnitrosamine | 62759 |
| alpha,alpha-Dimethyl phenethylamine | 122098 |
| 2,4-Dimethylphenol | 105679 |
| Dimethyl phthalate | 131113 |
| Dimethyl sulfate | 77781 |
| Dinitrobenzene (mixed) | 25154545 |
| m- | 99650 |
| o- | 528290 |
| p- | 100254 |
| 4,6-Dinitro-o-cresol and salts 5 | 34521 534521 |
| 4,6-Dinitro-o-cyclohexylphenol | 131895 |
| Dinitrophenol | 25550587 |
| 2,5- | 329715 |
| 2,6- | 573568 |

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| 2,4-Dinitrophenol | 51285 |
| Dinitrotoluene | 25321146 |
| 3,4-Dinitrotoluene | 610399 |
| 2,4-Dinitrotoluene | 121142 |
| Dinoseb | 88857 |
| Di-n-octyl phthalate | 117840 |
| 1,4-Dioxane | 123911 |
| DIPHENYLAMINE | 122394 |
| DIPHENYLHRDRAZINE | |
| 1,2-Diphenylhydrazine | 122667 |
| Diphosphoramidate, octamethyl- | 152169 |
| Dipropylamine | 142847 |
| Di-n-propylnitrosamine | 621647 |
| Diquat | 85007 |
| | 2764729 |
| Disulfoton | 298044 |
| 2,4-Dithiobiuret | 541537 |
| Dithiopyrophosphoric acid, tetraethyl ester | 3689245 |
| 1,3-Dithiolane-2-carboxaldehyde, 2,4-dimethyl-, O- [(methylamino)carbonyl] oxime (Tirpate) | 26419738 |
| Diuron | 330541 |
| Dodecylbenzenesulfonic acid | 27176870 |
| Endosulfan | 115297 |
| alpha-Endosulfan | 959988 |
| beta-Endosulfan | 33213659 |
| ENDOLSUFAN AND METABOLITES | |
| Endosulfan sulfate | 1031078 |
| Endothall | 145733 |
| Endrin | 72208 |
| Endrin aldehyde | 7421934 |
| ENDRIN AND METABOLITES | |
| Epichlorohydrin | 106898 |
| Epinephrine | 51434 |
| Ethanal | 75070 |
| Ethanamine, 1,1-dimethyl-2-phenyl- | 122098 |
| Ethanamine, N-ethyl-N-nitroso- | 55185 |
| Ethane, 1,2-dibromo- | 106934 |
| Ethane, 1,1-dichloro- | 75343 |
| Ethane, 1,2-dichloro- | 107062 |
| Ethane, 1,1,1,2,2,2-hexachloro- | 67721 |
| Ethane, 1,1'-[methylenebis(oxy)] bis(2-chloro- | 111911 |
| Ethane, 1,1'-oxybis- | 60297 |
| Ethane, 1,1'-oxybis(2-chloro- | 111444 |
| Ethane, pentachloro- | 76017 |
| Ethane, 1,1,1,2-tetrachloro- | 630206 |
| Ethane, 1,1,2,2-tetrachloro- | 79345 |
| Ethane, 1,1,2-trichloro- | 79005 |
| Ethane, 1,1,1-trichloro-2,2-bis(p-methoxyphenyl)- | 72435 |

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| 1,2- Ethanediylbiscarbamodithioic acid | 111546 |
| Ethanenitrile | 75058 |
| Ethanethioamide | 62555 |
| Ethanimidothioic acid, 2-(dimethylamino)-N-hydroxy-2-oxo, methyl ester (A2213) | 30558431 |
| Ethanimidothioic acid, 2-(dimethylamino)-N-[[methylamino)carbonyl]oxy]-2-oxo, methyl ester (Oxamyl) | 23135220 |
| Ethanimidothioic acid, N,N'-[thiobis[(methylimino) carbonyloxy]] bis-, di-methyl ester (Thiodicarb) | 59669260 |
| Ethanol, 2,2'-(nitrosoimino)bis- | 1116547 |
| Ethanol, 2,2'-oxybis-, dicarbamate (Diethylene glycol, dicarbamate) | 5952261 |
| Ethanone, 1-phenyl- | 98862 |
| Ethanoyl chloride | 75365 |
| Ethenamine, N-methyl-N-nitroso | 4549400 |
| Ethene, chloro- | 75014 |
| Ethene, 2-chloroethoxy | 110758 |
| Ethene, 1,1-dichloro- | 75354 |
| Ethene, 1,1,2,2-tetrachloro- | 127184 |
| Ethene, trans-1,2-dichloro- | 156605 |
| Ethion | 563122 |
| Ethyl acetate | 141786 |
| Ethyl acrylate | 140885 |
| Ethylbenzene | 100414 |
| Ethyl carbamate (Urethan) | 51796 |
| Ethyl cyanide | 107120 |
| Ethyl 4,4'-dichlorobenzilate | 510156 |
| Ethylene dibromide | 106934 |
| Ethylene dichloride | 107062 |
| ETHYLENE GLYCOL Ethylene glycol | 107211 |
| Ethylene oxide | 75218 |
| Ethylenebis(dithio carbamic acid) | 111546 |
| Ethylendiamine | 107153 |
| Ethylenediamine tetraacetic acid (EDTA) | 60004 |
| Ethylenethiourea | 96457 |
| Ethylenimine | 151564 |
| Ethyl ether | 60297 |
| Ethylidene dichloride | 75343 |
| Ethyl methacrylate | 97632 |
| Ethyl methanesulfonate | 62500 |
| Famphur | 52857 |
| Ferric ammonium citrate | 1185575 |
| Ferric ammonium oxalate | 2944674 |
| | 55488874 |
| Ferric chloride | 7705080 |
| Ferric fluoride | 7783508 |
| Ferric nitrate | 10421484 |
| Ferric sulfate | 10028225 |

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| Ferrous ammonium sulfate | 10045893 |
| Ferrous chloride | 7758943 |
| Ferrous sulfate | 7720787 |
| | 7782630 |
| Fluoroacetic acid, sodium salt | 62748 |
| Fluoroanthene | 206440 |
| Fluorene | 86737 |
| Fluorine | 7782414 |
| Fluoroacetamide | 640197 |
| Formaldehyde | 50000 |
| Formic acid | 64186 |
| Fulminic acid, mercury(II) salt | 628864 |
| Fumaric acid | 110178 |
| Furan | 110009 |
| Furan, tetrahydro | 109999 |
| 2-Furancarboxaldehyde | 98011 |
| 2,5-Furandione | 108316 |
| Furfural | 98011 |
| Furfuran 1 | 10009 110009 |
| D-Glucopyranose, 2-deoxy-2-(3-methyl-3-nitrosoureido)- | 18883664 |
| Glycidylaldehyde | 765344 |
| Guanidine, N-nitroso-N-methyl-N'-nitro | 70257 |
| Guthion | 86500 |
| HALOETHERS | |
| HALOMETHANES | |
| Heptachlor | 76448 |
| HEPTACHLOR & METABOLITES | |
| Heptachlor epoxide | 1024573 |
| Hexachlorobenzene | 118741 |
| Hexachlorobutadiene | 87683 |
| HEXACHLOROCYCLOHEXANE (all isomers) | 608731 |
| Hexachlorocyclohexane (gamma isomer) | 58899 |
| Hexachlorocyclopentadiene | 77474 |
| 1,2,3,4,10,10-Hexachloro-6,7-epoxy-1,4,4a,5,6,7,8,8a- octahydro-endo,endo-1,4:5,8-dimethanonaphthalene | 72208 |
| 1,2,3,4,10,10-Hexachloro-6,7-epoxy- 1,4,4a,5,6,7,8,8a-octahydro-endo, exo-1,4:5,8-dimethanonaphthalene | 60571 |
| Hexachloroethane | 67721 |
| Hexachlorohexahydro-endo,endo-dimethanonaphthalene | 465736 |
| 1,2,3,4,10,10-Hexachloro-1,4,4a,5,8,endo, endo-dimethanonaphthalene | 465736 |
| 1,2,3,4,10-10-Hexachloro-1,4,4a,5,8,8a, -hexahydro-1,4:5,8-endo,exo,dimethanonaphthalene | 309022 |
| Hexachlorophene | 70304 |
| Hexachloropropene | 1888717 |
| Hexaethyl tetraphosphate | 757584 |
| Hydrazine | 302012 |
| Hydrazine, 1,2-diethyl- | 1615801 |

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| Hydrazine, 1,1-dimethyl- | 57147 |
| Hydrazine, 1,2-dimethyl- | 540738 |
| Hydrazine, 1,2-diphenyl- | 122667 |
| Hydrazine, methyl- | 60344 |
| Hydrazinecarbothioamide | 79196 |
| Hydrochloric acid | 7647010 |
| Hydrocyanic acid | 74908 |
| Hydrofluoric acid | 7664393 |
| Hydrogen cyanide | 74908 |
| Hydrogen fluoride | 7664393 |
| Hydrogen phosphide | 7803512 |
| Hydrogen sulfide | 7783064 |
| Hydroperoxide, 1-methyl-1-phenylethyl | 80159 |
| Hydrosulfuric acid | 7783064 |
| Hydroxydimethylarsine oxide | 75605 |
| 2-Imidazolidinethione | 96457 |
| Indeno(1,2,3-cd)pyrene | 193395 |
| Isobutyl alcohol | 78831 |
| Isocyanic acid, methyl ester | 624839 |
| Isophorone | 78591 |
| Isoprene | 78795 |
| Isopropanolamine dodecylbenzenesulfonate | 42504461 |
| Isosafrole | 120581 |
| 3(2H)-Isoxazolone, 5-(aminomethyl)- | 2763964 |
| Kelthane | 115322 |
| Kepone | 143500 |
| Lasiocarpine | 303344 |
| Lead** | 7439921 |
| Lead acetate | 301042 |
| LEAD AND COMPOUNDS | |
| Lead arsenate | 7784409 |
| | 7645252 |
| | 10102484 |
| Lead chloride | 7758954 |
| Lead fluoborate | 13814965 |
| Lead fluoride | 7783462 |
| Lead iodide | 10101630 |
| Lead nitrate | 10099748 |
| Lead phosphate | 7446277 |
| Lead stearate | 7428480 |
| | 1072351 |
| | 56189094 |
| | 52652592 |
| Lead subacetate | 1335326 |
| Lead sulfate | 15739807 |
| | 7446142 |
| Lead sulfide | 1314870 |
| Lead thiocyanate | 592870 |

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| Lindane | 58899 |
| Lithium chromate | 14307358 |
| Malathion | 121755 |
| Maleic acid | 110167 |
| Maleic anhydride | 108316 |
| Maleic hydrazide | 123331 |
| Malononitrile | 109773 |
| Manganese, bis(dimethylcarbamodithioato-S,S')-(manganese dimethyldithio-carbamate) | 15339363 |
| Melphalan | 148823 |
| Mercaptodimethur | 2032657 |
| Mercuric cyanide | 592041 |
| Mercuric nitrate | 10045940 |
| Mercuric sulfate | 7783359 |
| Mercuric thiocyanate | 592858 |
| Mercurous nitrate | 10415755 |
| | 7782867 |
| Mercury | 7439976 |
| MERCURY AND COMPOUNDS | |
| Mercury, (acetato-O)phenyl- | 62384 |
| Mercury fulminate | 628864 |
| Methacrylonitrile | 126987 |
| Methanamine, N-Methyl- | 124403 |
| Methane, bromo- | 74839 |
| Methane, chloro- | 74873 |
| Methane, chloromethoxy- | 107302 |
| Methane, dibromo- | 74953 |
| Methane, dichloro- | 95092 75092 |
| Methane, dichloro-difluoro- | 75718 |
| Methane, iodo- | 74884 |
| Methane, oxybis(chloro- | 542881 |
| Methane, tetrachloro- | 56235 |
| Methane, tetranitro- | 509148 |
| Methane, tribromo- | 75252 |
| Methane, trichloro- | 67663 |
| Methane, trichloro-fluoro- | 75694 |
| Methanesulfonic acid, ethyl ester | 62500 |
| Methanethiol | 74931 |
| Methanesulfonyl chloride, trichloro- | 594423 |
| Methanimidamide, N,N-dimethyl-N'- [2-methyl-4- [[[(methylamino)carbonyl]oxy]phenyl] -(Formparanate) | 17702577 |
| Methanimidamide, N,N-dimethyl-N'- [3- [[[(methylamino)carbonyl]oxy]penyl]-, monohydrochloride (Formetanate hydro-chloride) | 23422539 |
| 4,7-Methano-1H-indene, 1,4,5,6,7,8,8-heptachloro-3a, 3,7,7a- tetrahydro- | 76448 |
| Methanoic acid | 64186 |
| 4,7-Methanoindan,1,2,4,5,6,7,8,8-octa-chloro- 3a,4,7,7a- | 57749 |

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| tetrahydro- | |
| Methanol | 67561 |
| Methapyrilene | 91805 |
| Methomyl | 16752775 |
| Methoxychlor | 72435 |
| Methyl alcohol | 67561 |
| 2-Methylaziridine | 75558 |
| Methyl bromide | 74839 |
| 1-Methylbutadiene | 504609 |
| Methyl chloride | 74873 |
| Methyl chlorocarbonate | 79221 |
| Methyl chloroform | 71556 |
| 4,4-Methylenebis (2-chloroaniline) | 101144 |
| 2,2'-Methylenebis (3,4,6-trichlorophenol) | 70304 |
| 3-Methylcholanthrene | 56495 |
| Methylene bromide | 74953 |
| Methylene chloride | 75092 |
| Methylene oxide | 50000 |
| Methyl ethyl ketone | 78933 |
| Methyl ethyl ketone peroxide | 1338234 |
| Methyl hydrazine | 60344 |
| Methyl iodide | 74884 |
| Methyl isobutyl ketone | 108101 |
| Methyl isocyanate | 624839 |
| 2-Methylactonitrile | 75865 |
| Methyl mercaptan | 74931 |
| Methyl methacrylate | 80626 |
| N-Methyl-N'-nitro-N-nitrosoguanidine | 70257 |
| Methyl parathion | 298000 |
| 4-Methyl-2-pentanone | 108101 |
| Methylthiouracil | 56042 |
| Mevinphos | 7786347 |
| Mexacarbate | 315184 |
| Mitomycin C | 50077 |
| Monoethylamine | 75047 |
| Monomethylamine | 74895 |
| Naled | 300765 |
| 5,12-Naphthacenedione, (8S-cis)-8-acetyl-10- [3-amino-2,3,6-tride-oxy-alpha-l-lyxo-hexo-pyranosyl) oxy]-7,8,9,10-tetrahydro-6,8,11-trihydroxy-1-methoxy- | 20830813 |
| Naphthalene, 2-chloro- | 91203 |
| Naphthalene, 2-chloro- | 91587 |
| 1,4-Naphthalenedione | 130154 |
| 2,7-Naphthalenedisulfonic acid, 3,3' -[(3,3'-dimethyl-(1,1'biphenyl)-4,4-diyl)-bis(azo) bis(5-amino-4-hydroxy)-tetrasodium salt | 72571 |
| Naphthenic acid | 1338245 |
| 1,4-Naphthoquinone | 130154 |

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| 1-Naphthylamine | 134327 |
| 2-Naphthylamine | 91598 |
| alpha-Naphthylamine | 134327 |
| beta-Naphthylamine | 91598 |
| 2-Naphthylamine, N,N-bis(2-chloroethyl)-alpha-Naphthylthathiourea | 494031 |
| Nickel** | 86884 |
| Nickel** | 7440020 |
| NICKEL AND COMPOUNDS | |
| Nickel ammonium sulfate | 15699180 |
| Nickel carbonyl | 13463393 |
| Nickel chloride | 7718549 |
| | 37211055 |
| Nickel cyanide | 557197 |
| Nickel (II) cyanide | 557197 |
| Nickel hydroxide | 12054487 |
| Nickel nitrate | 14216752 |
| Nickel sulfate | 7786814 |
| Nickel tetracarbonyl | 13463393 |
| Nicotine and salts | 54115 |
| Nitric acid | 7697372 |
| Nitric oxide | 10102439 |
| p-Nitroaniline | 100016 |
| Nitrobenzene | 98953 |
| Nitrogen dioxide | 10102440 |
| | 10544726 |
| Nitrogen (II) oxide | 10102439 |
| Nitrogen (IV) oxide | 10102440 |
| | 10544726 |
| Nitroglycerine | 55630 |
| Nitrophenol (mixed) | 25154556 |
| m- | 554847 |
| o- | 88755 |
| p- | 100027 |
| p-Nitrophenol | 100027 |
| 2-Nitrophenol | 88755 |
| 4-Nitrophenol | 100027 |
| NITROPHENOLS | |
| 2-Nitropropane | 79469 |
| NITROSAMINES | |
| N-Nitrosodi-n-butylamine | 924163 |
| N-Nitrosodiethanolamine | 1116547 |
| N-Nitrosodiethylamine | 55185 |
| N-Nitrosodimethylamine | 62759 |
| N-Nitrosodiphenylamine | 86306 |
| N-Nitrosodi-n-propylamine | 621647 |
| N-Nitroso-N-ethylurea | 759739 |
| N-Nitroso-N-methylurea | 684935 |
| N-Nitroso-N-methylurethane | 615532 |

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| N-Nitrosomethyl-vinylamine | 4549400 |
| N-Nitrosopiperidine | 100754 |
| N-Nitrosopyrrolidine | 930552 |
| Nitrotoluene | 1321126 |
| m- | 99081 |
| o- | 88722 |
| p- | 99990 |
| 5-Nitro-o-toluidine | 99558 |
| 5-Norbornene-2,3-dimethanol,1,4,5,6,7,7-hexachloro, cyclic sulfite | 115297 |
| Octamethylpyrophosphor amide | 152169 |
| Osmium oxide | 20816120 |
| Osmium tetroxide | 20816120 |
| 7-Oxabicyclo[2.2.1] Heptane-2,3-dicarboxylic acid | 145733 |
| 1,2-Oxathiolane,2,2-dioxide | 1120714 |
| 2h-1,3,2-Oxazaphosphorine, 2-[bis(2-chloroethyl)amino] tetrahydro-2-oxide. | 50180 |
| Oxirane | 75218 |
| Oxirane, 2-(chloro-methyl) | 106898 |
| Paraformaldehyde | 30525894 |
| Paraldehyde | 123637 |
| Parathion | 56382 |
| Pentachlorobenzene | 608935 |
| Pentachloroethane | 76017 |
| Pentachloronitrobenzene | 82688 |
| Pentachlorophenol | 87865 |
| 1,3-Pentadiene | 504609 |
| Phenacetin | 62442 |
| Phenanthrene | 85018 |
| Phenol | 108952 |
| Phenol, 2-chloro- | 95578 |
| Phenol, 4-chloro-3-methyl- | 59507 |
| Phenol, 2-cyclohexyl-4,6-dinitro- | 131895 |
| Phenol, 2,4-dichloro- | 120832 |
| Phenol, 2,6-dichloro- | 87650 |
| Phenol, 2,4-dimethyl- | 105679 |
| Phenol, 2,4-dinitro- | 51285 |
| Phenol, 2,4-dinitro-6-(1-methylpropyl) | 88857 |
| Phenol, 2,4-dinitro-6-methyl-, and salts | 534521 |
| Phenol, 3-(1-methylethyl)-, methyl carbamate (m-Cumenyl methylcarbamate) | 64006 |
| Phenol Phenol, 3-methyl-5-(1-methylethyl)-, methyl carbamate (Promecarb) | 2631370 |
| Phenol, 4-nitro- | 100027 |
| Phenol, pentachloro- | 87865 |
| Phenol, 2,3,4,6-tetrachloro- | 58902 |
| Phenol, 2,4,5-trichloro- | 95954 |
| Phenol, 2,4,6-trichloro- | 88062 |

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| Phenol, 2,4,6-trinitro-, ammonium salt | 131748 |
| Phenyl dichloroarsine 1,10-(1,2- | 696286 |
| 1, 10-(1,2-Phenylene)pyrene | 193395 |
| Phenylenediamine (para-isomer) | 106503 |
| Phenylmercuric acetate | 62384 |
| N-Phenylthiourea | 103855 |
| Phorate | 298022 |
| Phosgene | 75445 |
| Phosphine | 7803512 |
| Phosphoric acid | 7664382 |
| Phosphoric acid, diethyl p-nitrophenyl ester | 311455 |
| Phosphoric acid, lead salt | 7446277 |
| Phosphorodithioic acid, O,O-diethyl S-methyl ester | 3288582 |
| Phosphorodithioic acid, O,O-diethyl S-(ethylthio), methyl ester | 298022 |
| Phosphorodithioic acid, O,O-dimethyl S-[2(methylamino) -2-oxoethyl] ester | 60515 |
| Phosphorofluoridic acid, bis(1-methylethyl) ester | 55914 |
| Phosphorothioic acid, O,O-diethyl O-(p-nitrophenyl) ester | 56582 56382 |
| Phosphorothioic acid, O,O-diethyl O-pyrazinyl ester | 297972 |
| phosphorothioic acid, O,O-dimethyl O-p-[dimethylamino)-sulfonyl] phenyl] ester. | 52857 |
| Phosphorus | 7723140 |
| Phosphorus oxychloride | 10025873 |
| Phosphorus pentasulfide | 1314803 |
| Phosphorus sulfide | 1314803 |
| Phosphorus trichloride | 7719122 |
| PHTHALATE ESTERS | |
| Phthalic anhydride | 85449 |
| 2-Picoline | 109068 |
| Plumbane, tetraethyl- | 78002 |
| POLYCHLORINATED BIPHENYLS (PCBs) | 1336363 |
| | 12674112 |
| | 11104282 |
| | 11141165 |
| | 12672296 |
| | 53469219 |
| | 11097691 |
| | 11096825 |
| POLYNUCLEAR AROMATIC HYDROCARBONS | |
| Potassium arsenate | 7784410 |
| Potassium arsenite | 10124502 |
| Potassium bichromate | 7778509 |
| Potassium chromate | 77890006 |
| Potassium cyanide | 151508 |
| Potassium hydroxide | 1310583 |
| Potassium permanganate | 7722647 |
| Potassium silver cyanide | 506616 |
| Pronamide | 23950585 |

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| 1-Propanal, 2,3-epoxy- | 765344 |
| Propanal, 2-methyl-2-(methylthio)-, O-[(methylamino)carbonyl] oxime | 116063 |
| Propanal, 2-methyl-2-(methylsulfonyl)-, O-[(methylamino)carbonyl] oxime (Aldicarb sulfone) | 1646884 |
| 1-Propanamine | 107108 |
| 1-Propanamine, N-propyl- | 142847 |
| Propane, 1,2-dibromo-3-chloro- | 96128 |
| Propane, 2-nitro- | 79469 |
| Propane, 2,2-oxybis(2-chloro- | 108601 |
| 1,3-Propane sultone | 1120714 |
| Propanedinitrile | 109773 |
| Propanenitrile | 107120 |
| Propanenitrile, 3-chloro- | 542767 |
| Propanenitrile, 2-hydroxy-2-methyl- | 75865 |
| 1,2,3-Propanetriol, trinitrate- | 55630 |
| Propanol, 2,3-dibromo-, phosphate (3:1) | 126727 |
| 1-Propanol, 2-methyl- | 78831 |
| 2-Propanone | 67641 |
| 2-Propanone, 1-bromo | 598312 |
| Propargite | 2312358 |
| Propargyl alcohol | 107197 |
| 2-Propenal | 107028 |
| 2-Propenamide | 79061 |
| Propene, 1,3-dichloro- | 542756 |
| 1-Propene, 1,1,2,3,3,3-hexachloro- | 1888717 |
| 2-Propenenitrile | 107131 |
| 2-Propenenitrile, 2-methyl- | 126987 |
| 2-Propenoic acid | 79107 |
| 2-Propenoic acid, ethyl ester | 140885 |
| 2-Propenoic acid, 2-methyl-, ethyl ester | 97632 |
| 2-Propenoic acid, 2-methyl-, methyl ester | 80626 |
| 2-Propen-1-ol | 107186 |
| Propionic acid | 79094 |
| Propionic acid, 2-(2,4,5-trichlorophenoxy)- | 93721 |
| Propionic anhydride | 123626 |
| n-Propylamine | 107108 |
| Propylene dichloride | 78875 |
| Propylene oxide | 75569 |
| 1,2-Propylenimine | 75558 |
| 2-Propyn-1-ol | 107197 |
| Pyrene | 129000 |
| Pyrethrins | 121299 |
| | 121211 |
| | 8003347 |
| 4-Pyridinamine | 504245 |
| Pyridine | 110861 |
| Pyridine, 2-[(2-(di-methylamine)ethyl)-2-thenylamino]- | 91805 |

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| Pyridine, hexahydro-N-nitroso- | 100754 |
| Pyridine,2-methyl- | 109068 |
| Pyridine,(S)-3-(1-methyl-2-pyrrolidinyl)-, and salts | 54115 |
| 4(1H)-Pyrimidinone,2,3-dihydro-6-methyl-2-thioxo- | 56042 |
| Pyrophosphoric acid, tetraethyl ester | 107493 |
| Pyrrole, tetrahydro-n-nitroso- | 930552 |
| Pyrrolo[2,3-b]indol-5-ol,1,2,3,3a,8,8a-hexahydro-1, 3a,8-trimethyl-, methylcarbamate (ester),(3aS-cis)- (physostigmine) | 57476 |
| Quinoline | 91225 |
| RADIONUCLIDES | |
| Reserpine | 50555 |
| Resorcinol | 108463 |
| Saccharin and salts | 81072 |
| Safrole | 94597 |
| Selenious acid | 7783008 |
| Selenium** | 7782492 |
| SELENIUM AND COMPOUNDS | |
| Selenium dioxide | 7446084 |
| Selenium disulfide | 7488564 |
| Selenium oxide | 7446084 |
| Selenourea | 630104 |
| L-Serine, diazoacetate (ester) | 115026 |
| Silver** | 7440224 |
| SILVER AND COMPOUNDS | |
| Silver cyanide | 506649 |
| Silver nitrate | 7761888 |
| Silvex | 93721 |
| Sodium | 7440235 |
| Sodium arsenate | 7631892 |
| Sodium arsenite | 7784465 |
| Sodium azide | 26628228 |
| Sodium bichromate | 10588019 |
| Sodium bifluoride | 1333831 |
| Sodium bisulfite | 7631905 |
| Sodium chromate | 7775113 |
| Sodium cyanide | 143339 |
| Sodium dodecylbenzene sulfonate | 25155300 |
| Sodium fluoride | 7681494 |
| Sodium hydrosulfide | 16721805 |
| Sodium hydroxide | 1310732 |
| Sodium hypochlorite | 7681529 |
| | 10022705 |
| Sodium methylate | 124414 |
| Sodium nitrite | 7632000 |
| Sodium phosphate, dibasic | 7558794 |
| | 10039324 |
| | 10140655 |
| Sodium phosphate, tribasic | 7601549 |

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| | 7785844 |
| | 10101890 |
| | 10361894 |
| | 7758294 |
| | 10124568 |
| Sodium selenite | 10102188 |
| | 7782823 |
| 4,4'Stilbenediol, alpha,alpha'-diethyl- | 56531 |
| Streptozotocin | 18883664 |
| Strontium chromate | 7789062 |
| Strychnidin-10-one, and salts | 57249 |
| Strychnidin-10-one, 2,3-dimethoxy- | 357573 |
| Strychnine and salts | 57249 |
| Styrene | 100425 |
| Sulfur hydride | 7783064 |
| Sulfur monochloride | 12771083 |
| Sulfur phosphide | 1314803 |
| Sulfur selenide | 7488564 |
| Sulfuric acid | 7664939 |
| | 8014957 |
| Sulfuric acid, dimethyl ester | 77781 |
| Sulfuric acid, thallium(I) salt | 7446186 |
| | 10031591 |
| 2,4,5-T | 93765 |
| 2,4,5-T acid | 93765 |
| 2,4,5-T amines | 2008460 |
| | 6369966 |
| | 6369977 |
| | 1319728 |
| | 3813147 |
| 2,4,5-T esters | 93798 |
| | 2545597 |
| | 61792072 |
| | 1928478 |
| | 25168154 |
| 2,4,5-T salts | 13560991 |
| TDE | 72548 |
| 1,2,4,5-Tetrachlorobenzene | 95943 |
| 2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD) | 1746016 |
| 1,1,1,2-Tetrachloroethane | 630206 |
| 1,1,2,2-Tetrachloroethane | 79345 |
| Tetrachloroethylene | 127184 |
| 2,3,4,6-Tetrachlorophenol | 58902 |
| Tetraethyldithiopyro-phosphate | 3689245 |
| Tetraethyl lead | 78002 |
| Tetraethyl pyrophosphate | 107493 |
| Tetrahydrofuran | 109999 |
| Tetranitromethane | 509148 |

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| Tetraphosphoric acid, hexaethyl ester | 757584 |
| Thallic oxide | 1314325 |
| Thallium** | 7440280 |
| THALLIUM AND COMPOUNDS | |
| Thallium(I) acetate | 563688 |
| Thallium(I) carbonate | 6533739 |
| Thallium(I) chloride | 7791120 |
| Thallium(I) nitrate | 10102451 |
| Thallium(III) oxide | 1314325 |
| Thallium(I) selenide | 12039520 |
| Thallium(I) sulfate | 7446186 |
| | 10031591 |
| Thioacetamide | 62555 |
| Thiofanox | 39196184 |
| Thiomidodicarbonic diamide | 541537 |
| Thiomethanol | 74931 |
| Thiophenol | 108985 |
| Thiosemicarbazide | 79196 |
| Thiourea | 62566 |
| thiourea, (2,chlorophenyl)- | 5344821 |
| Thiourea, 1-naphthalenyl | 86884 |
| Thiourea, phenyl | 103855 |
| Thiram | 137268 |
| Toluene | 108883 |
| Toluenediamine | 95807 |
| | 25376458 |
| | 96720 |
| | 823405 |
| Toluene diisocyanate diisocyanate | 584849 |
| | 91087 |
| | 26471625 |
| o-Toluidine hydrochloride | 636215 |
| Toxaphene | 8001352 |
| 2,4,5-TP acid | 93721 |
| 2,4,5-TP acid esters | 32534955 |
| 1H-1,2,4-Triazol-3-amine | 61825 |
| Trichlorfon | 52686 |
| 1,2,4-Trichlorobenzene | 120821 |
| 1,1,1-Trichloroethane | 71556 |
| 1,1,2-Trichloroethane | 79005 |
| Trichloroethene | 79016 |
| Trichloroethylene | 79016 |
| Trichloromethanesulfenyl chloride | 594423 |
| Trichloromonofluoro-methane | 75694 |
| Trichlorophenol | 25167822 |
| 2,3,4-Trichlorophenol | 15950660 |
| 2,3,5-Trichlorophenol | 933788 |
| 2,3,6-Trichlorophenol | 933755 |

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| 2,4,5-Trichlorophenol | 95954 |
| 2,4,6-Trichlorophenol | 88062 |
| 3,4,5-Trichlorophenol | 609198 |
| 2,4,5-Trichlorophenol | 95954 |
| 2,4,6-Trichlorophenol | 80862 88062 |
| 2,4,5-Trichlorophenoxy-acetic acid | 93765 |
| 1,2,3-Trichloropropane | 96184 |
| Triethanolamine dodecylbenzene-sulfonate | 27323417 |
| Trimethylamine <u>Triethylamine</u> | 121488 <u>121448</u> |
| Triethylamine <u>Trimethylamine</u> | 75503 |
| sym-Trinitrobenzene | 99354 |
| 1,3,5-Trioxane, 2,4,6-trimethyl- | 123637 |
| Tris (2,3-dibromopropyl) phosphate | 126727 |
| Trypan blue | 72571 |
| Unlisted Hazardous Wastes | |
| Characteristic of Ingnitability | |
| Characteristic of Corrosivity | |
| Characteristic of Reactivity | |
| Characteristic of EP Toxicity | |
| Arsenic | |
| Barium | |
| Cadmium | |
| Chromium | |
| Lead | |
| Mercury | |
| Selenium | |
| Silver | |
| Endrin | |
| Lindane | |
| Methoxychlor | |
| Toxaphene | |
| 2,4-D | |
| 2,4,5-TP | |
| Uracil, 5-[bis(2-chloro-ethyl)amino]- | 66751 |
| Uracil mustard | 66751 |
| Uranyl acetate | 541093 |
| Uranyl nitrate | 10102064 |
| | 36478769 |
| Vanadic acid, ammonium salt | 7803556 |
| Vanadium (V) oxide | 1314621 |
| Vanadium pentoxide | 1314621 |
| Vanadyl sulfate | 27774136 |
| Vinyl <u>Vinyl</u> acetate | 108054 |
| Vinyl chloride | 75014 |
| Vinylidene chloride | 75354 |
| Warfarin | 81812 |
| Xylene (mixed) | 1330207 |
| m- | 108383 |

| | |
|--|---------------|
| o- | 95476 |
| p- | 106423 |
| Xylenol | 1300716 |
| yohimban-16-carboxylic-acid, 11, 17-dimethoxy-18-[(3,4,5-trimethoxybenzoyl)oxy]-, methylester. | 50555 |
| Zinc** | 7440666 |
| ZINC AND COMPOUNDS | |
| Zinc acetate | 557346 |
| Zinc ammonium chloride | 52628258 |
| | 14639975 |
| | 14639986 |
| zinc, bis(dimethylcarbami-di-thioato-S,S')-, (Ziram) | 137304 |
| Zinc borate | 1332076 |
| Zinc bromide | 7699458 |
| Zinc carbonate | 3486359 |
| Zinc chloride | 7646857 |
| Zinc cyanide | 557211 |
| Zinc fluoride | 7783495 |
| Zinc formate | 557415 |
| Zinc hydrosulfite | 7779864 |
| Zinc nitrate | 7779886 |
| Zinc phenolsulfonate | 127822 |
| Zinc phosphide | 1314847 |
| Zinc silicofluoride | 16871719 |
| Zinc sulfate | 7733020 |
| Zirconium nitrate | 13746899 |
| Zirconium potassium fluoride | 16923958 |
| Zirconium sulfate | 14644612 |
| Zirconium tetrachloride | 10026116 |
| 2-Amino-1-methylbenzene* | 95534 |
| 4-Amino-1-methylbenzene* | 106490 |
| 2-Ethoxyethanol* | 110805 |
| Ethylene glycol monoethyl ether* | 110805 |
| o-Toluidine | 95534 |
| p-Toluidine | 106490 |
| <u>beta-Propiolactone</u> | <u>57578</u> |
| <u>N-nitrosomorpholine</u> | <u>59892</u> |
| <u>Acetamide</u> | <u>60355</u> |
| <u>Dimethylformamide</u> | <u>68122</u> |
| <u>Chloroacetic acid</u> | <u>79118</u> |
| <u>o-Anisidine</u> | <u>90040</u> |
| <u>N,N-Diethylaniline</u> | <u>91667</u> |
| <u>Biphenyl</u> | <u>92524</u> |
| <u>4-Aminobiphenyl</u> | <u>92671</u> |
| <u>4-Nitrobiphenyl</u> | <u>92933</u> |
| <u>MDI</u> | <u>101688</u> |
| <u>4,4'-Methylenedianiline</u> | <u>101779</u> |
| <u>1,2-Epoxybutane</u> | <u>106887</u> |

| | |
|---|----------------|
| <u>1,3-Butadiene</u> | <u>106990</u> |
| <u>Hexane</u> | <u>110543</u> |
| <u>Diethanolamine</u> | <u>111422</u> |
| <u>Phenol, 2-(1-methylethoxy)-, methylcarbamate</u> | <u>114261</u> |
| <u>Propoxur (Baygon)</u> | <u>114261</u> |
| <u>Catechol</u> | <u>120809</u> |
| <u>N,N-Dimethylaniline</u> | <u>121697</u> |
| <u>Hydroquinone</u> | <u>123319</u> |
| <u>Propionaldehyde</u> | <u>123386</u> |
| <u>Chloroprene</u> | <u>126998</u> |
| <u>Dibenzofuran</u> | <u>132649</u> |
| <u>Chloramben</u> | <u>133904</u> |
| <u>Calcium cyanamide</u> | <u>156627</u> |
| <u>Diazomethane</u> | <u>334883</u> |
| <u>Carbonyl sulfide</u> | <u>463581</u> |
| <u>2,2,4-Trimethylpentane</u> | <u>540841</u> |
| <u>Vinyl bromide</u> | <u>593602</u> |
| <u>Hexamethylphosphoramide</u> | <u>680319</u> |
| <u>Hexamethylene-1,6-diisocyanate</u> | <u>822060</u> |
| <u>Trifluralin</u> | <u>1582098</u> |
| <u>Methyl tert-butyl ether</u> | <u>1634044</u> |

** No reporting of releases of this hazardous substance is required if diameter of the pieces of the solid metal released is equal to or exceeds 100 micrometers (0.004 Inches).

*** The reportable quantity of asbestos is limited to friable forms only.

(E) Hazardous substances shall include a mixture of hazardous substance and petroleum which is not contained in a petroleum UST system.

HISTORY: Eff 10-2-90; 1-22-93; 3-31-99; 3-1-05

Rule promulgated under: RC 119.03

Rule authorized by: RC 3737.88(A) and (D)

Rule amplifies: RC 3737.88(A) and (D)

R.C. 119.032 review dates: 11/24/2004 and 03/01/2010

1301:7-9-04 **Registration of UST systems.**

(A) Purpose and scope.

For the purpose of prescribing rules pursuant to sections 3737.02 and 3737.88 of the Revised Code, the state fire marshal hereby adopts this rule to establish registration requirements for underground storage tanks containing petroleum or other regulated substances. This rule is adopted by the state fire marshal in accordance with Chapter 119- of the Revised Code and shall not be considered a part of the "Ohio Fire Code."

(B) Annual registration.

(1) On or before August 1, 1991, and not later than the first day of July of each subsequent year, owners of the following UST systems shall submit an annual registration application to the state fire marshal:

(a) UST systems currently in use; and

(b) UST systems which were taken out of service after January 1, 1974 in a manner not in compliance with either the "Ohio Fire Code" or this chapter of the Administrative Code, as those requirements were in effect at the time the UST systems were taken out of service.

Owners shall submit an annual registration application to the state fire marshal for each location containing such UST systems.

(2) The state fire marshal shall prescribe the annual registration application form to be used and shall, at least thirty days prior to the registration deadline of each year, provide an annual registration application to each owner that submitted any UST registration application to the state fire marshal during the previous year.

(3) A fee in the amount of fifty dollars for each tank comprising an UST system listed on the application shall be submitted by the owner with the annual registration application to the state fire marshal. Any registration received after the last day of June each year shall be charged a ten percent late fee.

(C) Registration for new UST system installations.

(1) Any owner who installs an UST system shall, within thirty days of bringing such UST system into service, submit the applicable new UST system installation application described in either paragraph (C)(2) or (C)(3) of this rule to the state fire marshal for each location where such UST system is installed.

(2) If an UST system is installed at a location for which there is no current registration, the owner of the UST system shall submit a new facility registration application to the state fire marshal on the application form prescribed by the state fire marshal.

(3) If an UST system is installed at a location for which there is a current registration, the owner of the UST system shall submit a modified registration application to the state fire marshal on the form prescribed by the state fire marshal.

(4) A fee in the amount of fifty dollars for each newly installed tank brought into service which is listed on either application described in paragraph (C)(2) or (C)(3) of this rule shall be submitted by the owner with the new UST system application to the state fire marshal.

(D) Transfer of UST ownership.

(1) Any person to whom ownership of any UST is transferred shall, within thirty days of the transfer, submit a transfer of UST registration application to the state fire marshal for each location where an UST subject to the transfer is located. The state fire marshal shall prescribe a form for this application. The transferor shall notify the transferee of this requirement at the time of transfer.

(2) A fee in the amount of fifty dollars for each tank comprising an UST system listed on the application shall be submitted by the new owner of the UST with the transfer of UST registration application to the state fire marshal.

(E) Fee exemptions.

The United States, the state of Ohio, and political subdivisions are exempted from paying the fees described in paragraphs (B)(3), (C)(4), and (D)(2) of this rule. This paragraph does not exempt the United States, the state of Ohio, and political subdivisions from compliance with all other provisions of this rule.

(F) The state fire marshal shall review each application and reject the application if the application does not provide all of the information required by the prescribed form or if the application was not accompanied by the applicable fee payment.

(G) No person shall falsify any information on any application form required by this rule.

(H) Owners of UST systems shall retain a copy of all current and valid registration applications required by this rule, and shall make such copy available for inspection within twenty-four hours of a request by the state fire marshal or local fire official.

HISTORY: Eff 5-9-88; 11-5-90; 9-11-91; 5-10-99; 3-1-05

Rule promulgated under: RC 119.03

Rule authorized by: RC 3737.02, 3737.88

Rule amplifies: RC 3737.02, 3737.88

R.C. 119.032 review dates: 11/24/2004 and 03/01/2010

(A) Purpose and scope.

For the purpose of prescribing rules pursuant to division (A)(2) of section 3737.88 of the Revised Code, the state fire marshal hereby adopts this rule to designate areas of this state as being sensitive for the protection of human health and the environment. This rule is adopted by the state fire marshal in accordance with Chapter 119- of the Revised Code and shall not be considered part of the "Ohio Fire Code."

(B) An area is defined as a sensitive area if the area meets one or more of the following criteria:

(1) The following areas associated with an aquifer declared by the federal government under the Safe Drinking Water Act (42 U.S.C.A. 300f et seq.):

(a) Areas on Catawba Island in Ottawa county;

(b) Areas in Guernsey county located within the following described boundaries:

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| Township | Section(s) |
|----------|------------------|
| T8N-R9W | 4, 5, 6, 7, 8, 9 |

"R" stands for Range. "T" stands for Township. "N" stands for North. "W" stands for West.

(c) Areas associated with the buried valley aquifer system of the Great Miami/Little Miami River Basins of Southwestern Ohio petitioned for by the Miami Valley Regional Planning Commission of Dayton, Ohio as determined by the U.S. environmental protection agency at 53 Fed. Reg. ~~86~~, 15876 (1988), located within the following described boundaries:

(i) Areas in Champaign county located within the following described boundaries:

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| Township | Section(s) |
|----------|---|
| R10T4 | 6, 12 |
| R10T5 | 6, 12, 18, 30, 36 |
| R10T6 | 24, 30, 36 |
| R11T4 | 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 16, 17, 18, 22, 23, 29, 30, 36 |
| R11T5 | 1, 2, 3, 4, 5, 6, 7, 13, 18, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36 |
| R11T6 | 19, 31, 32, 33, 34, 35, 36 |
| R12T4 | 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 24, 25, 31 |
| R12T5 | 1, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 29, 30, 31, 32, 33, 34, 35, 36 |
| R13T4 | 1, 2, 3, 7, 8, 9, 13, 14, 15, 19, 20, 21, 25, 26, 27 |
| R13T5 | 19, 20, 25, 26, 31, 32 |

"R" stands for Range. "T" stands for Township.

(ii) Areas in Clark county located within the following described boundaries:

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| Township | Section(s) |
|----------|---|
| R8T3 | 6, 12, 17, 18, 23, 24, 29, 30, 36 |
| R9T3 | 1, 2, 7, 8, 13, 14, 19, 20, 21, 25, 26, 27, 28, 29, 30,31, 32, 33, 34, 35, 36 |
| R9T4 | 6, 10, 11, 12, 16, 17, 21, 22, 27, 31, 32, 33 |
| R9T5 | 12, 18, 21, 22, 23, 24, 28, 29, 30 |
| R10T4 | 1, 2, 3, 4, 5, 7, 8 |
| R10T5 | 1, 2, 3, 4, 5, 7, 8, 9, 10, 11, 13, 14, 15, 17, 29, 33, 34, 35 |
| R10T6 | 23, 28, 29, 33, 34, 35 |

"R" stands for Range. "T" stands for Township.

(iii) Areas in Greene county located within the following described boundaries:

--

| Township | Section(s) |
|----------|---|
| R5T4 | 17, 18, 22, 23, 24, 30 |
| R6T2 | 1, 2 |
| R6T3 | 18, 24, 25, 26, 27, 28, 29, 30, 31, 32 |
| R7T2 | 1, 2, 6, 8, 12 |
| R7T3 | 2, 3, 7, 8, 9, 10, 11, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 29, 30, 31, 32, 36 |
| R7T4 | 18, 23, 24, 28, 29, 33, 34 |
| R8T2 | 1, 2, 3, 7, 8 |
| R8T3 | 10, 13, 14, 15, 16, 19, 20, 21, 22, 25, 26, 27, 28, 31, 32, 33, 34 |
| R8T4 | 13 |

"R" stands for Range. "T" stands for Township.

Survey Tract(s)

386, 387, 389, 390, 417, 429, 432, 435, 438, 548, 571, 574, 576, 577, 598, 603, 616, 870, 904, 925, 929, 975, 1044, 1281, 1295, 1297, 1378, 1391, 1965, 2233, 2235, 2238, 2241, 2243, 2244, 2263, 2264, 2267, 2272, 2312, 2358, 2359, 2383, 2424, 2425, 2426, 2435, 2474, 2475, 2565, 2566, 3096, 3576, 3583, 3610, 3908, 3916, 4148, 4371, 4499, 4651, 4704, 4730, 4871, 9474, 10721, 12248

(iv) Areas in Logan county located within the following described boundaries:

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| Township | Section(s) |
|----------|--|
| R13T4 | 4, 5, 10, 16 |
| R13T5 | 17, 21, 22, 23, 27, 28, 29, 33, 34, 35, 36 |

"R" stands for Range. "T" stands for Township.

Survey Tract(s)

4493, 4525, 9878, 10109, 10718, 10719, 12099

(v) Areas in Miami county located within the following described boundaries:

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| Township | Section(s) |
|----------|--|
| R9T1 | 6 |
| R9T2 | 3, 4, 5, 6, 10, 11, 12, 17, 18, 23, 24, 30, 31, 32, 33, 34, 35, 36 |
| R10T1 | 1, 2, 3, 4, 7, 8, 9, 10, 11, 12, 17, 18, 23, 24 |
| R10T2 | 19, 25, 26, 31, 32, 33 |
| R11T1 | 13, 17, 18, 19, 20, 23, 24, 26, 27 |
| R12T1 | 19, 20, 25, 26, 27, 31, 32, 33 |
| T7N-R4E | 1, 2, 3, 10 |
| T6N-R5E | 12, 13 |
| T4N-R6E | 3, 4, 5, 6, 7, 10, 11, 14, 23, 24, 25, 26, 35, 36 |
| T8N-R4E | 36 |
| T7N-R5E | 17, 18, 19, 20, 28, 29, 30, 31, 32, 33 |
| T5N-R6E | 5, 8, 9, 16, 17, 20, 21, 22, 27, 28, 29, 31, 32, 33, 34 |
| T6N-R6E | 32 |
| T7N-R6E | 31, 32 |

"R" stands for Range. "T" stands for Township. "N" stands for North. "E" stands for East.

(vi) Areas in Montgomery county located within the following described boundaries:

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| Township | Section(s) |
|----------|---|
| R5T2 | 28, 29, 34, 35, 36 |
| R6T1 | 3, 4, 5, 9, 10, 11, 12, 14, 15, 16, 17, 18, 21, 22, 25, 26, 27, 28, 31, 32 |
| R7T1 | 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14 |
| R7T2 | 13, 14, 17, 18, 20, 21, 22, 23, 24, 27, 28, 29, 30, 32, 33, 34, 35, 36 |
| R8T1 | 2, 3, 4, 5 |
| R8T2 | 13, 19, 25, 31, 32, 33, 34, 35, 36 |
| T3N-R4E | 1, 3, 4, 5, 10, 11, 12, 13, 14, 23, 24 |
| T4N-R4E | 1, 12, 17, 18, 19, 20, 21, 23, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36 |
| T5N-R4E | 26, 35, 36 |
| T2N-R5E | 2, 3, 7, 10, 15, 17, 18, 19, 20, 22, 23, 26, 27, 28, 29, 30 |
| T3N-R5E | 6, 7, 16, 17, 21, 24, 25, 26, 27, 28, 32, 33, 34, 35, 36 |
| T4N-R5E | 9, 10, 13, 14, 15, 16, 23, 24, 25 |
| T5N-R5E | 2, 3, 10, 11, 14, 15, 22, 23, 24, 25, 26, 36 |
| T1N-R6E | 3, 4, 5, 8, 17, 18, 19, 30 |
| T2N-R6E | 1, 2, 4, 5, 6, 8, 9, 11, 12, 13, 14, 15, 16, 19, 21, 22, 27, 28, 29, 30, 31, 32, 33, 34 |
| T3N-R6E | 1, 2, 11, 13, 14, 23, 24, 26, 30, 31, 32, 35 |

"R" stands for Range. "T" stands for Township. "N" stands for North. "E" stands for East.

(vii) Areas in Preble county located within the following described boundaries:

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| Township | Section(s) |
|----------|---|
| T6N-R2E | 3, 9, 10, 15, 16 |
| T4N-R3E | 1, 2 |
| T5N-R3E | 2, 3, 4, 5, 9, 10, 11, 15, 22, 25, 26, 27, 34, 35, 36 |
| T6N-R3E | 3, 4, 32, 34 |
| T7N-R3E | 21, 22, 27, 28, 33, 34 |

"R" stands for Range. "T" stands for Township. "N" stands for North. "E" stands for East.

(viii) Areas in Shelby county located within the following described boundaries:

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| Township | Section(s) |
|----------|------------------------------------|
| T9N-R5E | 1, 2, 3, 9, 10, 11, 12, 13 |
| T7N-R6E | 5, 6, 7, 8, 17, 18, 19, 20, 29, 30 |
| T8N-R6E | 31, 32 |

"R" stands for Range. "T" stands for Township. "N" stands for North. "E" stands for East.

(d) Areas associated with the southern portion of the buried valley aquifer system of the Great Miami/Little Miami River Basins of Southwestern Ohio petitioned for by the Ohio-Kentucky-Indiana Regional Council of Governments of Cincinnati, Ohio as determined by the U.S. ~~Environmental~~ environmental protection agency at 53 Fed. Reg. ~~431~~, 25670 (1988), located within the following described boundaries:

(i) Areas in Butler county located within the following described boundaries:

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| Township | Section(s) |
|----------|---|
| R2T1 | 3, 4, 5, 6, 8, 9, 10, 11, 14, 15, 20 |
| R3T1 | 1, 2, 3 |
| R2T2 | 3, 4, 5, 8, 9, 10, 11, 12, 14, 15, 16, 17, 18, 21, 22, 23, 24, 27, 28, 29, 30, 33, 34, 35, 36 |
| R3T2 | 22, 26, 27, 28, 31, 32, 33, 34 |
| R3T3 | 12 |
| R4T1 | 1, 2, 3 |
| R4T2 | 7, 8, 12, 13, 14, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 32, 33, 34 |
| T3N-R2E | 13, 14, 15, 22, 23, 24, 25, 26, 27, 28, 32, 33, 34, 35, 36 |
| T1N-R3E | 5, 6, 7, 8, 18 |
| T5N-R1E | 2, 11, 14, 23, 24, 25, 36 |
| T4N-R2E | 1, 12 |

| | |
|---------|---|
| T5N-R2E | 25, 30, 31 |
| T2N-R3E | 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 20, 21, 22, 23, 24, 28, 29, 32 |
| T3N-R3E | 29, 30, 31, 32, 33, 34, 36 |
| T1N-R4E | 4, 5, 6, 7, 8, 18 |
| T2N-R4E | 1, 2, 10, 11, 12, 13, 14, 15, 21, 22, 27, 28, 29, 30, 31, 32, 33 |

"R" stands for Range. "T" stands for Township. "N" stands for North. "E" stands for East.

(ii) Areas in Clermont county located within the following described boundaries:

Survey Tract(s)

430, 590, 631, 1017, 1545, 1748, 1767, 2195, 4848

(iii) Areas in Hamilton county located within the following described boundaries:

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| Township | Section(s) |
|----------|---|
| R1T1 | 1, 2, 3, 4, 7, 8, 9 |
| R1T2 | 28, 29, 30, 34 |
| R1T3 | 1, 2, 3, 6, 7, 8, 9, 12 |
| R1T4 | 24, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36 |
| R1T5 | 13, 14, 17, 18, 19, 23, 26, 27, 28 |
| R2T1 | 19, 25 |
| R2T2 | 1, 7 |
| R2T3 | 19, 25, 31 |
| R2T4 | 13 |
| T1N-R1E | 1, 2, 3, 4, 5, 8, 9, 10, 11, 12, 15, 16, 17, 20, 21, 22, 27, 28, 29, 30, 31, 32 |
| T1N-R2E | 6, 7 |
| T2N-R1E | 1, 2, 3, 7, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 24, 25, 28, 29, 30, 32, 33, 36 |
| T2N-R2E | 3, 4, 5, 6, 7, 8, 9, 16, 17, 18, 19, 30, 31 |
| FR1T1 | 5, 6 |
| FR1T2 | 35, 36 |
| FR1T4 | 12, 17, 18, 23, 24, 29, 30, 35 |
| FR1T5 | 23, 24, 29, 30 |
| FR2T1 | 5, 6, 11, 12, 17, 21, 22, 23, 24, 27, 31, 32, 33 |
| FR2T3 | 1, 4, 5, 6, 10, 11, 12, 13, 16, 17, 18, 19, 20, 21, 22, 23, 25, 26, 27, 28 |
| FR2T4 | 3, 9, 13, 14, 15, 16, 19, 20, 21, 22, 23, 25, 28, 29, 31, 34, 35, 36 |
| FR2T5 | 18, 22, 23, 24, 28, 33, 34 |

"R" stands for Range. "T" stands for Township. "N" stands for North. "E" stands for East. "FR" stands for Fractional Range.

Survey Tract(s)

395, 410, 427, 535, 536, 552, 1575, 1723, 1769, 1775, 2204

(iv) Areas in Warren county located within the following described boundaries:

--

| Township | Section(s) |
|----------|--|
| R2T4 | 10, 11, 12, 16, 17 |
| R3T3 | 4, 5, 6 |
| R3T4 | 1, 2, 5, 6, 7, 8, 10, 11, 12, 16, 17, 21, 22, 27, 28, 33, 34, 35, 36 |
| R3T5 | 7, 13, 19, 25, 31 |
| R4T2 | 1, 2 |
| R4T3 | 31 |
| R4T4 | 4, 5, 6, 10, 11 |
| R5T2 | 27, 31, 32, 33 |
| R5T3 | 1 |
| R5T4 | 20, 21, 25, 26, 31 |
| T1N-R5E | 3, 4, 5, 6, 7, 8 |
| T2N-R5E | 26, 27, 28, 29, 30, 31, 32, 33, 34 |

"R" stands for Range. "T" stands for Township. "N" stands for North. "E" stands for East.

Survey Tract(s)

399, 421, 520, 598, 631, 791, 1494, 1500, 1546, 1547, 1548, 2464, 2527

(e) Areas associated with the Allen county area combined aquifer system ("ACACAS") as petitioned for by Spencerville Dumpbusters, Inc. of Spencerville, OH as determined by the U.S. environmental protection agency at 57 Fed. Reg. ~~53~~, 53111 (1992), located within the following described boundaries:

(i) Areas in Allen county located within the following described boundaries:

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| Township | Section(s) |
|----------|---|
| T2S R5E | 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36 |
| T2S R6E | 31 |
| T3S R4E | 1, 2, 3, 10, 11, 12, 13, 14, 15, 22, 23, 24, 25, 26, 27, 34, 35, 36 |
| T3S R5E | 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36 |
| T3S R6E | 6, 7, 18, 19, 29, 30, 31, 32 |
| T4S R4E | 1, 2, 3, 10, 11, 12, 13, 14, 15 |
| T4S R5E | 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18 |
| T4S R6E | 4, 5, 6, 7, 8, 9, 17, 18, 19, 29, 30 |

"R" stands for range. "T" stands for township. "S" stands for south. "E" stands for east.

(ii) Areas in Auglaize county located within the following described boundaries:

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| Township | Section(s) |
|----------|---|
| T4S R4E | 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36 |
| T4S R5E | 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36 |
| T4S R6E | 31, 32 |
| T5S R4E | 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 23, 24, 26 |
| T5S R5E | 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 14, 15, 16, 17, 18, 19, 21, 22, 23, 24, 25, 26, 27 |
| T5S R6E | 5, 6, 7, 8 |

"R" stands for range. "T" stands for township. "S" stands for south. "E" stands for east.

(iii) Areas in Mercer county located within the following described boundaries:

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| Township | Section(s) |
|----------|---|
| T4S R2E | 1, 12, 13 |
| T4S R3E | 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36 |
| T5S R3E | 1, 2, 3, 4, 5, 10, 11, 12, 13, 14, 23, 24, 26 |

"R" stands for range. "T" stands for township. "S" stands for south. "E" stands for east.

(iv) Areas in Putnam county located within the following described boundaries:

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| Township | Section(s) |
|----------|---|
| T1S R4E | 24, 25, 35, 36 |
| T1S R5E | 19, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36 |
| T2S R5E | 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18 |
| T2S R6E | 6 |

"R" stands for range. "T" stands for township. "S" stands for south. "E" stands for east.

(v) Areas in Van Wert county located within the following described boundaries:

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| Township | Section(s) |
|----------|--|
| T2S R4E | 1, 2, 11, 12, 13, 14, 15, 16, 17, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36 |
| T3S R3E | 1, 10, 11, 12, 13, 14, 15, 16, 21, 22, 23, 24, 25, 26, 27, 28, 29, 31, 32, 33, 34, 35, 36 |
| T3S R4E | 4, 5, 6, 7, 8, 9, 16, 17, 18, 19, 20, 21, 28, 29, 30, 31, 32, 33 |
| T4S R4E | 4, 5, 6, 7, 8, 9, 16, 17, 18 |

"R" stands for range. "T" stands for township. "S" stands for south. "E" stands for east.

- (f) Areas associated with the buried valley aquifer system of the Great Miami/Little Miami river basins of southwestern Ohio petitioned for by the Miami Valley regional planning commission of Dayton, Ohio as determined by the U.S. Environmental Protection Agency at 53 Fed. Reg. ~~86, 15879~~ 15876 (1988), and areas associated with the southern portion of the buried valley aquifer system of the Great Miami/Little Miami river basins of southwestern Ohio petitioned for by the Ohio-Kentucky-Indiana regional council of Governments of Cincinnati, Ohio as determined by the U.S. Environmental Protection Agency at 53 Fed. Reg. ~~431, 25670~~ (1988), located within the following described boundaries:

- (i) Areas in Butler County located within the following described boundaries:

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| Township | Section(s) |
|----------|---------------------|
| R2T3 | 227, 28, 32, 33, 34 |
| R4T2 | 15 |
| T2N-R3E | 30, 31 |
| T2N-R4E | 23, 24 |

"R" stands for range. "T" stands for township. "N" stands for north. "E" stands for East.

- (ii) Areas in Hamilton County located within the following described boundaries:

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| Township | Section(s) |
|----------|------------|
| R1T1 | 10 |
| R1T5 | 20 |
| R2T4 | 7 |
| FR1T4 | 34 |
| R3T4 | 7 |

"R" stands for range. "T" stands for township. "FR" stands for fractional range.

- (iii) Areas in Montgomery County located within the following described boundaries:

| Township | Section (s) |
|----------|-------------|
| R8T2 | 4, 5, 6 |

"R" stands for range. "T" stands for township.

(iv) Areas in Warren County located within the following described boundaries:

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| Township | Section (s) |
|----------|-------------|
| T1N-R5E | 1, 2 |

"R" stands for range. "T" stands for township. "N" stands for north. "E" stands for east.

- (2) The area is located within fifty horizontal feet of a private water supply well or developed spring not located on the same site as the UST system;
 - (3) The area is located within one of the following and is not located on the same site as the UST system:
 - (a) One hundred horizontal feet of a water supply well designated by Ohio environmental protection agency to be a public water supply and which has a net production rate of less than or equal to ten thousand gallons per day; or
 - (b) Two hundred horizontal feet of a water supply designated by Ohio environmental protection agency to be a public water supply and which has a net production rate of greater than ten thousand gallons per day to less than or equal to fifty thousand gallons per day; or
 - (c) Three hundred horizontal feet of a water supply designated by Ohio environmental protection agency to be a public water supply and which has a net production rate of greater than fifty thousand gallons per day.
 - (4) The area is located within a half-circle shaped area one thousand feet upstream of a public water supply surface water intake where the base line of the half-circle is perpendicular to the stream at the intake and has a diameter of two thousand feet, and where the midpoint of the base line is the intake, and where the radius of the half-circle is one thousand feet, unless the owner or operator demonstrates to the ~~bureau chief~~ state fire marshal that the UST system is located or will be located in a surface water drainage area that is actually downstream of the intake.
 - (5) The area is located within two hundred horizontal feet of a lake or reservoir. To be considered a lake or reservoir for purposes of this paragraph the average surface area of the body of water must be a minimum of five acres.
 - (6) The area is located within one hundred ~~horizontal~~ horizontal feet of a man-made underground structure, tunnel or cavity used primarily for pedestrian traffic or passenger-carrying vehicles;
- (C) An area is defined as a sensitive area if the area meets any of the criteria listed in paragraphs (B) to (B)(1)(d)(iv) or paragraphs (B)(2) to (B)(6) of this rule on or after September 1, 1992.
- (D) An area is defined as a sensitive area if the area meets any of the criteria listed in paragraphs (B)(1)(e) to (B)(1)(e)(v) of this rule on or after March 31, 1999.

(E) An area is defined as a sensitive area if the area meets any of the criteria listed in paragraphs (B)(1)(f) to (B)(1)(f)(iv) of this rule on or after ~~the effective date of this rule~~ March 1, 2005.

HISTORY: Eff 9-1-92; 3-31-99; 3-1-05

Rule promulgated under: RC 119.03

Rule authorized by: RC 3737.88 (A)(2)

Rule amplifies: RC 3737.88 (A)(2)

R.C. 119.032 review dates: 03/01/2010

1301:7-9-10 **Permits for UST systems.**

(A) Purpose and scope.

For the purpose of prescribing rules pursuant to section 3737.88 of the Revised Code, the state fire marshal hereby adopts this rule to establish permit requirements for underground storage tanks containing petroleum or other regulated substances. This rule is adopted by the state fire marshal in accordance with chapter 119- of the Revised Code and shall not be considered a part of the "Ohio Fire Code."

(B) ~~Definitions.~~

~~For the purpose of this rule:~~

- ~~(1) "Change in service" means a change in the substances managed in the UST system from regulated substances to non-regulated substances, without closure in place or permanent removal of the UST system.~~
- ~~(2) "Closure in place" or "close in place" means the abandonment of an UST system by permanently taking an UST system out of service but not out of the ground in compliance with this chapter of the Administrative Code.~~
- ~~(3) "Major repair" means the restoration of a tank or an underground storage tank system component that has caused a release of a product from the underground storage tank system. "Major repair" also means the upgrading of a tank or an underground storage tank system component, or the modification of a tank or an underground storage tank system component. "Major repair" does not include routine maintenance or normal operational upkeep to prevent an underground storage tank system from releasing a product.~~
- ~~(4) "Modification" means work performed on UST system components that have not leaked such as adding, altering or retrofitting the following:
 - ~~(a) USTs and any components fixed to UST openings;~~
 - ~~(b) Containments located over USTs, under dispensers or at intermediate points excluding spill prevention equipment;~~
 - ~~(c) Piping components that routinely contain regulated substances up to and including shear valves at dispensers;~~
 - ~~(d) Underground vent lines excluding stage two vapor recovery components;~~
 - ~~(e) Flexible connector lines;~~
 - ~~(f) UST lining components; and~~
 - ~~(g) Release detection systems.~~~~
- ~~(5) "Out of service" means the normal operation and use of the UST or piping is discontinued and no longer fulfilling its designed function.~~

~~(6) "Routine maintenance or normal operational upkeep" means work performed to maintain or to prevent an underground storage tank system from releasing a regulated substance. Work on the following UST system components shall constitute routine maintenance or normal operational upkeep on UST systems provided that the component has not caused a release:~~

~~(a) Drop tubes;~~

~~(b) Overfill containment devices;~~

~~(c) Spill prevention equipment;~~

~~(d) Fill caps and adapters;~~

~~(e) Cathodic protection components;~~

~~(f) Stage one vapor recovery components;~~

~~(g) Submersible pump components provided that no product lines are disconnected; and~~

~~(h) Individual release detection monitoring units, probes, sensors or line leak detectors that are maintained with like components.~~

~~(7) "Spill prevention equipment" means a spill containment manhole or spill bucket installed at a fill pipe that catches and holds drips and spills of regulated substance that can occur when a delivery hose is removed from the fill pipe after delivery of a regulated substance to an UST.~~

(C) Permits.

(1) A permit is required to perform all of the following activities on an UST system:

(a) Install;

(b) Remove;

(c) Close-in-place;

(d) Take out of service more than 90 days;

(e) Perform a change in service;

(f) Perform a major repair of an UST system that has caused a release; or

(g) Perform a modification of an UST system or component.

(2) A permit is not required to operate an UST system or perform routine maintenance or normal operational upkeep of an UST system.

(3) A permit must be obtained prior to any permit related activity taking place. The state fire marshal or the local fire agency that has been given delegated authority pursuant to rule 1301:7-9-15 of the Administrative Code having jurisdiction over the location where the activity is to

take place may give verbal approval to allow permit related activity to be performed prior to the issuance of a permit on a case by case basis.

- (4) Any person engaged in an activity requiring a permit shall submit a permit application form prescribed by the state fire marshal accompanied by any drawings or additional information required on the prescribed application form. A permit shall be obtained for any of the activities described in paragraphs (C)(1) of this rule from the local fire agency that has been given delegated authority pursuant to rule 1301:7-9-15 of the Administrative Code having jurisdiction over the location where the activity is to take place. Otherwise, the permit shall be obtained from the state fire marshal.
 - (a) The authority issuing the permit shall review the permit application and, if the authority determines that the proposed activity is in compliance with this rule and that the appropriate fee has been paid, the authority shall issue the permit. The authority may place upon the permit such terms and conditions as the authority determines to be necessary to bring the proposed activity into compliance with this chapter.
 - (b) Any permit issued under this paragraph shall not be construed as authority to violate any provision of this chapter.
 - (c) The state fire marshal may revoke any permit pursuant to chapter 119- of the Revised Code if upon inspection any violation of this chapter exists, if conditions of a permit have been violated, or if there has been any false statement or misrepresentation as to a material fact on the permit application or supporting documentation.
- (5) For permits obtained from the state fire marshal, the permit fee shall be thirty-five dollars for each location described in the permit application. Inspections conducted by a state fire marshal employee shall be billed at a rate of sixty dollars per hour for each hour or fraction thereof at the inspection location. The state fire marshal may bill the owner of the underground storage tank or the owner of the property where the underground storage tank is located. Permit and inspection fees for permits obtained from a local fire agency that has been delegated authority pursuant to rule 1301:7-9-15 of the Administrative Code shall be established by the local fire agency.
- (6) No person shall operate any UST system or portion thereof upon which there are past due permit fees or inspection fees owed to the state fire marshal. Inspection fees will be considered past due if they are not actually received by the state fire marshal within thirty days of the date of the invoice. Nothing in this paragraph shall be construed to establish inspection fees charged by an UST inspector certified pursuant to rule 1301:7-9-15 of the Administrative Code.
- (7) Obtaining a permit pursuant to this rule does not relieve a person engaged in underground storage tank activity from the obligation of obtaining any other applicable federal, state, or local permits. Nor does it relieve a person engaged in underground storage tank activity from the obligation of complying with any other applicable federal, state, or local laws and regulations.

(D) Certified UST installers and UST inspectors.

- (1) All activity requiring a permit shall be supervised by an installer certified pursuant to rule 1301:7-9-11 of the Administrative Code. All activity requiring a permit shall be inspected by an employee of the state fire marshal or a certified UST inspector who has been certified by the state fire marshal to conduct such inspections pursuant to rule 1301:7-9-15 of the

Administrative Code. No person shall operate any UST system or portion thereof until the activity requiring a permit has been inspected.

HISTORY: Eff 9-1-92; 1-1-97; 3-31-99; Replaces: 1301:7-9-10, eff. 3-1-05

Rule promulgated under: RC 119.03

Rule authorized by: RC 3737.88

Rule amplifies: RC 3737.88

R.C. 119.032 review dates: 03/01/2010

1301:7-9-11 **Underground storage tank installer certification and training.**

(A) Purpose and scope.

For the purpose of prescribing rules pursuant to section 3737.881 of the Revised Code, the state fire marshal hereby adopts this rule to establish underground storage tank installer certification and training requirements. This rule is adopted by the state fire marshal in accordance with Chapter 119- of the Revised Code and shall not be considered part of the "Ohio Fire Code".

(B) Supervising the following activities while being physically on site shall constitute supervision over the installation or replacement of UST systems:

- (1) Preparation of the excavation immediately prior to receiving backfill and any component of the UST system;
- (2) Setting of the UST system, including placement of any anchoring devices, backfilling to the level of the UST system, and strapping, if any;
- (3) Any time during the installation in which components of the piping are connected, field coated, or cathodically protected;
- (4) Any time during the installation of containment system components;
- (5) All pressure testing of any component of the UST system;
- (6) Completion of the backfilling and filling of the excavation; and
- (7) The final precision test and the test of any release detection systems required by rule 1301:7-9-07 of the Administrative Code.

(C) Supervising the following activities while being physically on site shall constitute supervision over the performance of major repairs on site to UST systems where a release has occurred:

- (1) The actual purging and excavation of existing UST systems, if applicable;
- (2) The actual performance of major repairs to the UST system;
- (3) Any time during the major repair project in which components of the piping are connected;
- (4) Any time during the major repair project in which the UST or its associated piping is pressure tested;
- (5) The major repair of piping valves, fill pipes, vents, leak detection devices, containment systems, cathodic protection systems or spill and overflow protection devices; and
- (6) The final precision test and the test of any release detection systems required by rule 1301:7-9-07 of the Administrative Code, if applicable.

(D) Supervising the following activities while being physically on site shall constitute supervision over the closure-in-place of UST systems:

- (1) The cleaning and purging of the UST system;
 - (2) The filling with an inert solid material of the UST system;
 - (3) All testing associated with the cleaning and purging processes; and
 - (4) Any time during the closure-in-place in which components of the UST system are disconnected or capped.
- (E) Supervising the following activities while being physically on site shall constitute supervision over the removal of UST systems:
- (1) The cleaning and purging of the UST system;
 - (2) The actual excavation and removal of the UST system or any of its components;
 - (3) All testing associated with the cleaning and purging processes;
 - (4) Any time during the removal in which components of the UST system are disconnected or capped; and
 - (5) The final disposition of the UST system before the UST system leaves the site.
- (F) Supervising the following activities while being physically on site shall constitute supervision over the performance of modifications on site to UST ~~systems~~ system components:
- (1) The actual purging and excavation of existing UST systems, if applicable;
 - (2) The actual performance of modifications of any components ~~as defined in paragraph (B)(4) of rule 1301:7-9-10 of the Administrative Code;~~
 - (3) Any time during the modification project in which components of the piping are connected;
 - (4) Any time during the modification project in which the UST or its associated piping is pressure tested; and
 - (5) The final precision test and the test of any release detection systems required by rule 1301:7-9-07 of the Administrative Code, if applicable.
- (G) Supervising the following activities while being physically on site shall constitute supervision over the placing of an UST system out of service for more than ninety days or the performance of a change in service of an UST system.
- (1) The emptying, capping and securing of an UST, piping and ancillary equipment as part of placing and UST system out of service for more than ninety days pursuant to paragraph (E)~~(2)~~(3) of rule 1301:7-9-12 of the Administrative Code; or
 - (2) The purging and cleaning of an UST system and the removal or closure-in-place of piping and ancillary equipment, if applicable, as part of a change in service pursuant to paragraph (H) of rule 1301:7-9-12 of the Administrative Code.

(H) General installer requirements.

- (1) Certified installers shall supervise work in a manner that minimizes the release of regulated substances from UST systems and minimizes the build-up hazardous vapors in association with work performed on UST systems. Certified installers shall not assign work activities to unqualified persons.
- (2) Certified installers shall have a copy of their current certificate issued by the state fire marshal at the location where they are supervising work. Upon request of a fire official, certified installers shall make their current certificate available for inspection by the fire official.
- (3) Any person performing work in accordance with this chapter shall obtain a permit as required in paragraph (C) of rule 1301:7-9-10 of the Administrative Code prior to performing the work. All work performed pursuant to this chapter shall be overseen by certified UST installer and a certified UST inspector as required in paragraph (D) of rule 1301:7-9-10 of the Administrative Code. No certified UST installer shall interfere with or obstruct an employee of the state fire marshal or a certified UST inspector performing an inspection required by rule 1301:7-9-15 of the Administrative Code.
- (4) Regardless of the circumstances, certified installers shall immediately secure an UST system in a safe manner and cease all UST related work if directed to do so by an inspector certified pursuant to rule 1301:7-9-15 of the Administrative Code or an employee of the state fire marshal. UST related work shall not resume until approval is given by the state fire marshal.

(I) Application requirements.

Any person who wishes to apply for installer certification shall meet all of the following application requirements:

- (1) The applicant shall submit an application to the state fire marshal, on a form furnished by the state fire marshal, accompanied by a non-refundable fee of one hundred fifty dollars;
- (2) The applicant shall be an individual and shall be at least eighteen years of age;
- (3) The applicant need not be a resident of Ohio. If the applicant is not a resident of Ohio, the applicant shall provide an irrevocable consent to legal service from Ohio on a form prescribed and furnished by the state fire marshal.
- (4) The applicant shall demonstrate that he is in good standing with all licensing authorities by whom licensing is required, given the nature and scope of the applicant's work, and that he has not had a business or occupational license or certificate suspended or revoked in this or any other state. The state fire marshal may issue a certificate to an applicant who has had a business or occupational license or certificate suspended or revoked where the suspension or revocation, by reason of its date or nature, is not directly related to the applicant's competence to install, perform major repairs on site to, close-in-place, or remove UST systems. The state fire marshal may check with other certification or licensing boards with which the applicant is registered to confirm the absence of violations of federal, state, or local laws and regulations relating to the applicant's ability to supervise the installation of, performance of major repairs on site to, closure-in-place of, or removal of UST systems in a competent manner.

- (5) The applicant shall supply the state fire marshal with three business references who can verify the applicant's experience in the installation of, performance of major repairs on site to, closure-in-place of, or removal of UST systems.
- (6) The applicant shall demonstrate that he meets one of the following:
 - (a) Has obtained a certificate of completion from an installer training program pursuant to paragraphs (M)(3) ~~to (M)(3)(e)~~ or (M)(9) of this rule and has, within two years immediately prior to making application, participated in the installation of, performance of major repairs on site to, closure-in-place of, or removal of three UST systems or, with approval of the state fire marshal, similar experience in closely related UST system work;
 - (b) Is a registered professional engineer and has, within two years immediately prior to making application, participated in the installation of, performance of major repairs on site to, closure-in-place of, or removal of six UST systems or, with approval of the state fire marshal, similar experience in closely related UST system work;
 - (c) Within two years immediately prior to making application, participated in the installation of, performance of major repairs on site to, closure-in-place of, or removal of twelve UST systems or, with approval of the state fire marshal, similar experience in closely related UST system work. Of the participation, six shall have involved the installation of UST systems.
- (7) The applicant shall complete the examination requirements of paragraph (J) of this rule.

(J) Examination requirements.

- (1) The applicant shall submit payment of a twenty-five dollar non-refundable fee at the time of application.
- (2) The examination shall be a written multiple-choice examination covering all aspects of the installation, major repair, closure-in-place, removal, modification, placing out of service, performing a change in service, and performing evaluations of leak detection equipment of underground storage tank systems. The examination shall consist of two parts, the first testing the applicant's knowledge of provisions of the sections 3737.88 to 3737.882 of the Revised Code and this chapter of the Administrative Code, and the second testing the applicant's knowledge of current technological and industry recommended practices with respect to the proper installation, major repair, closure-in-place, removal, modification, placing out of service, performing a change in service, and performing evaluations of leak detection equipment of UST systems. An applicant may request permission to take the examination in oral form, good cause shown.
- (3) To satisfactorily pass the examination, the applicant shall obtain a minimum score of seventy-five per cent on each of the two parts of the exam. Any applicant who fails the examination may request re-examination upon payment of a non-refundable twenty-five dollar fee. An application will remain pending for that purpose for a period of one year after the date the application was submitted. If the applicant has not requested re-examination within the one year period, the applicant must file a new application for certification with the state fire marshal.
- (4) The examination shall be offered by the state fire marshal at least six times a year at such places as the state fire marshal determines. The state fire marshal shall announce the time and location of an examination at least twenty days in advance of the exam and shall, at least seven days in advance of the exam, provide notice of the exam to all persons who have completed applications

for certification since the date of the previous examination. Only persons who have filed applications in accordance with paragraph (I)(1) of this rule and submitted the fee pursuant to paragraph (J)(1) of this rule are eligible to take the examination.

- (5) All examinations will be graded and the applicants notified of the results within twenty days of the date of the examination. Examination papers will not be returned to the applicant, but may be reviewed by the applicant at the office of the state fire marshal or alternate locations as approved by the state fire marshal.
- (6) At the time the application is filed, the state fire marshal shall furnish the applicant with a set of instructions to assist the applicant in preparing for the examination. Instruction sheets will refer the applicant to appropriate laws and regulations and industry publications, including, but not limited to, the references listed in this chapter of the Administrative Code.

(K) New certification procedures.

- (1) The state fire marshal shall issue an installer certificate to each applicant who meets the requirements of paragraphs (I) to (J)(3) of this rule. The certificate shall be valid from the time of issuance by the state fire marshal to the renewal date.
- (2) The application for an installer certification shall be denied by the state fire marshal pursuant to Chapter 119: of the Revised Code when any of the following occur:
 - (a) The applicant failed to provide the information required by the application form prescribed by the state fire marshal;
 - (b) The applicant failed to provide the fee required for application and examination;
 - (c) The applicant failed to comply with ~~paragraphs~~ paragraph (I)(6) ~~to (I)(6)(e)~~ of this rule;
 - (d) The applicant failed to obtain a minimum score of seventy-five per cent on each of the two parts of the exam administered pursuant to paragraph (J)(2) of this rule;
 - (e) The applicant is not in good standing with all licensing authorities as provided in paragraph (I)(4) of this rule; or
 - (f) The applicant made a misrepresentation or submitted false statements with the application.

(L) Renewal of certification.

- (1) Certificates issued by the state fire marshal pursuant to paragraph (K)(1) of this rule shall be renewed annually by the installer. Any installer who wishes to apply for installer certification renewal shall meet all of the following renewal requirements:
 - (a) ~~Within thirty days prior~~ Prior to the expiration date of their installer certification, submit an installer certification renewal application to the state fire marshal, on a form prescribed by the state fire marshal, accompanied by a non-refundable fee of one hundred fifty dollars;
 - (b) Demonstrate in a manner prescribed by the state fire marshal attendance at a minimum of eight hours of state fire marshal-approved continuing installer education within the previous twelve months; and

- (c) Demonstrate that he is in good standing with all licensing authorities by whom licensing is required, given the nature and scope of the installer's work, and that he has not had a business or occupational license or certificate suspended or revoked in this or any other state. The state fire marshal may renew a certificate for an installer who has had a business or occupational license or certificate suspended or revoked where the suspension or revocation, by reason of its date or nature, is not directly related to the installer's competence to install, perform major repairs on site to, close-in-place, remove, modify, place out of service, perform a change in service, or perform evaluations of leak detection equipment of UST systems. The state fire marshal may check with other certification or licensing boards with which the installer is registered to confirm the absence of violations of federal, state, or local laws and regulations relating to the installer's ability to supervise the installation of, performance of major repairs on site to, closure-in-place of, removal of, modification of, placing out of service of, performing a change in service of, or performing evaluations of leak detection equipment of UST systems in a competent manner.
- (2) Upon a determination by the state fire marshal that during the calendar year substantial changes have been made to sections 3737.87 to 3737.882 of the Revised Code, this chapter of the Administrative Code, or UST technology, the state fire marshal may require applicants for installer certification renewal to satisfactorily pass a written multiple-choice examination in addition to meeting the requirements in ~~paragraphs~~ paragraph (L)(1) ~~to (L)(1)(e)~~ of this rule prior to issuance of the certification renewal for the subsequent calendar year. Applicants for installer certification renewal may request permission to take the examination in oral form, good cause shown. To satisfactorily pass the examination, the applicant for installer certification renewal shall obtain a minimum score of seventy-five per cent on the examination. The state fire marshal shall announce the time and location of the examination at least forty-five days in advance of the exam and shall, at least thirty days in advance of the exam, provide notice of the exam to all certified installers. An applicant for certification renewal who fails the examination may request re-examination from the state fire marshal.
- (3) The state fire marshal shall issue an installer certificate renewal to each applicant who meets the requirements of applicable paragraphs (L)(1) and (L)(2) of this rule. The renewal certificate shall be valid for one year following the date of issuance by the state fire marshal.
- (4) The application for an installer certification renewal shall be denied by the state fire marshal pursuant to Chapter 119- of the Revised Code when any of the following occur:
- (a) The applicant failed to provide all the information required by the application form prescribed by the state fire marshal;
 - (b) The applicant failed to provide the fee required for application;
 - (c) The applicant failed to obtain a minimum score of seventy-five per cent on the exam administered pursuant to paragraph (L)(2) of this rule;
 - (d) The applicant is not in good standing with all licensing authorities as provided in paragraph (L)(1)(c) of this rule;
 - (e) The applicant failed to attend a minimum of eight hours of state fire marshal-approved continuing installer education;

- (f) The applicant made a misrepresentation or submitted false statements with the application; or
 - (g) The applicant failed to submit his application on or before the expiration date of their certification.
- (5) The state fire marshal may grant a variance from the timely submittal of renewal applications if the applicant provides good cause as determined by the state fire marshal.
- (6) Sixty days after expiration of a certification, any application for renewal will be considered as a new application and the applicant shall be required to pass an examination as defined in paragraph (J) of this rule prior to certification.

(M) Installer training programs.

- (1) The state fire marshal may conduct installer training programs. Any such program shall be at least thirty-six hours in length and shall include appropriate instructional methods, ~~four hours of hands-on training~~, and written pre-test and post-test examinations. The following topics will be included in the program:
- (a) Sections 3737.87 to 3737.882 of the Revised Code;
 - (b) This chapter of the Administrative Code;
 - (c) Occupational health and safety;
 - (d) Installation of USTs including tanks and piping, cathodic protection, ancillary equipment, backfilling, and UST system testing;
 - (e) Release detection systems;
 - (f) General operation and maintenance of USTs and leak detection equipment;
 - (g) Majors repairs and modifications;
 - (h) Closure including removal, closure-in-place and change in service;
 - (i) Recordkeeping;
 - (j) Supervisory techniques;
 - (k) Public health and safety; and
 - (l) Environmental considerations.
- (2) Any person who wishes to attend a training program sponsored by the state fire marshal pursuant to paragraph (M)(1) of this rule shall submit an application to the state fire marshal prior to the first scheduled day of the training program, on a form prescribed by the state fire marshal, accompanied by a non-refundable fee established by the state fire marshal.
- (3) Upon conclusion of any installer training program, the state fire marshal shall issue a certificate of completion to all persons who meet all of the following requirements:

- (a) Attended all of the program's sessions or has complied with paragraph (M)(4) of this rule;
 - (b) Submitted an application and fee to the state fire marshal pursuant to paragraph (M)(2) of this rule; and
 - (c) Completed the programs pre-test and post-test examinations.
- (4) Attendance shall be required at all classroom ~~and hands-on~~ sessions except for valid reasons. The faculty is authorized to determine the validity of absences. Any absentee from any scheduled classroom ~~or hands-on~~ session shall make up such attendance as required by the faculty.
- (5) Any person wishing to sponsor an installer training program shall submit an application to the state fire marshal, on a form prescribed by the state fire marshal, accompanied by a non-refundable fee of two hundred dollars. All applications shall include, without limitation, all of the following:
- (a) A program description and syllabus;
 - (b) Lesson plans for each classroom ~~and hands-on~~ session;
 - (c) Study materials and hand-outs;
 - (d) Names, addresses, and qualifications of all faculty;
 - (e) Pre-test and post-test examinations; and
 - (f) The method of attendance verification;
- (6) The state fire marshal may amend or require the applicant to modify any aspect of a program prior to certifying the program sponsor.
- (7) The state fire marshal may certify a person to sponsor an installer training program if all of the following requirements are met:
- (a) The person has complied with ~~paragraphs~~ paragraph (M)(5) ~~to (M)(5)(f)~~ of this rule;
 - (b) The program, as amended by the state fire marshal or modified by the applicant pursuant to paragraph (M)(6) of this rule, complies with the requirements of ~~paragraphs~~ paragraph (M)(1) ~~to (M)(1)(j)~~ of this rule; and
 - (c) The instructor for the training program is a certified installer and possesses a valid installer certificate issued by the state fire marshal pursuant to paragraph (K)(1) or (L)(3) of this rule.
- (8) ~~Fire~~ State fire marshal personnel shall be allowed access to all installer training program sessions certified under paragraph (M)(7) of this rule.
- (9) Upon conclusion of any installer training program for which a person has been certified to sponsor, the sponsor shall issue a certificate of successful completion to all persons who meet the requirements of paragraphs (M)(3)(a) and (M)(3)(c) of this rule. The certified sponsor shall submit to the state fire marshal a list of all persons receiving a certificate of successful completion

and the results of all examinations conducted during the program within seven days of completion of the course.

- (10) Certifications issued by the state fire marshal pursuant to ~~paragraphs~~ paragraph (M)(7) to ~~(M)(7)(e)~~ of this rule and renewals issued by the state fire marshal pursuant to paragraph (M)(11) of this rule shall be valid for one year, beginning on the first day of September of each year.
 - (11) Persons seeking to renew a certificate to sponsor an installer training program shall submit an application no later than the first day of July of each year to the state fire marshal, on a form prescribed by the state fire marshal, accompanied by a non-refundable fee of one hundred fifty dollars. The application shall include, without limitation, a description of any changes in the certified program proposed by the sponsor. The state fire marshal may amend or require the sponsor to modify any aspect of a program prior to issuing an installer training program certificate renewal to the sponsor. All programs for which a sponsor obtains an installer training program certificate renewal shall comply with ~~paragraphs~~ paragraph (M)(1) to ~~(M)(1)(f)~~ of this rule.
 - (12) An application to sponsor an installer training program or renewal thereof shall be denied by the state fire marshal pursuant to Chapter 119- of the Revised Code when any of the following occur:
 - (a) The applicant failed to provide all the information required by the application form prescribed by the state fire marshal;
 - (b) The applicant failed to provide the fee required for application;
 - (c) The applicant made a misrepresentation or submitted false statements with the application;
 - (d) The training program submitted by the sponsor is determined by the state fire marshal to not comply with a provision of paragraphs (M)(5) to (M)(11) of this rule; or
 - (e) The applicant failed to submit a renewal application on or before the expiration date of their certification.
 - (13) The state fire marshal may grant a variance from the timely submittal of a renewal application if the applicant provides good cause as determined by the state fire marshal.
 - (14) Sixty days after expiration of a certification, any application for renewal will be considered as a new application and the applicant shall be required submit all information required by paragraph (M) of this rule.
- (N) Continuing education programs.
- (1) The state fire marshal may conduct continuing education training programs for installers. Such programs shall be closely related to those topics listed in ~~paragraphs~~ paragraph (M)(1)(a) to ~~(M)(1)(f)~~ of this rule or related technical information.
 - (2) Any person who wishes to attend a continuing education training program sponsored by the state fire marshal pursuant to paragraph (N)(1) of this rule shall submit an application to the state fire marshal prior to the first scheduled day of the training program, on a form prescribed by the state fire marshal, accompanied by a non-refundable fee established by the state fire marshal.

- (3) Upon conclusion of any continuing education training program, the state fire marshal shall issue a certificate of attendance to all persons attending the program who have complied with paragraph (N)(2) of this rule. The certificate shall indicate the number of hours of state fire marshal-approved continuing education credit earned by the person at the program.
- (4) Any person wishing to sponsor a certified installer continuing education training program shall submit an application to the state fire marshal, on a form prescribed by the state fire marshal, accompanied by a non-refundable fee of fifty dollars. All applications shall include, without limitation, all of the following:
 - (a) A program description and syllabus;
 - (b) Lesson plans for each classroom ~~and hands-on~~ session;
 - (c) Study materials and hand-outs;
 - (d) Names, addresses, and qualifications of all faculty; and
 - (e) The method of attendance verification.
- (5) The state fire marshal may amend or require the applicant to modify any aspect of a program prior to certifying the program sponsor.
- (6) The state fire marshal may certify a person to sponsor an installer continuing education training program if all of the following requirements are met:
 - (a) The person has complied with ~~paragraphs~~ paragraph (N)(4) ~~to (N)(4)(e)~~ of this rule;
 - (b) The program, as amended by the state fire marshal or modified by the applicant pursuant to paragraph (N)(5) of this rule, is closely related to those topics listed in ~~paragraphs~~ paragraph (M)(1) ~~(a) to (M)(1)(4)~~ of this rule; and
 - (c) The person is a certified installer and possesses a valid installer certificate issued by the state fire marshal pursuant to paragraph (K)(1) or (L)(3) of this rule.
- (7) The state fire marshal shall determine the number of hours of continuing education credit for which the program qualifies. Certified UST installer and inspector continuing education training programs shall not be offered together unless prior approval is given by the state fire marshal.
- (8) Upon conclusion of any installer continuing education training program for which a person has been certified to sponsor, the sponsor shall issue a certificate of successful completion to all persons attending the program who meet the following requirements:
 - (a) Attended all of the program sessions or has complied with paragraph (M)(4) of this rule; and
 - (b) Successfully completed the program's pre-test and post-test examinations.

The certificate shall indicate the number of hours of state fire marshal-approved continuing education credit earned by the person attending the program. The certified person shall submit to the state fire marshal a list of all persons receiving a certificate of attendance which indicates the

number of hours of state fire marshal-approved continuing education credit earned by each person who received a certificate.

- (9) Certifications issued by the state fire marshal pursuant to paragraphs (N)(6) to (N)(6)(c) of this rule and renewals issued by the state fire marshal pursuant to paragraph (N)(10) of this rule shall be valid for one year, beginning on the first day of September of each year.
- (10) Persons seeking to renew a certificate to sponsor an installer continuing education training program shall submit an application no later than the first day of July of each year to the state fire marshal, on a form prescribed by the state fire marshal, accompanied by a non-refundable fee of fifty dollars. The application shall include, without limitation, a description of any changes in the certified program proposed by the sponsor. The state fire marshal may amend or require the sponsor to modify any aspect of a program prior to issuing an installer continuing education training program certificate renewal to the sponsor. All programs for which a sponsor obtains an installer training program certificate renewal shall be closely related to those topics listed in ~~paragraphs~~ paragraph (M)(1)(a) to (M)(1)(f) of this rule.
- (11) An application to sponsor an installer training program or renewal shall be denied by the state fire marshal pursuant to Chapter 119- of the Revised Code when any of the following occur:
 - (a) The applicant failed to provide all the information required by the application form prescribed by the state fire marshal;
 - (b) The applicant failed to provide the fee required for application;
 - (c) The applicant made a misrepresentation or submitted false statements with the application;
 - (d) The training program submitted by the sponsor is determined by the state fire marshal to not comply with a provision of paragraphs (N)(4) to (N)(10) of this rule; or
 - (e) The applicant failed to submit their application on or before the expiration date of their certification.
- (12) The state fire marshal may grant a variance from the timely submittal of renewal applications if the applicant provides good cause as determined by the state fire marshal.
- (13) Sixty days after expiration of a certification, any application for renewal will be considered as a new application and the applicant shall be required to submit all information required by paragraph (N) of this rule.

(O) Revocation or suspension of certification.

A certificate or renewal issued pursuant to this rule may be suspended or revoked by the state fire marshal pursuant to Chapter 119- of the Revised Code. Such suspension or revocation may occur for any of the following reasons:

- (1) The person obtained his certification through fraud or misrepresentation;
- (2) The installer recklessly violated a provision of this chapter;

- (3) The installer recklessly caused or permitted a person under his supervision to install, perform a major repair on site to, close-in-place, remove, modify, place out of service, perform a change in service, or perform evaluations of leak detection equipment of an UST system in violation of this chapter;
- (4) The installer was not physically on site during the performance of any of the activities described in paragraphs (B) to (G)~~(3)~~ of this rule;
- (5) The installer interfered with or obstructed a certified UST inspector or an employee of the state fire marshal from performing an inspection required by rule 1301:7-9-15 of the Administrative Code;
- (6) The installer failed to secure an UST system and cease work when directed by a certified UST inspector or an employee of the state fire marshal pursuant to paragraph (H)(4) of this rule; or
- (7) The training program offered by the sponsor is determined by the state fire marshal to not comply with a provision of paragraphs (M)(1) to (M)(11) or (N)(1) to (N)(10) of this rule.

HISTORY: Eff 6-25-90 (Emer.); 10-2-90; 1-1-97; 3-31-99; 3-1-05; 12-31-05

Rule promulgated under: RC 119.03

Rule authorized by: RC 3737.881

Rule amplifies: RC 3737.881

R.C. 119.032 review dates: 12/31/2010

1301:7-9-12 **Out-of-service, closure-in-place, permanent removal, change-in-service, and closure assessment of UST systems.**

(A) Purpose and scope.

For the purpose of prescribing rules pursuant to section 3737.88 of the Revised Code, the state fire marshal hereby adopts this rule to establish requirements for underground storage tank (UST) systems containing regulated substances that are changed-in-service, out-of-service, closed-in-place, or permanently removed. This rule is adopted by the state fire marshal in accordance with Chapter 119 of the Revised Code and shall not be considered a part of the "Ohio Fire Code." The following UST systems are exempt from this rule:

- (1) Wastewater treatment tank systems;
- (2) Any UST systems containing radioactive material that are regulated under the Atomic Energy Act of 1954 (42 U.S.C.A. 2014 and following);
- (3) Any UST system that is part of an emergency generator system at nuclear power generation facilities regulated by the United States nuclear regulatory commission;
- (4) Airport hydrant fuel distribution systems; and
- (5) UST systems with field-constructed tanks.

(B) Applicability.

- (1) Any person who holds a legal, possessory, or equitable interest in a parcel of real property on which an underground storage tank system is located, regardless of that person's status as an "owner" or "operator" as those terms are defined in section 3737.87 of the Revised Code, shall comply with paragraphs (A) through (H) of this rule. The owner and operator shall comply with the entire rule.
- (2) ~~Nothing in this rule shall be construed as prohibiting any fire official from enforcing any provisions of the "Ohio Fire Code" relating to UST systems out of service for more than twelve months without approval.~~
- (3) In carrying out any activity under this rule, owners and operators shall comply with the provisions of rule 1301:7-9-13 and 1301:7-9-16 of the Administrative Code.

(C) Handling of regulated materials associated with an UST site.

The handling, transportation, and disposal of any regulated substance removed from an UST system, regulated soil, backfill materials, ground water, wash water, or other similar materials removed from the system or facility shall be managed in accordance with all applicable federal, state, and local regulations in effect for the type, volume, constituent concentration, and classification of the material.

(D) General performance standards, permits, certified UST installers, and inspectors.

- (1) Any person performing work pursuant to paragraphs (E)~~(3)~~(2) through (H) of this rule shall obtain a permit pursuant to paragraph (C) of rule 1301:7-9-10 of the Administrative Code, prior to performing work, from the local fire agency that has been given delegated authority pursuant to

rule 1301:7-9-15 of the Administrative Code and has jurisdiction over the area where the UST system is located, or, if the local fire agency does not have such authority, the state fire marshal.

- (2) ~~All~~ Unless stated otherwise, all work performed pursuant to paragraph (E)~~(2)~~(3) through (H) of this rule shall be supervised by a certified UST installer and inspected by a certified UST inspector as required in paragraph (D) of rule 1301:7-9-10 of the Administrative Code.

(E) Out-of-service requirements of UST systems.

- (1) Out-of-service UST systems shall comply with the applicable requirements of this chapter including, but not limited to, the following:

(a) The UST system shall comply with registration requirements pursuant to rule 1301:7-9-04 of the Administrative Code;

(b) The UST system shall comply with the financial responsibility requirements pursuant to rule 1301:7-9-05 of the Administrative Code; and

(c) The UST system shall comply with the construction and operational requirements for cathodic protection pursuant to paragraphs (D)(1) through (D)(4) of rule 1301:7-9-06 of the Administrative Code.

- (2) UST systems that have been taken temporarily out-of-service for ninety days or less shall have the fill line, gauge opening, and dispensing unit secured against tampering. Vent lines shall remain open and functioning.

~~(a) The applicable requirements of this chapter shall continue to apply, except for the release detection requirements of rule 1301:7-9-07 of the Administrative Code provided the UST system remains empty. Regulated substances may remain in the UST system provided that release detection is performed pursuant to rule 1301:7-9-07 of the Administrative Code. Release detection is not required if the UST system is empty.~~

(b) An UST system shall be considered empty when all regulated substances have been removed so that no more than 1 inch of residue, or 0.3 percent by volume of the total capacity of the UST system, remains in the UST system.

- ~~(2)~~(3) If an UST system is out-of-service for more than ninety days, the UST system shall be maintained in the following manner:

(a) The vent lines shall be left open and functioning;

(b) All other lines, pumps, manways, and ancillary equipment shall be capped and secured; and

(c) The UST system shall be emptied. The UST system shall be considered empty when all regulated substances have been removed so that no more than 1 inch of residue, or 0.3 percent by volume of the total capacity of the UST system, remains in the UST system; ~~and~~

~~(d) An out of service permit shall be obtained in accordance with paragraph (C)(1) of rule 1301:7-9-10 of the Administrative Code.~~

(4) An out-of-service permit shall be obtained for a UST system out-of service for more than ninety days in accordance with paragraph (C)(1) of rule 1301:7-9-10 of the Administrative Code.

(a) As a condition of the out-of-service permit:

(i) an inspection of the out-of-service UST system shall be performed as required by paragraph (D) of rule 1301:7-9-10 of the Administrative Code; and

(ii) the state fire marshal or the certified fire safety inspector with delegated authority pursuant to rule 1301:7-9-15 of the Administrative Code for the jurisdiction where the UST system is located may require the owner or operator to submit copies of release detection records pursuant to paragraph (E) of rule 1301:7-9-07 of the Administrative Code.

(b) Prior to the expiration date of an out-of-service permit, a renewal of the out-of-service permit may be requested by submitting a new permit application pursuant to rule 1301:7-9-10 of the Administrative Code to the state fire marshal or the certified fire safety inspector with delegated authority pursuant to rule 1301:7-9-15 of the Administrative Code for the jurisdiction where the UST system is located prior to the expiration of the out-of-service permit.

(i) Neither a certified UST installer nor a certified UST inspector are required for the renewal of an out-of-service permit.

(ii) Any previously approved out-of-service permit for which a renewal application is submitted shall be extended until the state fire marshal or the certified fire safety inspector with delegated authority pursuant to rule 1301:7-9-15 of the Administrative Code for the jurisdiction where the UST system is located acts upon the renewal application.

(c) The out-of-service permit or renewal permit shall be effective until the expiration date listed on the permit as issued by the state fire marshal or the certified fire safety inspector with delegated authority pursuant to rule 1301:7-9-15 of the Administrative Code for the jurisdiction where the UST system is located. If no expiration date is listed on the permit, the out-of-service permit shall extend for twelve months commencing from the issuance date of the permit.

(d) The out-of-service permit application or renewal application shall be approved at the discretion of the state fire marshal or the certified fire safety inspector with delegated authority pursuant to rule 1301:7-9-15 of the Administrative Code for the jurisdiction where the UST system is located

(e) A variance from the timely submittal of an out-of-service permit application or renewal application may be granted provided that the person making the request demonstrates good cause as determined by the state fire marshal or the certified fire safety inspector with delegated authority pursuant to rule 1301:7-9-15 of the Administrative Code for the jurisdiction where the UST system is located.

~~(3)~~(5) An UST system that is out-of-service more than ninety days as part of a scheduled seasonal discontinuation of use is not required to obtain the out-of-service permit required in paragraph (E)(2)(d)(4) of this rule if all of the following conditions are met:

- (a) Written approval is obtained from the state fire marshal or the certified fire safety inspector with delegated authority pursuant to rule 1301:7-9-15 of the Administrative Code for the jurisdiction where the UST system is located;
- (b) The UST system is located at a marina, golf course, amusement park, or other seasonal facility as approved by the state fire marshal or the certified fire safety inspector with delegated authority pursuant to rule 1301:7-9-15 of the Administrative Code for the jurisdiction where the UST system is located;
- (c) The UST system is maintained in accordance with paragraph (E)(2)(3)(a) through (E)(2)(3)(c) of this rule; and
- (d) The UST system has not been out-of-service for a period exceeding twelve months.

~~(4)~~(6) If an UST system or portions of an UST system is out-of-service for more than twelve months or more than the time period approved in the out-of-service permit or renewal permit granted pursuant to paragraph (E)(4) of this rule, owners and operators and any person who holds a legal, possessory, or equitable interest in a parcel of real property on which an UST system is located, regardless of that person's status as an "owner" or "operator" as those terms are defined in section 3737.87 of the Revised Code shall conduct one of the following:

- (a) ~~Immediately~~ Within thirty days, place the UST system back into service pursuant to paragraph (E)(6)(7) of this rule;
- (b) ~~Permanently~~ Within thirty days, ~~permanently~~ remove, close-in-place, or perform a change-in-service of the UST system in accordance with this rule; or
- (c) ~~Request an extension of the twelve month out of service period. Any request for an extension of the out of service period shall be submitted in writing prior to the end of the twelve month out of service period, or extension thereof, to the fire marshal or the certified fire safety inspector with delegated authority pursuant to rule 1301:7-9-15 of the Administrative Code for the jurisdiction where the UST system is located. The extension request shall include all of the following:~~ Obtain a variance from the timely submittal of an out-of-service permit application or renewal application in accordance with paragraph (E)(4)(e) of this rule and request an out-of-service-permit or renewal permit by submitting a permit application pursuant to paragraph (E)(4) of this rule.
 - ~~(i) The name and address of the owner(s) of the property where the UST is located and the names and addresses of the UST owners and operators, if available;~~
 - ~~(ii) The address of the site where the UST is located;~~
 - ~~(iii) The date of the last use of the UST and the amount of additional time being requested;~~
and
 - ~~(iv) Documentation that the underground metallic components of the UST system that routinely contain regulated substances comply with cathodic protection requirements pursuant to paragraph (B)(1)(b) and paragraph (B)(2)(b)(ii) of rule 1301:7-9-06 of the Administrative Code and that the UST system complies with operational cathodic~~

~~protection requirements pursuant to paragraph (C) of rule 1301:7-9-08 of the Administrative Code.~~

~~(5) The twelve month out of service period shall be extended until the fire marshal or the certified fire safety inspector with delegated authority pursuant to rule 1301:7-9-15 of the Administrative Code for the jurisdiction where the UST system is located acts upon the extension request.~~

~~(a) The extension request shall be approved at the discretion of the fire marshal or the certified fire safety inspector with delegated authority pursuant to rule 1301:7-9-15 of the Administrative Code for the jurisdiction where the UST system is located provided that, at a minimum, adequate documentation has been provided demonstrating that the UST system meets cathodic protection requirements pursuant to paragraph (E)(4)(c)(iv) of this rule.~~

~~(b) If the extension request is denied, the twelve month out of service period shall be extended for sixty days from the date of the denial of the extension request, at which time the twelve month out of service period shall end and the UST system shall be removed, closed in place, or undergo a change in service in accordance with this rule.~~

~~(c) Prior to the end of any extension of the twelve month out of service period, the UST system shall be placed back into service, removed, closed in place, or undergo a change in service in accordance with this rule unless an additional extension of the twelve month out of service period is requested in accordance with paragraph (E)(4)(c) of this rule and granted pursuant to paragraph (E)(5)(a) of this rule.~~

~~(d) A variance from the timely submittal of a request for an extension of the twelve month out of service period may be granted provided that the person making the request demonstrates good cause as determined by the fire marshal or the certified fire safety inspector with delegated authority pursuant to rule 1301:7-9-15 of the Administrative Code for the jurisdiction where the UST system is located.~~

~~(6)(7) Notwithstanding paragraph (E)(4) through (E)(5)(d), of this rule, a An UST system that has been out-of-service for more than twelve months may be placed back into service at any time provided that the UST system meets the following requirements:~~

~~(a) The UST system complies with cathodic protection requirements pursuant to paragraph (B)(1)(b) and paragraph (B)(2)(b)(ii) of rule 1301:7-9-06 of the Administrative Code and the UST system complies with operational cathodic protection requirements pursuant to paragraph (C) of rule 1301:7-9-08 of the Administrative Code is equipped to meet the performance standards for existing UST systems pursuant to rules 1301:7-9-06 of the Administrative Code and release detection requirements pursuant to rule 1301:7-9-07 of the Administrative Code;~~

~~(b) For an UST system out-of-service more than twelve months, The the UST system and primary pipe that routinely contains regulated substances passes a tightness test in accordance with paragraph (F) of rule 1301:7-9-07 of the Administrative Code within seven days of going back into service;~~

~~(c) The UST system is in compliance with registration and financial responsibility requirements defined in rules 1301:7-9-04 and 1301:7-9-05 of the Administrative Code; and Within thirty days of bringing the UST system back into service, the owner or operator submits a modified~~

registration application to the state fire marshal pursuant to rule 1301:7-9-04 of the Administrative Code,

(d) The UST system is in compliance with financial responsibility requirements pursuant to rule 1301:7-9-05 of the Administrative Code; and

(e) The state fire marshal has not issued an order prohibiting the UST system from going back into service.

(F) Closure-in-place requirements for UST systems.

(1) An UST system shall not be closed-in-place unless approved in writing by the state fire marshal or a certified fire safety inspector with delegated authority pursuant to rule 1301:7-9-15 of the Administrative Code for the jurisdiction where the UST system is located ~~or the fire marshal for jurisdictions where such authority has not been delegated.~~ An UST system may be closed-in-place for any of the following reasons:

(a) The UST system is located adjacent to or under equipment or structures that will likely be damaged or weakened if the UST system is removed;

(b) The UST system is situated in a location where the removal is physically impossible; or

(c) Removal of the UST system may expose people or the environment to unreasonable hazards.

(2) Cost shall not be used as the sole reason to justify closure-in-place of an UST system.

(3) An UST system shall be closed-in-place in accordance with "American Petroleum Institute standard Recommended Practice 1604-962001; Closure of Underground Petroleum Storage Tanks". The solid inert material used to fill an UST shall have a density that is greater than the density of water.

(G) Permanent removal requirements for UST systems.

(1) Permanent removal of an UST system shall be conducted in accordance with the following:

(a) All UST systems or any part of an UST system permanently ~~removed~~ closed shall be removed from the ground unless certified fire safety inspector with delegated authority pursuant to rule 1301:7-9-15 of the Administrative Code or the state fire marshal for jurisdictions where such authority has not been delegated authorizes the closure-in-place of the UST system or any part of the UST system pursuant to paragraph (F)(1) of this rule;

(b) All UST systems being permanently removed shall comply with the cleaning, removal, and safety requirements of "~~American Petroleum Institute Recommended Practice 1604-96; Removal and Disposal of Used Underground Petroleum Storage Tanks~~", "American Petroleum Institute Recommended Practice 1604-2001; Closure of Underground Petroleum Storage Tanks", "American Petroleum Institute Publication 2015-2001; Safe Entry and Cleaning Petroleum Storage Tanks," and "The National Institute for Occupational Safety and Health; Criteria for a Recommended Standard: Working In Confined Space";

(c) The UST shall be maintained in a safe condition by regularly monitoring the UST to ensure that an accumulation of explosive vapors does not occur;

- (d) All liquid and residue shall be removed from the UST before the UST leaves the site and handled in accordance with paragraph (C) of this rule;
- (e) The UST shall be rendered unusable and free of explosive vapors before the UST leaves the site by cutting up or crushing the UST or by perforating the UST with numerous holes using explosion-proof non-sparking tools. No UST shall be reused for any purpose unless written approval is obtained from the state fire marshal prior to the removal activity;
- (f) All backfill from the tank cavity excavation, piping trenches, dispensing unit areas, and remote fill pipe trenches shall be removed;
- (g) No more than twelve inches of native ~~soils~~ soil shall be removed from the side walls and bottom of the tank cavity excavation, piping trenches, dispensing unit areas, and remote fill pipe trenches. Where bedrock is encountered within the first twelve inches, remove native ~~soils~~ soil to bedrock. Further removal of ~~soils~~ soil from the tank cavity, piping trenches, dispensing unit areas, and remote fill pipe trenches for purposes of corrective action shall not be conducted without prior approval of the state fire marshal; and
- (h) Backfill and native ~~soils~~ soil removed from the tank cavity excavation, piping trenches, dispensing unit areas, and remote fill pipe trenches may be stored on site in a stockpile for a period not to exceed one hundred and twenty days, provided that it has been placed on a concrete pad, asphalt pad, or impermeable synthetic liner, covered to prevent infiltration of rain water, and has been surrounded with a berm to minimize the run off water. Storage on site beyond one hundred and twenty days shall only occur if prior approval has been granted by the state fire marshal. Backfill and native ~~soils~~ soil shall be handled in accordance with paragraph (C) of this rule.

(H) Change-in-service requirements for UST systems.

- (1) Change-in-service of an UST system as defined in rule 1301:7-9-02 of the Administrative Code shall be conducted in accordance with the following:
 - (a) The UST shall be completely emptied and cleaned; and
 - (b) All piping and ancillary equipment that is not part of the change-in-service shall be closed-in-place or removed pursuant to paragraphs (F) and (G) of this rule.

(I) Closure assessment.

- (1) Activities subject to closure assessment.
 - (a) Owners and operators of UST systems shall conduct a closure assessment in accordance with this rule when the UST system, or any portion of the UST system:
 - (i) Is permanently removed, including removals resulting from modifications of product piping and associated components that routinely contain a regulated substance;
 - (ii) Is closed-in-place;
 - (iii) Undergoes a change-in-service; ~~or~~

- (iv) Is out-of-service for more than twelve months without an approved permit extending the out-of-service period in accordance with paragraph (E)(4) of this rule; or
- (v) Is out-of-service for more than the approved out-of-service period pursuant to paragraph (E)(4) of this rule unless a variance has been requested and approved in accordance with paragraph (E)(4)(e) of this rule.
- (b) For those portions of the UST systems being assessed in a corrective action program under rule 1301:7-9-13 of the Administrative Code, a closure assessment ~~need not be performed for that portion of the UST system in corrective actions.~~ is required unless a demonstration is made to show that those portions of the UST system requiring a closure assessment have been adequately assessed in accordance with rule 1301:7-9-13 of the Administrative Code or an alternative sampling plan is approved by the state fire marshal.
- (c) Closure assessment activities listed in paragraphs (I)(2)(b) through (I)(2)(h), (I)(3), (I)(4), (J)(1) and (J)(2) of this rule are not required for piping and piping components, such as flex connectors and other underground ancillary equipment, that meet the performance standards for corrosion protection pursuant to paragraphs (D)(3) through (D)(4)(c) of rule 1301:7-9-06 of the Administrative Code and are not located in a Designated Sensitive Area as defined in rule 1301:7-9-09 of the Administrative Code, or in a Drinking Water Source Protection Area as defined in rule 1301:7-9-13(C) of the Administrative Code, under the following conditions:
 - (i) Permanently out-of-service piping is located in a common trench with piping associated with an operating UST system and the owner or operator demonstrates that the piping that is permanently out-of-service has passed a tightness test conducted pursuant to rule 1301:7-9-07 (F)(2)(a) and (F)(2)(b) of the Administrative Code within 60 days prior to being closed-in-place until closure assessment activities are conducted on the remaining piping in the trench under paragraphs (I)(1)(a)(i) to (I)(1)(a)(iii) of this rule;
 - (ii) Modifications to piping and piping components located beneath dispensers or over USTs that are not contained in a secondary containment sump and the owner or operator demonstrates that the piping components have passed a tightness test conducted pursuant to rule 1301:7-9-07 of the Administrative Code within 60 days prior to modification of the piping components; or
 - (iii) Piping and piping components that are modified in order to install under dispenser containment and the owner or operator demonstrates that the piping components have passed a tightness test conducted pursuant to rule 1301:7-9-07 of the Administrative Code within 60 days prior to the installation.
- (d) Closure assessment activities listed in paragraphs (I)(2)(b) through (I)(2)(h), (I)(3), (I)(4), (J)(1) and (J)(2) of this rule are not required for modifications to piping and piping components, such as flex connectors and other underground ancillary equipment, contained in a secondary containment sump beneath dispensers or over USTs that meet the performance standards for corrosion protection for product piping pursuant to paragraphs (D)(3) through (D)(4)(c) of rule 1301:7-9-06 of the Administrative Code and the owner or operator demonstrates the UST system has passed one of the following:

- (i) a tightness test of the piping components conducted pursuant to rule 1301:7-9-07 of the Administrative Code within 60 days prior to modification of the piping components, or
- (ii) a tightness test of the containment sump conducted pursuant to rule 1301:7-9-07 of the Administrative Code within 60 days prior to modification of the piping components.
- (e) Notwithstanding the testing requirements of paragraphs (I)(1)(c) or (I)(1)(d) of this rule, if free product is present in soil or backfill or if there is evidence that a component is leaking or has leaked, a Site Check must be performed pursuant to paragraph (F)(3) of rule 1301:7-9-13 of the Administrative Code.
- (f) All activities conducted pursuant to paragraph (I)(1)(c) or (I)(1)(d) of this rule shall be documented on a form prescribed by the state fire marshal and submitted to the state fire marshal within 90 days of the completion of the activities. The form shall include, but not be limited to, the following:
 - (i) A site map which accurately depicts property boundaries, street locations, above ground structure(s), and the UST system(s) including the number of USTs, adjacent properties and their use, and the portions of the UST system being modified;
 - (ii) Results from a tightness test of the piping components or of the containment sump;
 - (iii) A description of the visual site evaluation required by paragraph (I)(2)(a) of this rule including the UST components being modified and the area immediately adjacent to the components being modified;
 - (iv) Copy of any permit required to be obtained in accordance with paragraph (D)(1) of this rule; and
 - (v) Documentation demonstrating compliance with corrosion protection.
- (2) The closure assessment shall consist of the following:
 - (a) Owners and operators shall perform a visual site evaluation of the UST site to identify all evidence of past or present operational problems, including but not limited to, surface soil staining, concrete staining, concrete patchwork, areas where piping and pump islands existed, and all potential sources of contamination.
 - (b) ~~Soil samples for permanent removal of UST systems or modification of piping and dispensers~~ the UST system or portion of the UST system required to undergo a closure assessment pursuant to paragraph (I)(1) of this rule shall be biased towards the area of greatest suspected contamination and collected from all of the following locations:
 - (i) Under both ends of each UST. If an UST is longer than thirty-five feet an additional sample shall be collected from under the middle of the UST;
 - (ii) Each side wall of the UST cavity excavation on a ten foot by ten foot grid system;
 - (iii) Every ten feet along piping runs that routinely contain regulated substances and under joints, elbows, and flex connectors unless the sample location is within two linear feet of

another sample collected in accordance with this section. If the piping run is less than ten feet in length, no sample is required to be collected;

- (iv) Underneath each dispensing unit where joints, elbows, and flex connectors are located. If the dispensing unit is located directly above the UST, no sample is required to be collected, provided the UST is being removed; and
 - (v) From below any remote fill pipe area located more than ten feet from the UST cavity excavation.
- (c) Water samples for permanent removal shall be collected in the following manner:
- (i) Water in the UST cavity system excavation shall be completely evacuated and disposed of in accordance with all federal, state, and local laws and regulations. If water cannot be completely evacuated from the UST cavity system excavation or if upon recharge of water from surrounding soil into the UST cavity system excavation to a level sufficient for sample collection, a water sample shall be collected within a period not to exceed twenty-four hours following the evacuation.
 - (ii) Soil samples required under paragraph (I)(2)(b)(i) of this rule need not be collected if a water sample is obtained in accordance with paragraph (I)(2)(c)(i) of this rule.
- (d) ~~The following samples collected for permanent removal of UST systems or modification of piping and dispensers shall be and sent to the laboratory for analysis:~~ When the UST system or portion of the UST system is required to undergo a closure assessment pursuant to paragraph (I)(1)(a)(i) of this rule, the following samples shall be collected and sent to an accredited laboratory for analysis:
- (i) The two soil samples with the highest field screening readings from each UST cavity excavation including side wall samples. If the UST cavity excavation contained more than three USTs, an additional soil sample for each multiple or fraction of three USTs. If no field screening readings are exhibited, the samples submitted shall be biased toward the area(s) of greatest suspected contamination;
 - (ii) The soil sample with the highest field screening reading from each piping run excavation. If no field screening readings are exhibited, the sample submitted shall be biased toward the area(s) of greatest suspected contamination;
 - (iii) The soil sample with the highest field screening reading from each remote fill pipe area. If no field screening readings are exhibited, the sample submitted shall be biased toward the area(s) of greatest suspected contamination;
 - (iv) The soil sample with the highest field screening reading from each dispenser island. If more than three dispensing units are present at the island, an additional sample shall be submitted for each multiple or fraction of three dispensing units. If no field screening readings are exhibited, the sample submitted shall be biased toward the area(s) of greatest suspected contamination; and
 - (v) Any water samples that were collected.

- (e) ~~Soil and water samples for closure in place, change in service, and UST systems out of service for more than twelve months~~ When the UST system or portion of the UST system is required to undergo a closure assessment pursuant to paragraphs (I)(1)(a)(ii) through (I)(1)(a)(v) of this rule, soil and water samples shall be collected by installing a minimum of three soil borings and monitoring wells in the area most likely to contain chemical(s) of concern above action levels. The soil borings and monitoring wells shall be installed, and sampled, and analyzed in accordance with paragraphs (H)(1)(d)(ii) of rule 1301:7-9-13 of the Administrative Code. Soil boring and monitoring well locations shall be selected to ensure the evaluation of soil and ground water surrounding the UST system and be biased towards areas most likely to contain chemical(s) of concern.
- (f) All soil samples collected shall be split into two components. One packaged for field screening, the other packaged for potential laboratory analysis. The sampling and packaging shall be in accordance with procedures established by the state fire marshal.
- (i) Soil samples collected for field screening shall be screened on the UST site using equipment calibrated in accordance with manufacturer's instructions and procedures approved by the state fire marshal.
- (ii) All samples shall be collected within twenty-four hours of completing the excavation.
- (g) With prior approval from the fire marshal, owners and operators may use the sampling procedures described in paragraph (I)(2)(e) of this rule in place of the sampling procedures described in paragraphs (I)(2)(b) through (I)(2)(d) of this rule to meet the sampling requirements for the removal of an UST system.
- (h) If site conditions interfere with the collection of any samples required by ~~paragraph~~ paragraphs (I)(2)(b) to (I)(2)(e) of this rule, owners and operators shall obtain approval in writing from the state fire marshal for an alternative sampling protocol.
- (i) If an UST system or portion of the UST system was permanently removed, closed-in-place, or underwent a change-in-service on or after September 1, 1992 and a closure assessment was not conducted in accordance with the closure assessment rules in effect at the time, the state fire marshal may direct the owner or operator to collect soil and ground water samples by installing a minimum of three soil borings and monitoring wells in the area most likely to contain chemical(s) of concern above action levels. The soil borings and monitoring wells shall be installed and sampled in accordance with paragraphs (H)(1)(d)(ii) of rule 1301:7-9-13 of the Administrative Code. Soil boring and monitoring well locations shall be selected to ensure the evaluation of soil and ground water surrounding the UST system and be biased towards areas most likely to contain chemical(s) of concern.
- (3) Samples sent to the laboratory for analysis pursuant to paragraphs (I)(2)(d) or (I)(2)(e) of this rule shall be analyzed for the appropriate chemical(s) of concern ~~listed in Table 1 of paragraph (H)(1)(c) of rule 1301:7-9-13 of the Administrative Code and appropriate action levels for those chemical(s) of concern shall be determined as follows.~~ The chemical(s) of concern shall be identified as follows:
- (a) For UST systems that contained petroleum products classified as analytical group 1, 2, 3, or 4 as defined in paragraph (H)(1)(c) of rule 1301:7-9-13 of the Administrative Code, action levels shall be determined by applying the following information to the action level tables found in paragraph (J)(3) of rule 1301:7-9-13 of the Administrative Code. The most

~~conservative action level values for each chemical of concern shall be used from all applicable tables the appropriate chemical(s) of concern and analytical methods shall be identified using Table 1 of paragraph (H)(1)(c) of rule 1301:7-9-13 of the Administrative Code.~~

- ~~(i) Assume the soil to be soil class 1 as defined in paragraph (H)(2) of rule 1301:7-9-13 of the Administrative Code or submit laboratory analysis of the soil class that best represents the soil under the UST site in accordance with ASTM D2488-00 "Standard Practice for Description and Identification of Soils (Visual Manual Procedures)" or the Unified Soil Classification System. Bedrock shall be assumed to be soil class 1 for the purposes of this rule.~~
 - ~~(ii) Assume ground water exists ground water is drinking water, and the depth to ground water is less than fifteen feet or submit site specific data of actual depth to ground water on the UST site.~~
 - ~~(iii) If a water sample is required from the UST cavity excavation pursuant to paragraph (I)(2)(c) of this rule, the analytical results from the water sample shall be compared to the action level table found in paragraph (J)(3)(a) of rule 1301:7-9-13 of the Administrative Code to determine if action is required pursuant to paragraph (I)(4) of this rule.~~
- (b) For UST systems that contained petroleum products classified as analytical group 5 in paragraph (H)(1)(c) of rule 1301:7-9-13 of the Administrative Code, chemical(s) of concern and analytical methods must be ~~selected~~ identified, as appropriate, based on reasonably available information related to typical additives, impurities and/or degradation products of the petroleum product stored or handled at the UST site. Chemical(s) of concern shall also be ~~selected~~ identified based on their toxicity, mobility, and persistence in the environment. The owner and operator shall consult with and obtain written approval from the state fire marshal's approval of for all chemical(s) of concern ~~selected~~ identified for analysis, the analytical methods to be used to measure the presence of those chemical(s) of concern, and the action levels established for all chemical(s) of concern. ~~The fire marshal shall use the same methodologies and assumptions to determine action levels for chemical(s) of concern as are used to determine the action levels set forth in the tables found in paragraph (J)(3) of rule 1301:7-9-13 of the Administrative Code.~~
- (c) For UST systems that contained a hazardous substance(s) as described in paragraph (D) of rule 1301:7-9-03 of the Administrative Code, additional chemical(s) of concern and analytical methods must be ~~selected~~ identified, as appropriate, based on substance(s) stored in the UST system and reasonably available information related to typical additives, impurities, and/or degradation products. In addition, chemical(s) of concern shall be ~~selected~~ identified based on their toxicity, mobility, and persistence in the environment. The owners and operators shall consult with and obtain written ~~permission~~ approval from the state fire marshal for ~~the~~ all appropriate chemical(s) of concern ~~selected~~ identified for analysis, the analytical methods to be used to measure the presence of those chemical(s) of concern, and the action levels established for all chemicals of concern.
- (4) ~~If laboratory analytical results obtained for the purposes of paragraphs (I)(3)(a) and (I)(3)(b) of this rule exceed the action levels established for the petroleum UST site, owners and operators shall proceed to conduct corrective action in accordance with paragraph (H) of rule 1301:7-9-13 of the Administrative Code. If laboratory analytical results are below all applicable action levels,~~

~~then no further action is required.~~ Action level development and comparison shall be conducted as follows:

(a) Action levels assumptions.

(i) Assume the soil to be soil class 1 as defined in paragraph (H)(2) of rule 1301:7-9-13 of the Administrative Code or submit laboratory analysis of the soil class that best represents the soil under the UST site in accordance with ASTM D2488-09a "Standard Practice for Description and Identification of Soils (Visual-Manual Procedures)" or the Unified Soil Classification System. Bedrock shall be assumed to be soil class 1 for the purposes of this rule.

(ii) Assume ground water exists, and that ground water is drinking water.

(iii) Assume residential land use.

(b) Action level determination.

(i) For UST systems that contained petroleum products classified as analytical group 1, 2 or 3 as defined in paragraph (H)(1)(c) of rule 1301:7-9-13 of the Administrative Code, action levels must be obtained from Table 1 of this rule.

(ii) For UST systems that contained petroleum products classified as analytical group 4 as defined in paragraph (H)(1)(c) of rule 1301:7-9-13 of the Administrative Code, action levels must be obtained from Table 1 of this rule. For chemicals of concern not listed in Table 1 of this rule, action levels shall be developed by the owner and operator using the same methodologies and assumptions used to determine the action levels set forth in the tables found in paragraph (J)(3) of rule 1301:7-9-13 of the Administrative Code.

(iii) For UST systems that contained petroleum products classified as analytical group 5 as defined in paragraph (H)(1)(c) of rule 1301:7-9-13 of the Administrative Code, action levels shall be developed by the owner and operator using the same methodologies and assumptions used to determine the action levels set forth in the tables found in paragraph (J)(3) of rule 1301:7-9-13 of the Administrative Code.

(c) Action level comparison.

(i) For UST systems that contained petroleum products classified as analytical group 1, 2, 3, 4 or 5 as defined in paragraph (H)(1)(c) of rule 1301:7-9-13 of the Administrative Code, soil and groundwater laboratory analytical results shall be compared to the action levels determined in paragraph (I)(4)(b) of this rule as follows:

(a) If laboratory analytical results exceed the action levels established for the petroleum UST site, owners and operators shall report a confirmed release to the state fire marshal within twenty-four hours of receiving the results and proceed to conduct corrective action in accordance with paragraph (H) of rule 1301:7-9-13 of the Administrative Code.

(b) If laboratory analytical results are below all applicable action levels, then no further action is required.

(ii) For UST systems that contained hazardous substances, if soil or groundwater analytical results indicate the presence of chemical(s) of concern identified in paragraph (I)(3)(c) of this rule, owners and operators shall proceed to conduct corrective action in accordance with requirements of sections 9003 and 9005 of the “Resource Conservation and Recovery Act of 1976”, 42 U.S.C.A. 6991b and 6991e, as amended. If laboratory analytical results indicate no chemical(s) of concern are detected in subsurface soil or ground water, then no further action is required.

~~(5) If laboratory analytical results obtained for the purpose of paragraph (I)(3)(c) of this rule indicate the presence of chemical(s) of concern in subsurface soil or ground water on the UST site by a hazardous substance, owners and operators shall proceed to conduct corrective action in accordance with requirements of sections 9003 and 9005 of the “Resource Conservation and Recovery Act of 1976”, 42 U.S.C.A. 6991b and 6991e, as amended. If laboratory analytical results indicate no chemical(s) of concern in subsurface soil or ground water, then no further action is required.~~

Table 1 Closure Action Levels

| <u>Drinking Water Action Levels*</u> | <u>Chemical of Concern (COC)</u> | <u>Soil Action Levels*</u> | | |
|--------------------------------------|--|----------------------------|------------------|------------------|
| | | <u>Class 1</u> | <u>Class 2**</u> | <u>Class 3**</u> |
| <u>0.005</u> | <u>Benzene</u> | <u>0.149</u> | <u>0.252</u> | <u>0.937</u> |
| <u>1.0</u> | <u>Toluene</u> | <u>49.1</u> | <u>70.8</u> | <u>86</u> |
| <u>0.7</u> | <u>Ethylbenzene</u> | <u>45.5</u> | <u>83.0</u> | <u>282.0</u> |
| <u>10.0</u> | <u>Total Xylenes</u> | <u>15.7</u> | <u>18.0</u> | <u>21.7</u> |
| <u>0.04</u> | <u>MTBE</u> | <u>0.470</u> | <u>0.788</u> | <u>3.440</u> |
| <u>0.00063</u> | <u>Benzo(a)anthracene</u> | <u>11.0</u> | <u>11.0</u> | <u>11.0</u> |
| <u>0.0002</u> | <u>Benzo(a)pyrene</u> | <u>1.1</u> | <u>1.1</u> | <u>1.1</u> |
| <u>0.00046</u> | <u>Benzo(b)fluoranthene</u> | <u>11.0</u> | <u>11.0</u> | <u>11.0</u> |
| <u>0.022</u> | <u>Benzo(k)fluoranthene</u> | <u>110.0</u> | <u>110.0</u> | <u>110.0</u> |
| <u>0.063</u> | <u>Chrysene</u> | <u>1,100.0</u> | <u>1,100.0</u> | <u>1,100.0</u> |
| <u>0.0002</u> | <u>Dibenz(a,h)anthracene</u> | <u>1.1</u> | <u>1.1</u> | <u>1.1</u> |
| <u>0.00034</u> | <u>Indeno(1,2,3-c,d)pyrene</u> | <u>11.0</u> | <u>11.0</u> | <u>11.0</u> |
| <u>0.067</u> | <u>Naphthalene</u> | <u>39.8</u> | <u>54.0</u> | <u>54.0</u> |
| <u>-</u> | <u>TPH C₆-C₁₂</u> | <u>1,000.0</u> | <u>5,000.0</u> | <u>8,000.0</u> |
| <u>-</u> | <u>TPH C₁₀-C₂₀</u> | <u>2,000.0</u> | <u>10,000.0</u> | <u>20,000.0</u> |
| <u>-</u> | <u>TPH C₂₀-C₃₄</u> | <u>5,000.0</u> | <u>20,000.0</u> | <u>40,000.0</u> |

* COC concentrations are expressed in milligrams per liter (mg/l) or milligrams per kilogram (mg/kg).

** The use of soil class two or three during the closure assessment requires geotechnical analysis to confirm the classification in accordance with paragraph (I)(4)(a)(i) of this rule.

(J) Closure assessment report.

- (1) Owners and operators shall submit one copy of the written closure report to the state fire marshal, which shall be received by the state fire marshal within ninety days from the date of collecting the samples required by this rule.
- (2) Owners and operators shall prepare the information collected in accordance with paragraph (I) of this rule on a form prescribed by the state fire marshal. The closure report shall include ~~a table of contents listing the item and the page in the closure report where said item is located~~ and the following information:
 - (a) UST system owner, operator, and facility data.
 - (i) The facility name, address, zip code, telephone number, and county.
 - (ii) The facility owners' name, address, zip code, telephone number, and county.
 - (iii) The UST system owners' name, address, zip code, telephone number, and county.
 - (iv) The UST system operators' name, address, zip code, telephone number, and county.
 - (b) UST system data.
 - (i) The age, capacity, use, and construction material of the UST system that has been closed-in-place, permanently removed, was out-of-service for more than twelve months, or has undergone a change-in-service.
 - (ii) The substance stored in the UST system.
 - (iii) Substances, other than petroleum, known to have been formerly stored in the UST system.
 - (iv) The status of any UST system that is currently-in-use, permanently removed, closed-in-place, undergoes a change-in-service, or has been taken out-of-service.
 - (v) The disposition of the UST system.
 - (vi) Date of last use, if known.
 - (c) Waste disposal data.
 - (i) A description of the amount in cubic yards, the date generated, and the final disposition of any excavated ~~soils~~ soil or backfill materials. This information shall be included on a form prescribed by the state fire marshal.
 - (ii) A written description of the amount and disposition of any liquids generated from activities conducted in accordance with paragraph (I) of this rule.
 - (iii) Laboratory data sheets, including the chain-of-custody form(s), for any analysis performed on any liquids and excavated ~~soils~~ soil or backfill materials generated in accordance with paragraph (I) of this rule.

(d) Sampling data.

- (i) Description of the sample collection procedures, sample preservation techniques, sample containers, and decontamination procedures associated with the closure assessment conducted in accordance with paragraph (I) of this rule.
- (ii) Details of any field screening conducted, including the instrument readings, location and depth of sampling points, sampling methodology, instrument used, and instrument calibration associated with the closure assessment conducted in accordance with paragraph (I) of this rule.
- (iii) A copy of the chain-of-custody form(s) documentation.
- (iv) Date of sample collection.
- (v) Name and affiliation of the person(s) collecting the samples.
- (vi) Identify all samples locations and depths submitted for laboratory analysis.

(e) Laboratory data.

- (i) Laboratory analytical sample analysis results required as part of the closure assessment conducted in accordance with paragraph (I) of this rule, presented in tabular form, with laboratory data sheets attached.
- (ii) Name, address, and telephone number of the laboratory.
- (iii) Name(s) of the sample analyst(s).
- (iv) Instrument calibration information.
- (v) Sample analysis method used.
- (vi) Laboratory detection and quantitation limits used.
- (vii) Description of whether the sample analyzed is soil or water.
- (viii) Date the samples were received by the laboratory.
- (ix) Date the samples were analyzed by the laboratory.
- (x) Laboratory analysis summary form as prescribed by the state fire marshal.

(f) Miscellaneous data.

- (i) A site map which accurately depicts the sample locations, property boundaries, street locations, above ground structure(s), the UST system(s) including the number of USTs, adjacent properties and their use, any known water wells located on the site, any known monitoring wells located on the site, any utilities uncovered as part of the excavation

process, and the location(s) of any other known UST system(s) or portions thereof known to have been closed-in-place or permanently removed.

- (ii) A description of the native ~~soils~~ soil encountered.
- (iii) A description of the visual site evaluation required by paragraph (I)(2)(a) of this rule.
- (iv) Name, address, telephone number of the UST inspector certified pursuant to rule 1301:7-9-15 of the Administrative Code who was present during the closure-in-place, permanent removal, or change-in-service.
- (v) Name of the local fire department with jurisdiction over the UST site.
- (vi) Date that the UST system(s) was closed-in-place, permanently removed, underwent a change-in-service, or was out-of-service for more than twelve months.
- (vii) Copy of any permit required to be obtained in accordance with paragraph (D)(1) of this rule.
- (viii) A completed copy of the closure form as provided by the state fire marshal.
- (ix) A copy of the inspection field report signed by the certified installer and inspector.

(K) Previously closed UST systems.

When directed by the state fire marshal, the owner and operator of an UST system that was permanently removed, closed-in-place, or underwent a change-in-service before December 22, 1988, shall assess the excavation zone and close the UST system in accordance with this rule if releases from the UST system, in the judgment of the fire marshal, pose a current or potential threat to human health and the environment.

(L) Requests for extensions.

If owners and operators desire an extension of time because they are unable to comply with paragraphs (I) through (K) of this rule, the owner and operator shall:

(1) Prepare a written request on a form prescribed by the state fire marshal, signed by the owners and operators, setting forth the following:

- (a) The date the information was to be submitted;
- (b) The reasons for requesting the extension;
- (c) The length of time that the extension is requested for;
- (d) The name and complete address of the UST site that is the subject of the extension request;
- (e) The name of the state fire marshal employee that is assigned to monitor the corrective actions activities at the UST site; and

(f) The release number, assigned by the state fire marshal, for the UST site that is the subject of the extension request.

(2) Submit a written request in accordance with paragraph (L)(1) of this rule to the state fire marshal prior to the expiration of the time period that is the subject of the extension request. Submission of the written request required by paragraph (L)(1) of this rule is accomplished only upon the actual receipt of the request by the state fire marshal. The state fire marshal may grant, modify, or deny any extension request at his sole discretion.

HISTORY: Eff 9-1-92; 10-23-92 (Emer.); 1-22-93; 1-19-97; 3-31-99; 7-2-99; Replaces: 1301:7-9-12, eff. 3-1-05

Rule promulgated under: RC 119.03

Rule authorized by: RC 3737.88

Rule amplifies: RC 3737.88

R.C. 119.032 review dates: 03/01/2010

1301:7-9-13 Petroleum UST Corrective Action

(A) Purpose and scope.

For the purpose of prescribing rules in accordance with division (A) of section 3737.88 and division ~~(b)~~(B) of section 3737.882 of the Revised Code, the state fire marshal hereby adopts this rule to establish release reporting and corrective action requirements for underground storage tanks containing petroleum products. This rule is adopted by the state fire marshal in accordance with Chapter 119 of the Revised Code and shall not be considered a part of the Ohio State Fire Code.

(B) Applicability.

- (1) For releases reported on or after the effective date of this rule, owners and operators shall conduct corrective action in accordance with this rule.
- (2) For releases reported prior to the effective date of this rule, owners and operators may elect to conduct corrective action in accordance with this rule by submitting a letter to the state fire marshal stating their election to conduct corrective actions in accordance with this rule.
- (3) ~~Owners and operators conducting corrective actions in accordance with OAC 1301:7-9-13 (effective date September 1, 1992), may continue to conduct corrective actions in accordance with that version until September 1, 2005. Thereafter, owners and operators shall conduct corrective actions in accordance with this rule.~~
- (4) ~~Owners and operators conducting corrective actions in accordance with OAC 1301:7-9-13 (effective date March 31, 1999), may continue to conduct corrective actions in accordance with that version until March 1, 2006. Thereafter, owners and operators shall conduct corrective actions in accordance with this rule. Owners and operators conducting corrective actions in accordance with a previous version of OAC 1301:7-9-13, may continue to conduct corrective actions in accordance with that version until October 1, 2012. Thereafter, owners and operators shall conduct corrective actions in accordance with this rule.~~
- ~~(5)~~(4) Owners and operators may request an extension of time pursuant to paragraph (Q) of this rule to continue corrective actions under a previous version of this rule where good cause exists as determined by the state fire marshal. The state fire marshal may grant, modify or deny any extension request at his sole discretion.

(C) Definitions.

- (1) “Action levels” means non-site-specific concentrations for chemical(s) of concern that are protective of human health utilized during the tier 1 source investigation and delineation process specified in paragraphs (J)(2) and (J)(3) of this rule.
- (2) “Adjacent property” means a property or properties whose borders are contiguous or partially contiguous with that of an UST site, or would be contiguous or partially contiguous with that of an UST site but are separated by a street, road or other public thoroughfare.
- (3) “Chemical(s) of concern” means the chemical or specific constituents of the petroleum released that are identified for evaluation during the corrective action process.

- (4) “Delineation levels” means non-site specific concentrations of chemical(s) of concern that are designed to determine the most likely distribution of chemical(s) of concern in soil and ground water.
- (5) “Drinking Water Source Protection Area” means the surface and subsurface area surrounding a public water supply well(s) supplying a community ~~or non-transient, non-community public water system~~ public water system, a non-community non-transient public water system, or a non-community transient public water system which will provide water from an aquifer to the well(s) within five years as delineated or endorsed by the Ohio Environmental Protection Agency under Ohio’s Wellhead Protection and Source Water Assessment and Protection Programs.
- (6) “Engineering controls” means physical modifications, (e.g., slurry walls, capping, vapor controls, point of use water treatment) that are recorded in ~~a deed restriction or~~ an environmental covenant, for the purposes of reducing or eliminating the potential for exposure to a chemical(s) of concern.
- (7) “Environmental media” includes, but is not limited to air, soil, ground water and surface water.
- (8) “Exposure assessment” means the qualitative or quantitative determination or estimation of the magnitude, frequency, duration and route of exposure between a source area and a receptor.
- (9) “Exposure pathway” means a mechanism by which an individual or population may be exposed to a chemical(s) of concern originating from an UST site. Each exposure pathway includes a source or release from a source, a point of exposure, and an exposure route. If the point of exposure is not at the source, a transport medium (e.g., air or water) also is included.
- (10) “Exposure route” means the manner in which a chemical(s) of concern may come into contact with a receptor (e.g., ingestion, inhalation, dermal contact).
- (11) “Free product” means a separate liquid hydrocarbon phase that has a measured thickness of greater than one one-hundredth of a foot.
- (12) “Ground water” means water underlying an UST site in a saturated zone that:
 - (a) Is capable of yielding a minimum of one and one-half gallons of water within eight hours of purging; and
 - (b) Has an in situ hydraulic conductivity greater than 5.0×10^{-6} centimeters per second.
- (13) “Institutional controls” means the restriction on use or access (e.g., engineering controls, or environmental covenant, deed or zoning restrictions covenants) to an UST site to eliminate or minimize potential exposure to a chemical(s) of concern.
- (14) “Immediate Corrective Action” means the course of action to mitigate fire, explosion, vapor and safety hazards, including immediate or short-term abatement or containment measures to prevent the spread of a release.
- (15) “Interim Response Action” means the course of action taken prior to implementation of a remedial action to reduce further migration of chemicals of concern in their vapor, dissolved, or

liquid phase, to reduce or eliminate the concentration of chemical(s) of concern at a source area(s) and/or in soil requiring treatment, or to otherwise eliminate exposure pathways. Interim response actions are not immediate corrective actions or remedial actions. Examples of interim response actions include, but are not limited to, over-excavation of a former UST area, and short-term dual-phase extraction in a source area.

- (16) "Natural attenuation" means the reduction in the concentration(s) of chemicals of concern in environmental media due to a combination of one or more naturally occurring physical, chemical or biological processes (e.g., diffusion, dispersion, absorption, chemical degradation and biodegradation).
- (17) "Non-residential land use" means land use that does not meet the criteria for residential land use. Non-residential land use includes, but is not limited to, commercial and industrial land use.
- (18) "Overfill" is a release that occurs when an UST is filled beyond its capacity, resulting in a discharge of the regulated substance to the environment.
- (19) "Petroleum contaminated soil" means soil that contains chemical(s) of concern that exceed one or more of the re-use levels set forth in paragraph (D) of rule 1301:7-9-16 of the Administrative Code.
- (20) "Physical discovery" means:
 - (a) The presence of free product discovered during removal of any portion of an UST system, in an excavation on an UST site or on a property nearby an UST site;
 - (b) ~~The discovery of petroleum product vapors within or along building foundations or other subsurface manmade structures such as building foundations, basements, pedestrian tunnels, utility vaults, sewer lines or in a drinking water well located on an UST site or on property nearby an UST site;~~ The discovery of petroleum product or petroleum product vapors in any of the following locations on an UST site or on a property nearby an UST site:
 - (i) in a building;
 - (ii) within or along building foundations or other subsurface manmade structures such as basements, pedestrian tunnels, and utility vaults;
 - (iii) within or along sewer lines; or
 - (iv) in a drinking water well.
 - (c) The presence of free product in a monitoring or observation well located on an UST site or on property nearby an UST site;
 - (d) The presence of petroleum products observed on a surface water body located on an UST site or on property nearby an UST site suspected to have arisen from a release from that UST system;
 - (e) Laboratory analytical results which are above action levels set forth in paragraph (J) from a

study or survey of an UST site or on property nearby other than from a site check conducted in accordance with paragraph (F)(3) of this rule or a Tier 1 Source Investigation conducted in accordance with paragraph (H)(1) of this rule; or

- (f) ~~The presence of free product discovered in an UST secondary containment system, other than a spill bucket, on an UST site. Evidence of petroleum product in soil or fill material or evidence of a component that has leaked or is leaking, observed during activities conducted pursuant to paragraph (I)(1)(c) of rule 1301:7-9-12 of the Administrative Code including, but is not limited to, observing petroleum liquid in or on the soil or fill material in the excavation/modification areas~~
 - (g) Evidence of petroleum product in soil or fill material or evidence of a component that has leaked or is leaking, observed during activities pursuant to paragraph (I)(1)(c) of rule 1301:7-9-12 of the Administrative Code, including, but is not limited to, observing petroleum liquid leaking, emitting, discharging, or escaping from the UST system, or observing petroleum product residue on components of the UST system or below the UST system components.
- (21) “Point(s) of demonstration” means a location(s) selected between the source area(s) and the potential point(s) of exposure where concentrations of chemical(s) of concern must be at or below a determined target level in environmental media that is protective of human health and the environment at the point of exposure.
 - (22) “Point(s) of exposure” means the point(s) at which a receptor may come in contact with a chemical(s) of concern originating from an UST site.
 - (23) “Reasonably anticipated future use” means future use of a UST site that can be predicted with a reasonably high degree of certainty given historical use, current use, and local government planning and zoning.
 - (24) “Receptors” means aquatic life populations in a surface water body or person(s) that are or may be exposed to chemical(s) of concern from the release.
 - (25) “Release” means:
 - ~~(a) any spilling, leaking, emitting, discharging, escaping, leaching or disposing of a petroleum product from an UST system into the ground water, a surface water body, subsurface soil or otherwise into the environment;~~
 - ~~(b) Any spilling, leaking, emitting, discharging, escaping, or disposal of a petroleum product into ground water, a surface water body, subsurface soil or otherwise into the environment while transferring or attempting to transfer petroleum products into an UST system; or~~
 - ~~(c) Chemical(s) of concern in subsurface soil or ground water on an UST site found in concentrations above the action levels specified in paragraph (J) of this rule, during activities conducted pursuant to OAC 1301:7-9-12 and 1301:7-9-13, and confirmed through laboratory analysis of samples from an UST site.~~
 - (26) “Residential land use” means land use where the current or intended use includes, but is not limited to, housing (single and multiple dwellings), educational facilities, day care, agricultural land, correctional facilities, custodial care or long term health care.

- (27) "Saturated zone" means a part or layer of the earth's crust, excluding the capillary zone, in which all voids are filled with water.
- (28) "Site conceptual exposure model" means the integrated representation of the complete and potentially complete exposure pathways at a UST site.
- (29) "Site-specific target levels (SSTL)" means risk-based concentrations for chemical(s) of concern that are protective of human health and the environment developed for a particular UST site under the Tier 2 or Tier 3 evaluations.
- (30) "Source area(s)" means the location of free product, the location of the highest measured soil and/or ground water concentrations of the chemical(s) of concern or the location where the petroleum product was released.
- (31) "Spill" means the following:
- (a) a release resulting from improper ~~dispensing~~ transfer practices to an UST system including, without limitation, the disconnecting of a delivery hose from a tank's fill pipe before the hose has drained completely, or
 - (b) any spilling, leaking, emitting, discharging, escaping, or disposal of a petroleum product into ground water, a surface water body, subsurface soil or otherwise into the environment while transferring or attempting to transfer petroleum products into an UST system.
- (32) "Surrounding area" means an area within ~~two~~ one thousand five hundred feet of an existing or previously removed UST system.
- (33) "Surface water body" means a body of water greater than one acre in size or a river, creek or stream.
- (34) "Suspected release" means evidence of a release obtained through one or more of the following events:
- (a) Monitoring results from a release detection method required by rule 1301:7-9-07 of the Administrative Code that indicate a release may have occurred unless:
 - (i) The monitoring device is found to be defective, and is immediately recalibrated or replaced, and additional monitoring does not confirm the initial result; or
 - (ii) In the case of inventory control, a second month of data does not confirm the initial result;
 - (b) Unusual operating conditions are observed by the owners and operators unless the system equipment is found to be defective but not leaking and is immediately repaired or replaced. Such unusual operating conditions shall include, without limitation, the erratic behavior of petroleum dispensing equipment, the sudden loss of petroleum from an UST system or an unexplained presence of water in the tank; ~~or~~
 - (c) The presence of free product discovered in the secondary containment or interstitial space of the UST system, other than spill prevention equipment, on an UST site; or

(d) Physical discovery.

(35) ~~“UST site” means the parcel of property where an UST system is or was formerly located.~~
“Confirmed Release” means chemical(s) of concern in subsurface soil or ground water on an UST site found in concentrations above the action levels specified in paragraph (J) of this rule and confirmed through laboratory analysis of samples during:

(a) A closure assessment conducted pursuant to OAC 1301:7-9-12; or

(b) A Site Check conducted pursuant to paragraph (F)(3) of this rule.

(D) Reporting of releases and suspected releases.

(1) Owners and operators shall report a suspected release to the state fire marshal and the local fire department within twenty-four hours of discovery by the owners or operators.

(2) Owners and operators shall report a release to the state fire marshal and the local fire department within twenty-four hours of discovery by the owners or operators.

~~(3) Spills or overfills of twenty five gallons or less, which occur while transferring or attempting to transfer petroleum product into an UST system, that do not reach a surface water body and that are cleaned up to pre-release conditions within twenty four hours, need not be reported.~~

(E) Reporting and cleanup of spills and overfills.

If a spill or overfill occurs while transferring or attempting to transfer petroleum product into an UST system, one of the following activities must be conducted:

~~(1) If the spill or overfill of petroleum product results in a release into a nearby surface water body or consists of a release to the environment of more than twenty five gallons of petroleum product, owners and operators shall immediately contain to the extent practicable and immediately clean-up the spill or overfill and shall perform a Site Check in accordance with paragraph (F)(3) of this rule.~~ Spills and overfills of petroleum product that consist of more than twenty-five gallons of petroleum product shall be reported by the owners or operators to the state fire marshal and the local fire department within twenty-four hours of discovery, and Owners and operators shall immediately contain to the extent practicable and immediately clean-up the spill or overfill. Owners and operators shall perform a Site Check in accordance with paragraph (F)(3) of this rule.

(2) If the spill or overfill of petroleum products does not enter a nearby surface water body, stormwater system, monitoring well or observation well, and no more than twenty-five gallons of petroleum product has been released to the environment, owners and operators shall immediately contain and clean up the spill or overfill to pre-release conditions. If the clean-up is accomplished within twenty-four hours, then no further corrective action activities shall be required and the owner and operator do not need to report the spill or overfill to the state fire marshal. If the clean-up is not completed within twenty-four hours, owners and operators shall immediately notify the state fire marshal and the local fire department and perform a Site Check in accordance with paragraph (F)(3) of this rule.

(3) If the spill or overfill of petroleum product of any amount enters a nearby surface water body,

stormwater system, monitoring well or observation well, owners and operators shall immediately contain to the extent practicable and immediately clean-up the spill or overflow, shall report the spill or overflow to the state fire marshal and the local fire department within twenty-four hours of discovery, and shall perform a Site Check in accordance with paragraph (F)(3) of this rule.

(F) Investigating releases and suspected releases.

The purpose of investigating releases and suspected releases is to determine if a closed-in-place, removed, or existing UST system is leaking or has leaked, to identify the source of a release, to determine whether free product exists, and to determine if concentrations of chemicals of concern in soil and/or groundwater are present a release, above action levels, has occurred. If concentrations of chemicals of concern in soil and/or groundwater are detected above action levels, the owner and operator shall perform a Tier 1 Source Investigation in accordance with paragraph (H) of this rule.

(1) UST system evaluation.

Owners and operators shall inspect for above ground releases or exposed below ground releases. If testing or other evidence confirms that a release has or continues to occur from an UST system, activities pursuant to paragraph (G)(1) of this rule shall be conducted to stop any further releases into the environment.

(2) Tightness Test.

(a) ~~For existing UST systems, owners and operators shall conduct a tightness test within seven days of the discovery of a suspected release in accordance with paragraph (H) of rule 1301:7-9-07 of the Administrative Code. Within twenty four hours of the receipt of the results, owners and operators shall notify the fire marshal of the results of the test by telephone, electronic mail or facsimile. Within seven days of performing the tightness test, owners and operators shall submit the test results and supporting data, to the fire marshal. For an existing UST system, where the owner and operator has not identified which component of the UST system has caused the release or suspected release, owners and operators shall conduct a tightness test of the entire UST system, as follows:~~

(i) The tightness test shall be performed before repairing the UST system.

(ii) The tightness test shall be conducted within seven days of the discovery of the release or suspected release in accordance with paragraph (F) of rule 1301:7-9-07 of the Administrative Code.

(iii) Within twenty-four hours of the receipt of the results, owners and operators shall notify the state fire marshal of the results of the test by telephone, electronic mail or facsimile.

(iv) Within seven days of performing the tightness test, owners and operators shall submit the test results and supporting data, to the state fire marshal on a form prescribed by the state fire marshal.

(b) For an existing UST system where the owner and operator has identified which component of the UST system has caused the release or suspected release, a tightness test of the component shall be conducted. If the owner and operator elects to repair the UST system component before the tightness test is performed or if repairs to the UST system component are necessary in order to achieve a passing tightness test, a Site Check in accordance with

paragraph (F)(3) of this rule must be performed in addition to any repair(s) required to mitigate further release of petroleum from the UST system. The tightness test shall be performed as follows:

- (i) The tightness test shall be conducted within seven days of the discovery of the release or suspected release in accordance with paragraph (F) of rule 1301:7-9-07 of the Administrative Code.
 - (ii) Within twenty-four hours of the receipt of the results, owners and operators shall notify the state fire marshal of the results of the test by telephone, electronic mail or facsimile.
 - (iii) Within seven days of performing the tightness test, owners and operators shall submit the test results and supporting data, to the state fire marshal on a form prescribed by the state fire marshal.
- ~~(b)(c)~~ (c) If a release is suspected because of the presence of free product discovered in an UST system secondary containment sump or the interstice of double wall piping system the secondary containment or interstitial space of the UST system on an UST site, owners and operators shall:
- (i) Demonstrate, within seven days of discovery of free product, that the secondary containment system is tight and has not released petroleum into the environment. Conduct a tightness test of the secondary containment or interstitial space of the UST system in accordance with paragraphs (F) of rule 1301:7-9-07 of the Administrative Code to demonstrate that the secondary containment or interstitial space of the UST system is tight. The test must be conducted before the secondary containment or the UST system is repaired and within seven days of discovery of free product. Within twenty-four hours of the receipt of the results, owners and operators shall notify the state fire marshal of the results of the test by telephone, electronic mail or facsimile. Within seven days of performing the tightness test, submit the results, in writing on a form prescribed by the state fire marshal, to the state fire marshal, or
 - (ii) Conduct a Site Check pursuant to paragraph (F)(3) of this rule.

(3) Site Check.

(a) Requirements.

Within 90 days of a failed tightness test, determining that the secondary containment system is not tight, physical discovery as defined in paragraph (C)(20)(a) through (C)(20)(e) or the occurrence of a spill or overfill requiring a Site Check pursuant to paragraph (E) of this rule, owners and operators shall conduct a Site Check to determine whether subsurface soil or ground water on an UST site have concentrations of chemical(s) of concern above the action levels set forth in paragraph (J) of this rule and submit a written report consistent with the requirements of one of the options described in paragraph (F)(3)(b) of this rule. Owners and operators shall conduct a Site Check to determine whether subsurface soil or ground water on an UST site have concentrations of chemical(s) of concern above the action levels set forth in paragraph (J) of this rule and must submit a written report consistent with the requirements of one of the options described in paragraph (F)(3)(b) of this rule within 90 days of the following:

- (i) a release to the environment as defined in paragraph (C) of this rule,
- (ii) a failed tightness test,
- (iii) repairing an UST system before conducting a tightness test as required by paragraph (F)(2) of this rule,
- (iv) determining that the secondary containment or interstitial space of the UST system is not tight,
- (v) physical discovery as defined in paragraph (C) of this rule, or
- (vi) the occurrence of a spill or overfill requiring a Site Check pursuant to paragraph (E) of this rule.

Notwithstanding paragraph (F)(3)(a)(ii), a Site Check is not required if a release was suspected because of the presence of free product discovered in the secondary containment or interstitial space of the UST system, the tests conducted pursuant to paragraph (F)(2)(c) of this rule indicate the secondary containment and/or interstitial space of the UST system meet the performance standards of rule 1301:7-9-07 (F) of the Administrative Code, and the owner and operator demonstrate that all product was contained within the secondary containment system.

(b) Options.

A Site Check to determine the presence and concentrations of chemical(s) of concern in the source area(s) shall consist of one or more of the following:

- (i) Conduct a Tier 1 Source Investigation pursuant to paragraph (H) of this rule.
- (ii) Closure of an UST system or portion of an UST system that is the potential source of the suspected release in accordance with rule 1301:7-9-12 of the Administrative Code. At least one of the samples required under rule 1301:7-9-12 of the Administrative Code shall be biased towards the areas suspected to have the highest concentration of chemical(s) of concern resulting from the suspected release. The owners and operators shall obtain prior approval from the state fire marshal for the closure or removal of an UST system or any portion of an UST system if any of the following conditions exist:
 - (a) The ground water is known or suspected to contain concentrations of chemical(s) of concern;
 - (b) Free product is present;
 - (c) A receptor is known to be impacted by the release;
 - (d) A surface water body is known to be impacted by the release;
 - (e) The UST site is in a sensitive area as defined in rule 1301:7-9-09 of the Administrative Code;
 - (f) The UST site is in a Drinking Water Source Protection Area; or

(g) A potable well is located on the UST site.

(iii) Collect a minimum of three samples from the native soil immediately below the source of the suspected release.

(a) Samples shall be biased towards the areas suspected to have the highest concentrations of chemical(s) of concern resulting from the suspected release. Samples from each soil boring or excavation shall be screened using headspace techniques and the sample with the highest field screening result from each location shall be submitted for laboratory analysis. If a saturated zone is encountered, a sample of the water shall be collected from that location and submitted for laboratory analysis. All laboratory samples must be analyzed for the appropriate chemical(s) of concern listed in paragraph (H)(1)(c) of this rule.

(b) Owners and operators shall prepare a site check report for the state fire marshal, which shall contain, at a minimum, a description of the nature and location of the suspected release, the type and location of samples collected, sampling methodologies and preservation techniques, soil boring logs, chain-of-custody(s) forms and laboratory analytical results. The letter report shall be submitted to the state fire marshal within ninety days of a failed tightness test, determining that the secondary containment system is not tight, physical discovery or the occurrence of a spill or overfill as described in paragraph (E) of this rule. Owners and operators must obtain prior approval from the state fire marshal to conduct activities pursuant to this option, if any of the conditions in ~~paragraph~~ paragraphs (F)(3)(b)(ii)(a) ~~through~~ to (F)(3)(b)(ii)(g) of this rule exist.

(c) Release determination.

As part of a Site Check conducted pursuant to paragraph (F)(3) of this rule, owners and operators shall determine the appropriate action levels for an UST site using the procedures set forth in ~~paragraph~~ paragraphs (H)(2) and (J) of this rule. If concentrations of chemical(s) of concern are at or below the appropriate action levels, then no further action is required. If concentrations of chemical(s) of concern at any location on an UST site, evaluated pursuant to ~~paragraph~~ paragraphs (F)(3)(b)(ii) and (F)(3)(b)(iii) of this rule, are above the action levels for an UST site, owners and operators shall conduct a Tier 1 Source Investigation pursuant to paragraph (H) of this rule.

(G) Immediate corrective actions.

(1) Mitigating releases from UST systems.

If testing or other evidence confirms that a release has occurred or continues to occur from an UST system, the owners and operators shall perform all of the following actions within twenty-four hours of discovery of the release:

(a) Take immediate action to prevent any further release of petroleum from an UST system into the environment, including removal of petroleum from an UST system as necessary to prevent further release into the environment;

(b) Inspect for above ground releases or exposed below ground releases and take steps to prevent

further migration of such releases into surrounding soil, sewers, surface water, and ground water through the use of adsorbent pads, adsorbent booms, dikes, siphon dams and the like;

- (c) Continue to monitor and mitigate any additional fire, health, and safety hazards posed by vapors or ~~free product~~ petroleum products that have migrated to subsurface structures, such as basements, sewers, or the like;
- (d) Manage excavated soil containing concentrations of chemical(s) of concern in a manner that complies with applicable state and local requirements;
- (e) If a receptor, as defined pursuant to paragraph (C) of this rule, is known to be impacted by a release, the owners and operators shall immediately identify and mitigate all fire, explosion, vapor and safety hazards and notify the state fire marshal within twenty-four hours, by telephone, electronic mail or facsimile, after starting such activities; and
- (f) If a release is suspected to impact a drinking water well, owners and operators shall, within three days of discovery, have the drinking water well tested for the appropriate chemical(s) of concern listed in Table 1 of paragraph (H)(1)(c) of this rule. Within twenty-four hours of receipt of the test results, owners or operators shall notify the state fire marshal of the results by telephone, electronic mail or facsimile. Within seven days of receiving the analytical results, owners and operators shall, submit the written results to the state fire marshal.

(2) Immediate Corrective Action Report.

Owners and operators shall submit a written report on a form prescribed by the state fire marshal within twenty days of starting any immediate corrective actions. At a minimum, the immediate corrective action report shall contain the following information:

- (a) The date and time the release was discovered;
- (b) The addresses and locations of buildings, sewers, surface water bodies and the like, affected by the release;
- (c) An overview of activities leading to the discovery of free product;
- (d) The type and amount of product released;
- (e) A description of ~~an~~ the UST systems and operational status;
- (f) A description of all completed and planned immediate corrective actions;
- (g) The amount and disposition of any materials generated (e.g., soil and liquids), including any supporting documentation (e.g., copies of disposal receipts); and
- (h) Copies of site maps, plans and photographs and other information that may assist in evaluating/investigating the release.

(3) Free product removal and reporting.

Where free product is present, owners and operators shall perform all of the following activities:

- (a) Immediately implement a free product recovery program that removes free product to the maximum extent practicable, at a minimum on a monthly basis, while continuing other actions required by this rule. In meeting the requirements of this paragraph, the owners and operators must use recovery techniques that:
- (i) Remove free product in a manner that minimizes the spread of chemical(s) of concern into previously unimpacted zones and uses recovery techniques appropriate to the hydrogeologic conditions at an UST site. The owners and operators shall collect and dispose of recovered product in compliance with applicable federal, state and local laws; and
 - (ii) Handle any flammable products in a safe and competent manner to prevent fires or explosions.
- (b) Owners and operators shall notify the state fire marshal by telephone, electronic mail or facsimile within twenty-four hours of starting free product removal activities.
- (c) Owners and operators shall submit a written report ~~to~~ on a form prescribed by the state fire marshal, on a monthly basis until free product has been removed to the maximum extent practicable. At a minimum, the free product recovery reports shall contain the following information:
- (i) The name, address and facility identification number of an UST site;
 - (ii) Details of the free product recovery system (i.e. drawings, discharge locations, operations);
 - (iii) ~~A site map that shows the locations of buildings, structures, utilities and past and present underground storage tank systems;~~ A scaled site map which accurately depicts the locations of all current and historical underground storage tank systems, property boundaries, street locations, above ground structures, underground utilities, and on-site potable wells, soil borings and monitoring wells;
 - (iv) Copies of installation, operation, treatment and discharge permits granted;
 - (v) A discussion of any free product recovery system malfunctions, if applicable;
 - (vi) The product thickness in wells, bore holes and excavations;
 - (vii) The gallons and type of free product recovered each month and to date;
 - (viii) The gallons of water recovered each month and to date;
 - (ix) The disposition of recovered free product and water; and
 - (x) A description of any changes or modifications to the free product recovery system.

[Comment: Items (ii) through (iv) need only be submitted with the initial monthly free product recovery report]

- (d) If a malfunction in a free product recovery system can not be repaired within twenty-four

hours, owners and operators shall immediately report the malfunction to the state fire marshal by telephone, electronic mail or facsimile. The malfunction shall be corrected and the system placed back into service as soon as technically feasible.

- (e) If free product is present one year after initiating free product recovery activities, the state fire marshal may require a written re-evaluation of recovery technique(s). The re-evaluation shall include a discussion of the reliability, effectiveness, cost and time needed for completing free product recovery.
- (f) Free product removal activities may be terminated once free product, as defined in paragraph ~~(C)(11)~~(C) of this rule, is no longer present on and off-site for three consecutive months. The state fire marshal shall be notified, in writing, within 30 days of termination of free product recovery activities.
- (g) With prior approval from the state fire marshal, free product removal activities may be terminated once free product, as defined in paragraph (C) of this rule, has been removed to the maximum extent practicable.
- (h) With prior approval from the state fire marshal, owners and operators may submit the written report described in paragraph (G)(3)(c) of this rule to the state fire marshal on a quarterly basis until free product has been removed to the maximum extent practicable.

(H) Tier 1 Source Investigation.

The purpose of the Tier 1 Source Investigation is to determine the concentrations of chemical(s) of concern in the source area(s) ~~for a release defined in paragraph (C)(25) of this rule~~ or to investigate a release or suspected release pursuant to paragraph (F)(3)(b)(i) of this rule or a confirmed release as defined in paragraph (C) of this rule. The Tier 1 Source Investigation shall consist of all of the following:

(1) Source Investigation.

- (a) Potential source(s) ~~of a release, suspected release or confirmed release.~~

Identify the potential source(s) ~~of the release or suspected release.~~ At minimum, the following potential source(s) located on an UST site shall be evaluated to determine the location of potential source area(s):

- (i) Existing, abandoned or removed underground storage tanks;
- (ii) Existing, abandoned or removed piping and dispenser areas; and
- (iii) Areas of known or suspected surface spills of petroleum.

- (b) Potential source area(s).

Identify the location of the potential source area(s) ~~related to the release or suspected release.~~ Potential source area(s) shall be identified based on the knowledge of the known release, the location of identified potential source(s) through field screening methods or a combination of these.

(c) Chemical(s) of concern.

The chemical(s) of concern shall be identified based on Table 1 using the following five analytical groups:

- (i) Analytical Group 1 is for light distillate products including unleaded gasoline, leaded gasoline and aviation gasoline;
- (ii) Analytical Group 2 is for middle distillate products including diesel, light fuel oils, stoddard solvents, mineral spirits, kerosene, and jet fuels;
- (iii) Analytical Group 3 is for heavy petroleum distillate products including, but not limited to, lubricating and hydraulic oils;
- (iv) Analytical Group 4 is for used oil; and
- (v) Analytical Group 5 is for unknown petroleum products or petroleum products other than those listed in analytical groups 1, 2, 3 and 4. Additional chemical(s) of concern and analytical methods must be selected, as appropriate, based on reasonably available information related to the product stored, including additives, impurities and degradation products. In addition, chemical(s) of concern should be selected based on their toxicity, mobility, and persistence in the environment. The owners and operators shall consult with the state fire marshal for the appropriate chemical(s) of concern for products not in analytical group 1, 2, 3 and 4.

**Table 1
Selected Chemical(s) of Concern**

| | Analytical Group Number | 1 | 2 | 3 | 4 | 5 | Analytical Methods | |
|----------------------------------|------------------------------------|-------------------|--------------------|-------------------|----------|-------------------|--------------------|--------------|
| | | Light Distillates | Middle Distillates | Heavy Distillates | Used Oil | Unknowns & Others | Soil**** | Ground Water |
| | Chemical | | | | | | | |
| Aromatics | Benzene | x | x | | x | | 8021 or 8260 | 8021 or 8260 |
| | Toluene | x | x | | x | | | |
| | Ethylbenzene | x | x | | x | | | |
| | o, m and p-Xylenes | x | x | | x | | | |
| Additives | Methyl tertiary-butyl ether (MTBE) | x | | | x | | 8021 or 8260 | 8021 or 8260 |
| Polynuclear Aromatics | Benzo(a)anthracene | | x | x | x | | 8270, 8310 | 8270, 8310 |
| | Benzo(a)pyrene | | x | x | x | | | |
| | Benzo(b)fluoranthene | | x | x | x | | | |
| | Benzo(k)fluoranthene | | x | x | x | | | |
| | Chrysene | | x | x | x | | | |
| | Dibenz(a,h)anthracene | | x | x | x | | | |
| | Indeno(1,2,3-c,d)pyrene | | x | x | x | | | |
| Naphthalene | | x | x | x | | | | |
| ated Hydrocarbons | Volatile Organic Hydrocarbons | | | | x | | 8260 | 8260 |
| Total Petroleum Hydrocarbons #1* | TPH (C6 – C12) | x | | | x | | 8015 | N/A |
| | TPH (C10 – C20) | | x | | x | | | |
| | TPH (C20 – C34) | | | x | x | | | |
| | Varies based on UST contents #2** | | | x | x | #3*** | | |

*1 TPH analysis is not required for ground water samples.

**2 Additional chemicals of concern should be based on Material Safety and Data Sheets (MSDS) and analyzed with an appropriate laboratory test method capable of meeting established target levels.

***3 Refer to paragraph (H)(1)(c)(v).

**** Soil analytical results shall be reported on a dry weight basis.

(d) Subsurface Investigation.

(i) Objectives.

The subsurface investigation shall be conducted to collect the data necessary to complete the Tier 1 Source Investigation and to:

- (a) Determine the presence and concentrations of chemical(s) of concern in the source area(s) for comparison to action levels in accordance with ~~paragraph~~ paragraphs (J)(2) and (J)(3) of this rule; and
- (b) Determine the geologic, hydrogeologic and physical characteristics of an UST site and the surrounding area that may influence the migration and transport of chemical(s) of concern. This determination shall include, at a minimum, the following information:
 - (i) The direction and gradient of ground water flow (if ground water is encountered);
 - (ii) A description of faults, fissures, fractures, or other geologic transport routes;
 - (iii) A description of the soil type(s);
 - (iv) The depth to ground water; and
 - (v) The location and influence of man-made structures (e.g., sewers, water lines, etc).

(ii) Investigation of source area(s).

The presence and concentrations of chemical(s) of concern in the source area(s) shall be determined in accordance with all of the following:

- (a) A minimum of three soil borings shall be located in the source area(s) to determine the concentration of chemical(s) of concern in soil. If the soil borings cannot be located in the source area(s), the soil borings shall be biased to the area of highest suspected concentration of chemical(s) of concern.
- (b) A minimum of three ground water monitoring wells shall be located in the source area(s) to determine the concentration of chemical(s) of concern in ground water. If the monitoring wells cannot be located in the source area(s), the monitoring wells shall be biased to the area of highest suspected concentration of chemical(s) of concern.
- (c) Non-intrusive or indirect field testing may be used to assist in selecting soil boring or monitoring well locations, but these techniques shall not be used to demonstrate that concentrations of chemical(s) of concern are below applicable action levels. Data collection shall consider the likely distribution and temporal variations of the chemical(s) of concern in the environmental media and the physical parameters necessary to determine hydrologic and geologic properties of environmental media.
- (d) Soil borings and ground water monitoring wells shall be installed as follows:

- (i) ~~Soil borings shall extend to bedrock, the uppermost saturated zone, or fifty feet, whichever shall be encountered first. If bedrock is encountered and chemical(s) of concern in soil exceed soil to drinking water leaching action levels, a minimum of one monitoring well must be installed in the source area(s) to ground water. The fire marshal reserves the right to request a bedrock monitoring well at depths greater than fifty feet if the bedrock is a known drinking water source within the surrounding area. However, if ground water is known to contain concentrations of chemical(s) of concern, borings shall extend to such ground water;~~ Soil borings shall extend to the upper saturated zone, bedrock, or fifty feet, whichever shall be encountered first. If ground water is known to contain concentrations of chemical(s) of concern, borings shall extend to such ground water regardless of depth. If bedrock is encountered then soil borings and monitoring wells shall be installed as follows:
- (A) If chemical(s) of concern in soil exceed soil-to-drinking water leaching action levels, a minimum of one monitoring well must be installed in the source area(s) to a maximum depth of fifty feet;
- (B) If the saturated zone is known to contain concentrations of chemical(s) of concern, a minimum of one monitoring well must be installed in the source area(s) regardless of depth; and
- (C) If the bedrock is a known drinking water source within the surrounding area, the state fire marshal reserves the right to request a bedrock monitoring well at depths greater than fifty feet;
- (ii) Soil borings shall be continuously sampled and boring logs shall be prepared describing the stratigraphy from each soil boring location;
- (iii) Boring logs shall be prepared and soil encountered during drilling shall be characterized in accordance with American Society of Testing and Materials (ASTM) D2488-00 (Standard Practice for Description and Identification of Soils/Visual-Manual Procedures) or the Unified Soil Classification System (USCS);
- (iv) Data collection for monitoring wells shall include the depth to free product, free product thickness, depth of water below the top of the casing, and the elevation of the top of the casing; ~~and~~
- (v) Ground water monitoring wells shall be extended to the bottom of the saturated zone or a minimum of five feet into the saturated zone, whichever is less. Ground water monitoring wells shall be screened to accommodate seasonal fluctuations in the ground water table. If the chemical and/or physical properties indicate the potential for downward migration of chemical(s) of concern, the state fire marshal may require alternate monitoring well installation protocol-; and
- (vi) Monitoring wells shall be clearly labeled with an identification that corresponds to the identifications submitted on site maps.
- (e) Ground water samples shall be collected from each monitoring well and analyzed, in a an accredited laboratory, for the appropriate chemical(s) of concern listed in Table 1

of paragraph (H)(1) (c) of this rule.

(f) Soil samples from soil borings shall be collected and analyzed, in a an accredited laboratory and reported on a dry weight basis, for the appropriate chemical(s) of concern listed in Table 1 of paragraph (H)(1)(c) of this rule. Soil samples shall be screened using headspace techniques. Soil samples shall be submitted for laboratory analysis using the following criteria:

(i) If ground water is encountered, the sample above the soil/water interface exhibiting the highest headspace vapor concentration and the sample immediately above the soil/ground water interface, as encountered during drilling, shall be submitted for laboratory analysis. If the highest headspace reading is the sample immediately above the soil/ground water interface, the sample with the highest and the second highest headspace reading above the soil/ground water interface shall be submitted for laboratory analysis.

(ii) If ground water is encountered and no soil samples exhibit headspace readings above background levels, a sample shall be taken from immediately above the soil/water interface, as encountered during drilling, and submitted for laboratory analysis.

(iii) If no ground water is encountered, the sample with the highest headspace readings and the sample from the bottom of the boring shall be submitted for laboratory analysis.

(iv) If no ground water is encountered and no soil samples exhibit headspace readings above background levels, a sample shall be taken from the bottom of the boring and submitted for laboratory analysis.

(iii) Ground water determination.

A determination of the existence of ground water shall be made by determining if a saturated zone has sufficient ground water yield to meet the minimum criteria for being ground water. For purposes of determining if the encountered saturated zone is ground water:

(a) Assume that the encountered saturated zone is ground water; or

(b) Demonstrate, through appropriate field methods, that the encountered saturated zone is not ground water as defined in paragraph ~~(C)(12)~~(C) of this rule.

(2) Action level determination.

Upon completion of a Site Check pursuant to paragraph (F)(3) of this rule or a Tier 1 Source Investigation pursuant to paragraph (H) of this rule, owners and operators shall complete a site feature determination in accordance with paragraph (H)(2)(a) of this rule and a points of exposure determination in accordance with paragraph (H)(2)(b) of this rule to determine the appropriate action levels for an UST site pursuant to paragraphs (J)(2) and (J)(3) of this rule.

(a) Site feature determination.

- (i) Identify the chemical(s) of concern in accordance with paragraph (H)(1)(c) of this rule.
- (ii) For purposes of Site Check, Tier 1 Source Investigation and Tier 1 Delineation as described in paragraph (I) of this rule, the residential exposure scenario shall be used.
- (iii) Determine if the saturated zone is ground water in accordance with paragraph (H)(1)(d)(iii) of this rule. If a determination is not made in accordance with paragraph (H)(1)(d)(iii) of this rule or if a potable well exists on an UST site, then the saturated zone shall be assumed to be ground water.
- (iv) Select a soil class using Table 2 that best represents each pathway to be evaluated utilizing the information obtained during the subsurface investigation conducted pursuant to paragraph (H)(1)(d)(ii)(f) of this rule.
- (v) Action levels shall be determined by applying the ground water determination, depth-to-ground water and soil class information to the action level tables in paragraph (J)(3) of this rule. An action level shall be identified for each environmental media and exposure pathway in accordance with paragraph (J)(2) of this rule.

Table 2
Soil Classification

| Major Divisions | | Letter Symbol | Typical Description | Soil Class |
|---|--|---|--|------------|
| Coarse Grained Soils More than 50% of material is retained on #200 Sieve | Gravel and Gravelly Soils More than 50% of Coarse Fraction Retained on No. 4 Sieve | Clean Gravels (Little or No Fines) | GW Well-Graded Gravels, Gravel-Sand Mixtures, Little or No Fines | Class 1 |
| | | Gravels with Fines (Appreciable Amount of Fines) | GP Poorly-Graded Gravels, Gravel-Sand Mixtures, Little or No Fines | |
| | | | GM Silty Gravels, Gravel-Sand-Silt Mixtures | |
| | | Sand and Sandy Soils More than 50% of Coarse Fraction Passes thru No. 4 Sieve | Clean Sand (Little or No Fines) | |
| | SW Well-Graded Sands, Gravelly Sands, Little or No Fines | | | |
| | Sands with Fines (Appreciable Amount of Fines) | | SP Poorly-Graded Sands, Gravelly Sands, Little or No Fines | |
| | | | SM Silty-Sands, Sand-Silt Mixtures | |
| | Fine Grained Soils More than 50% of material passes thru #200 Sieve | Silts and Clays Liquid Limit<50 | ML Inorganic Silt and Very Fine Sands, Rock Flour, Silty or Clayey Fine Sand or Clayey Silts with Slight Plasticity | |
| CL Inorganic Clays of Low to Medium Plasticity, Gravelly Clays, Sandy Clays, Silty Clays, Lean Clays | | | | |
| OL Organic Silts and Organic Silty Clays of Low Plasticity | | | | |
| Silts and Clays Liquid Limit>50 | | MH Inorganic Silts, Micaceous or Diatomaceous Fine Sand or Silty Soil | Class 3 | |
| | | CH Inorganic Clays of High Plasticity, Fat Clays | | |
| | | OH Organic Clays of Medium to Plasticity, Organic Silts | | |
| Highly Organic Soils | | PT Peat, Humus, Swamp Soil with High Organic Contents | | |

(b) Point(s) of exposure.

For purposes of a Tier 1 Source Investigation, it is assumed that the point(s) of exposure will be located in the source area(s). Therefore, while movement of chemical(s) of concern outside the property lines of an UST site is not specifically evaluated in a Tier 1 Source Investigation, any identified current or potential future drinking water source in the surrounding area shall be assumed to be within the source area(s). The fate and transport of chemical(s) of concern in ground water will be evaluated under the Tier 2 Evaluation in paragraph (L) of this rule.

(3) Tier 1 Source Investigation reporting.

- (a) Owners and operators shall prepare and submit ~~to~~ on a form prescribed by the state fire marshal either a Tier 1 Evaluation report pursuant to paragraph (H)(3)(b) of this rule (if the concentrations of the chemical(s) of concern are below action levels) or a Tier 1 ~~Delineation~~ Notification pursuant to paragraph (H)(3)(c) of this rule (if the concentrations of the chemical(s) of concern are above action levels) within ninety days of the occurrence of any of the following:
- (i) Receiving analytical results, which exceed action levels, pursuant to paragraph (F)(3)(c) of this rule;
 - (ii) Electing to conduct corrective actions pursuant to paragraph (B)(2) of this rule;
 - (iii) Electing to conduct a Tier 1 Source Investigation pursuant to paragraph (F)(3)(b)(i) of this rule;
 - (iv) Receiving analytical results, which exceed action levels, from a closure assessment conducted pursuant to paragraph (F) of rule 1301:7-9-12 of the Administrative Code; or
 - (v) Conducting corrective action activities pursuant to paragraph (B)(3) ~~and (B)(4)~~ of this rule.
- (b) If the concentrations of chemical(s) of concern are at or below action levels for all pathways, owners and operators shall submit a Tier 1 Evaluation report on a form prescribed by the state fire marshal limited to the information prescribed in paragraphs (I)(3)(b)(i) and (I)(3)(b)(ii) of this rule.
- (c) If the concentrations of chemical(s) of concern are above the action level for one or more exposure pathways, owners and operators shall submit a Tier 1 ~~Delineation~~ Notification on a form prescribed by the state fire marshal and conduct a Tier 1 Delineation pursuant to paragraph (I) of this rule. The Tier 1 ~~Delineation~~ Notification shall include all of the following information:
- (i) Owner and operator information including the following:
 - (a) Name of the owners and operators;
 - (b) Address of an UST site; and
 - (c) Facility identification number.
 - (ii) ~~A site map showing the following:~~ A scaled site map which accurately depicts the locations of all known current and historical underground storage tank systems, property boundaries, street locations, above ground structures, underground utilities, on-site potable wells, and the following:
 - (a) Locations of all soil borings and associated analytical results, including depths at which samples were collected;

- (b) Location of all monitoring wells and associated analytical results; and
 - (c) Ground water flow gradient.
- (iii) Attachments that include:
- (a) Laboratory analytical sheets, including the chain-of-custody form(s);
 - (b) Soil boring logs/monitoring well construction diagrams that identify the location in decimal degrees accurate to within five feet of the actual location and reported to five decimal places; and
 - (c) A table which includes the appropriate soil class and action levels for each pathway.
- (iv) A description of soil and ground water sampling procedures.

(I) Tier 1 Delineation.

The purpose of the Tier 1 Delineation is to define the vertical and horizontal extent of chemical(s) of concern in soil and ground water to the delineation levels (in all directions from the source areas(s)) and to determine the potential drinking water use at the site and surrounding area. A Tier 1 Delineation shall consist of the following:

- (1) Assessment and delineation of chemical(s) of concern.
- (a) Determine the distribution of chemical(s) of concern in accordance with the following:
 - (i) The distribution of chemical(s) of concern shall be defined to the delineation levels set forth in paragraph (J)(1) of this rule;
 - (ii) Soil borings and ground water monitoring wells shall be installed in accordance with paragraph (H)(1)(d)(ii) of this rule. If bedrock is encountered and concentrations of chemical(s) of concern in soil exceed soil-to-drinking water leaching action levels, a minimum of one monitoring well shall be installed in the source area(s) to ground water. The state fire marshal reserves the right to request a bedrock monitoring well at depths greater than fifty feet if the bedrock is a known drinking water source within the surrounding area. If any chemical(s) of concern are encountered in ground water, additional monitoring wells shall extend to such ground water;
 - (iii) Determine the geologic, hydrogeologic and physical characteristics of the UST site and the surrounding area that may influence the migration and transport of chemical(s) of concern. This determination shall include, at a minimum, the following information:
 - (a) The direction and gradient of ground water flow, if ground water is encountered;
 - (b) A description of faults, fissures, fractures, or other geologic transport routes;
 - (c) A description of the soil type(s);

(d) The depth to ground water; and

(e) The location and influence of man-made structures (e.g., sewers, water lines).

(iv) If the determination of the likely distribution of chemical(s) of concern requires off-site access, owners and operators shall use their best efforts to obtain permission to enter such off-site areas to complete the investigations required by this rule. If access cannot be obtained, the owners and operators shall submit notice to the state fire marshal within forty-five days after the owner and operator determines off-site access cannot be obtained. The notice shall describe the efforts taken by the owners and operators to obtain off-site access and the reasons why access could not be obtained. Owners and operators shall take additional action to obtain off-site access if required by the state fire marshal.

(b) Potable well locations.

Identify the source or sources of potable water for the UST site and the surrounding area, including the identification of all public and private drinking water wells and public water supply sources within the surrounding area. The evaluation of potable water supplies shall be based on reasonably available information including, but not limited to, information collected or maintained by the Ohio Environmental Protection Agency, Ohio Department of Natural Resources, county health departments, and public water supply organizations.

(2) Potential drinking water use.

Determine if ground water is drinking or non-drinking water by utilizing the information obtained in the Tier 1 Source Investigation and the Tier 1 Delineation. The drinking water use determination shall be conducted in accordance with this paragraph. Evaluation of the drinking water exposure pathway may be conducted during the Tier 2 Evaluation to determine if the pathway is complete.

(a) The current and potential future use of ground water underlying the UST site and surrounding area shall be used to determine if ground water underlying the UST site is either a drinking water source or not a drinking water source. During the Tier 1 Delineation, the following assumptions about ground water shall be made:

(i) The ground water use to be evaluated shall be the upper most saturated zone underlying the UST site. If any evidence suggests the chemical(s) of concern are present in the lower saturated zones, they must also be evaluated; and

(ii) Any identified current or potential future drinking water source in the surrounding area shall be assumed to be within the source area(s).

(b) The evaluation of ground water use underlying the UST site and surrounding area shall be based on reasonably available information including, but not limited to, information collected or maintained by the Bureau of Underground Storage Tank Regulations, Ohio Environmental Protection Agency, Ohio Department of Natural Resources (including located and unlocated potable well logs), county health departments, and public water supply organizations.

(c) The ground water underlying the UST site and surrounding area shall be considered a drinking water source if any of the following apply:

- (i) The UST site or surrounding area is located in a Drinking Water Source Protection Area as defined by paragraph ~~(C)(5)(C)~~ of this rule.
 - (ii) The UST site is in a Sensitive Area as defined by rule 1301:7-9-09 of the Administrative Code.
 - (iii) ~~A~~ An existing drinking water source in the ground water is identified within the surrounding area, even if the source is completed into a lower saturated zone than the saturated zone to be evaluated on the UST site. This identification shall include the information required in paragraph (I)(1)(b).
 - (iv) A surface water body is located within three hundred feet of the UST ~~site~~ system.
- (d) If the UST site does not meet the drinking water requirements of paragraph (I)(2)(c) of this rule, then ground water underlying the UST site shall be considered non-drinking water if any of the following apply:
- (i) Ground water in the upper saturated zone yields less than three gallons per minute;
 - (ii) Ground water in the upper saturated zone has a background level of total dissolved solids of three thousand milligrams per liter or greater;
 - (iii) The UST site is located in an area where an urban setting designation pursuant to Chapter 3746 of the Revised Code and rules adopted thereunder has been approved by the director of Ohio Environmental Protection Agency and the owner and operator verifies that the urban setting designation remains protective of the potable use pathway in accordance with paragraph (D)(3)(b) of rule 3745-300-10~~(D)(3)(b)~~ 3745-300-10 of the Administrative Code;
 - (iv) No potable wells are located within 300 feet of the UST site based on a physical survey and an ordinance requires a mandatory tie-in to a municipal water system for all properties in the surrounding area;
 - (v) No potable wells are located within 300 feet of the UST site based on a physical survey and an ordinance prohibits the installation of potable water wells at all properties within the surrounding area; ~~or~~
 - (vi) No potable wells are located within 300 feet of the UST site based on a physical survey and 100 percent of the properties within 300 feet of the UST ~~site area~~ are connected to a municipal water source or a municipal source is readily available; or
 - (vii) The UST site is greater than five acres, and at least one of the conditions apply:
 - (a) No potable wells are located within 300 feet of the UST system based on a physical survey and an ordinance requires a mandatory tie-in to a municipal water system for all properties in the surrounding area;
 - (b) No potable wells are located within 300 feet of the UST system based on a physical survey and an ordinance prohibits the installation of potable water wells at all properties within the surrounding area; or

(c) No potable wells are located within 300 feet of the UST system based on a physical survey and 100 percent of the properties within 300 feet of the UST system are connected to a municipal water source or a municipal source is readily available.

- (e) If ground water is not drinking water pursuant to paragraph (I)(2)(c) of this rule and does not meet one of the criteria in paragraph (I)(2)(d) of this rule, then ground water shall be considered drinking water.
- (f) Action levels shall be determined by applying the ground water determination, depth-to-ground water and soil class information to the action level tables in paragraph (J)(3) of this rule. An action level shall be identified for each environmental media and exposure pathway in accordance with paragraph (J)(2) of this rule.

(3) Tier 1 Source Investigation and Delineation reporting (Tier 1 Investigation Report).

The purpose of the Tier 1 Investigation Report is to summarize the Tier 1 Source Investigation and Tier 1 Delineation activities conducted pursuant to paragraphs (H) and (I) of this rule.

(a) Owners and operators shall prepare and submit a Tier 1 Investigation Report ~~to~~ on a form prescribed by the state fire marshal pursuant to paragraph (J) of this rule, within one year of the occurrence of any of the following:

- (i) Receiving analytical results, which exceed action levels, while conducting investigations pursuant to paragraph (F)(3)(b) of this rule;
- (ii) Electing to conduct corrective actions pursuant to paragraph (B)(2) of this rule;
- (iii) Receiving analytical results, which exceed action levels, from a closure assessment conducted pursuant to paragraph (F) of rule 1301:7-9-12 of the Administrative Code; or
- (iv) Conducting corrective action activities pursuant to ~~paragraph~~ paragraphs (B)(3) and (B)(4) of this rule.

(b) The Tier 1 Investigation Report shall include, the following information:

- (i) A brief summary of any immediate corrective actions, including free product removal, soil excavation, and any actions taken to abate vapors or address safety concerns, including date(s) of each action, methods and techniques used, amount of material recovered, and current or most recent UST site conditions.
- (ii) A summary of the Tier 1 Source Investigation activities pursuant to paragraph (H) of this rule and the Tier 1 Delineation activities pursuant to paragraph (I)(1) of this rule which includes the following information:

(a) A brief description of the UST site and surrounding area, including:

(i) The applicable 7.5 minute United States Geological Survey (USGS) quadrangle map including:

(A) UST site location, map number, longitude and latitude; and

- (B) Location of the USGS quadrangle within the state boundaries.
- (b) Underground storage tank information that includes current and historical use of the UST system, age of the UST system, materials of construction, size, contents, location and available precision test results;
- (c) A site map which accurately depicts the locations of known current and historical underground storage tank system(s), property boundaries, street locations, above ground structures, underground utilities, on-site potable well(s) and soil boring(s) and/or monitoring well(s) locations; and
- (d) A summary of the data collection activities which includes, at a minimum, the following information:
 - (i) A summary of the rationale for sampling and testing locations;
 - (ii) A description of the field methodologies employed including, instrument calibration techniques and the make and model of equipment used;
 - (iii) Drilling logs and well construction diagrams which include:
 - (A) Type of sampler used (e.g., Shelby tube, California sampler, split-spoon);
 - (B) The organic vapor concentrations as determined by field screening techniques;
 - (C) A description of the presence of free product and its characteristics;
 - (D) Depth at which saturated conditions were first encountered during drilling and the depth of the static water level; ~~and~~
 - (E) A complete description of the soil sample for each interval including:
 - (1) The color and moisture content;
 - (2) The USCS classification;
 - (3) The gradation consistency;
 - (4) A description of horizontal and/or vertical fracturing of bedrock encountered while drilling;
 - (5) The type and description of bedrock with differentiation between weathered and competent bedrock;
 - (6) A description of any voids or significant pressure changes observed in bedrock drilling;
 - (7) A graphic illustration of each sample interval.
 - (8) A description of which soil sample interval(s) were sent to the laboratory

for analysis; and

(9) Amount of sample recovery for each interval in units of feet; and

(F) Coordinates of the boring location in decimal degrees accurate to within five feet of the actual location and reported to five decimal places.

(iv) Monitoring well development and sampling logs. The number and quantity of well purging volumes, date, sample appearance, time and duration of collection and development shall be documented.

(v) Depth-to-fluid, depth-to-water, free product thickness measurements, and top-of-casing and ground water elevations in tabular form for each well. When available, include historical data in the table and reference the source(s) of all information presented.

(vi) A ground water elevation contour map using all relevant monitoring wells to establish ground water contour and flow direction, the date that ground water measurements were collected and justification for the exclusion of specific monitoring wells in determination of flow direction, if applicable.

(vii) Analytical laboratory results including all of the following:

(A) Laboratory analyses in tabular form, by environmental medium, including applicable action levels. Present current results along with historical results, when available. Indicate sample collection date(s) and reference source(s) of all information presented. All tables shall include the corresponding method detection limit for each analysis that was below detection limits; ~~and~~

(B) Analytical results, quality assurance/quality control (QA/QC) procedures and data quality objectives including, without limitation, all laboratory certificates of analysis (data sheets), completed chain-of-custody forms indicating soil boring and/or monitoring well numbers and laboratory sample numbers; and

(C) Laboratory analysis summary form as prescribed by the state fire marshal.

(viii) Chemical(s) of concern concentration maps for soil in units of milligrams per kilogram (mg/kg) and ground water in units of milligrams per liter (mg/l). Maps shall include the location of sampling points, the depth of each soil sample interval and the location of source area(s). Maps shall include historical soil and ground water results for the release being investigated. Maps that include ground water data may be limited to the most recent four sampling events unless directed by the state fire marshal.

(ix) Documentation used to determine if the saturated zone is ground water.

(iii) Documentation justifying the potential drinking water use determination made pursuant to paragraph (I)(2) of this rule.

(iv) Documentation regarding off-site access pursuant to paragraph (I)(1)(a)(iv) of this rule,

as appropriate.

- (v) Documentation regarding the determination of action levels by applying the information on the potential drinking water use determination and soil class to the appropriate tables in paragraph (J)(3) of this rule.

(4) Tier 1 Investigation decision.

Upon submission of the Tier 1 Investigation report, the state fire marshal will evaluate the submitted information for completeness.

- (a) If the concentrations of all chemical(s) of concern are at or below action levels determined in accordance with paragraph (I)(2)(f) of this rule for all applicable pathways, then no further action is required.
- (b) If the concentrations of a particular chemical(s) of concern are at or below the action level(s) determined in accordance with paragraph (I)(2)(f) of this rule, then no further evaluation is necessary for that chemical of concern and for the corresponding exposure pathway.
- (c) If the concentrations of chemical(s) of concern are above applicable action level(s) determined in accordance with paragraph (I)(2)(f) of this rule, and upon approval of the completeness of the Tier 1 Delineation, the owners and operators shall conduct one or a combination of the following:
 - (i) Conduct an Interim Response Action pursuant to paragraph (K) of this rule;
 - (ii) Conduct a Tier 2 Evaluation pursuant to paragraph (L) of this rule; or
 - (iii) Submit a Remedial Action Plan pursuant to paragraph (N) of this rule.

(J) Action and delineation levels.

(1) Delineation levels.

The delineation levels in soil and ground water for chemical(s) of concern shall be as follows:

| Chemicals of Concern | Ground water (mg/l) | Soil (mg/kg) |
|------------------------------------|---------------------|--------------|
| Benzene | 0.428 | 1.04 |
| Toluene | 15.5 | 61.3 |
| Ethylbenzene | 38.1 | 199 |
| o, m and p-xylenes | 10 | 15.7 |
| Methyl tertiary-butyl ether (MTBE) | 1,240 | 1,240 |
| Benzo(a)anthracene | 66.7 | 11 |
| Benzo(a)pyrene | 12.7 | 1.1 |
| Benzo(b)fluoranthene | 6.72 | 11 |
| Benzo(k)fluoranthene | 2380 | 110 |
| Chrysene | 715 | 1,100 |

| | | |
|--------------------------|------|-----|
| Dibenz(a,h)anthracene | 35.3 | 1.1 |
| Indeno(1,2,3 -c,d)pyrene | 202 | 11 |
| Naphthalene | 2.22 | 54 |

(2) Action levels.

(a) If ground water is determined to be a drinking water source in accordance with paragraph (I)(2)(c) or (I)(2)(e) of this rule, then the maximum concentrations of each chemical of concern in soil and ground water, for the corresponding soil type, shall be compared to the applicable action levels in paragraph (J)(3) of this rule, for the following pathways:

- (i) Ground water ingestion;
- (ii) Direct contact with soil;
- (iii) Soil to drinking water leaching;
- (iv) Soil to indoor air;
- (v) Ground water to indoor air;
- (vi) Ground water to outdoor air; and
- (vii) Soil to outdoor air.

(b) If ground water is determined to be non-drinking water in accordance with paragraph (I)(2)(d), then the maximum concentrations of each chemical of concern in soil and ground water, for the corresponding soil class, shall be compared to the applicable action levels in paragraph (J)(3) of this rule, for the following tables:

- (i) Direct contact with soil;
- (ii) Soil to non-drinking water leaching;
- (iii) Soil to indoor air;
- (iv) Ground water to indoor air;
- (v) Ground water to outdoor air; and
- (vi) Soil to outdoor air.

(c) If no ground water has been encountered as defined in paragraph ~~(C)(12)~~(C) of this rule, then the maximum concentrations of each chemical of concern in soil, for the corresponding soil class, shall be compared to the applicable action levels in paragraph (J)(3) of this rule, for the following pathways:

- (i) Direct contact with soil;

(ii) Soil to indoor air; and

(iii) Soil to outdoor air.

(3) Action level look-up tables.

- (a) The action levels in ground water for the ground water ingestion pathway for chemical(s) of concern shall be as follows:

Ground Water Ingestion Action Levels

| Chemicals of Concern | Action Levels |
|------------------------------------|---------------|
| Benzene | 0.005 |
| Toluene | 1 |
| Ethylbenzene | 0.7 |
| o, m and p-Xylenes | 10 |
| Methyl tertiary-butyl ether (MTBE) | 0.04 |
| Benzo(a)anthracene | 0.00026 |
| Benzo(a)pyrene | 0.0002 |
| Benzo(b)fluoranthene | 0.00017 |
| Benzo(k)fluoranthene | 0.0017 |
| Chrysene | .047 |
| Dibenz(a,h)anthracene | 0.0002 |
| Indeno(1,2,3-c,d)pyrene | 0.00022 |
| Naphthalene | 0.14 |

All chemical concentrations expressed in milligrams per liter (mg/L).

- (b) The action levels in ground water for the ground water to indoor air pathway for chemical(s) of concern shall be as follows for the applicable soil type and depth to ground water:

Soil Class 1

| Chemicals of Concern | Ground Water to Indoor Air | | | | | | | |
|-------------------------|----------------------------|------------|-------------|------------|-------------|------------|-------------|------------|
| | <15 Feet | | 15-30 Feet | | 31-50 Feet | | >50 Feet | |
| | Residential | Non-Resid. | Residential | Non-Resid. | Residential | Non-Resid. | Residential | Non-Resid. |
| Benzene | 4.28 | 26.80 | 4.28 | 26.80 | 4.34 | 27.20 | 4.42 | 27.70 |
| Toluene | 155.00 | 2,510.00 | 155.00 | 2,520.00 | 157.00 | 2,550.00 | 160.00 | 2,600.00 |
| Ethylbenzene | 381.00 | 6,180.00 | 381.00 | 6,180.00 | 387.00 | 6,270.00 | 393.00 | 6,380.00 |
| o, m and p-Xylenes | 41.30 | 670.00 | 41.30 | 671.00 | 41.90 | 681.00 | 42.70 | 692.00 |
| MTBE* | 12,400.00 | 200,000.00 | 12,400.00 | 201,000.00 | 12,600.00 | 204,000.00 | 12,800.00 | 208,000.00 |
| Benzo(a)anthracene | 667.00 | 4,170.00 | 668.00 | 4,180.00 | 683.00 | 4,270.00 | 701.00 | 4,390.00 |
| Benzo(a)pyrene | 127.00 | 794.00 | 127.00 | 796.00 | 132.00 | 825.00 | 137.00 | 860.00 |
| Benzo(b)fluoranthene | 67.20 | 421.00 | 67.30 | 421.00 | 68.40 | 428.00 | 69.60 | 436.00 |
| Benzo(k)fluoranthene | 23,800.00 | 149,000.00 | 23,900.00 | 149,000.00 | 25,000.00 | 156,000.00 | 26,300.00 | 164,000.00 |
| Chrysene | 7,150.00 | 44,700.00 | 7,160.00 | 44,800.00 | 7,270.00 | 45,500.00 | 7,410.00 | 46,400.00 |
| Dibenz(a,h)anthracene | 353.00 | 2,210.00 | 356.00 | 2,230.00 | 404.00 | 2,530.00 | 461.00 | 2,890.00 |
| Indeno(1,2,3-c,d)pyrene | 2,020.00 | 12,600.00 | 2,030.00 | 12,700.00 | 2,100.00 | 13,100.00 | 2,190.00 | 13,700.00 |
| Naphthalene | 22.20 | 359.00 | 22.20 | 360.00 | 22.50 | 365.00 | 22.90 | 372.00 |

* Methyl tertiary-butyl ether

All chemical concentrations expressed in milligrams per liter (mg/L).

Soil Class 2

| Chemicals of Concern | Ground Water to Indoor Air | | | | | | | |
|-------------------------|----------------------------|------------|-------------|------------|-------------|------------|-------------|------------|
| | <15 Feet | | 15-30 Feet | | 31-50 Feet | | >50 Feet | |
| | Residential | Non-Resid. | Residential | Non-Resid. | Residential | Non-Resid. | Residential | Non-Resid. |
| Benzene | 4.29 | 26.80 | 4.29 | 26.90 | 4.38 | 27.40 | 4.49 | 28.10 |
| Toluene | 155.00 | 2,520.00 | 155.00 | 2,520.00 | 159.00 | 2,570.00 | 162.00 | 2,640.00 |
| Ethylbenzene | 382.00 | 6,190.00 | 382.00 | 6,200.00 | 390.00 | 6,330.00 | 399.00 | 6,480.00 |
| o, m and p-Xylenes | 41.40 | 672.00 | 41.40 | 672.00 | 42.30 | 686.00 | 43.30 | 703.00 |
| MTBE* | 12,400.00 | 201,000.00 | 12,400.00 | 201,000.00 | 12,700.00 | 206,000.00 | 13,000.00 | 211,000.00 |
| Benzo(a)anthracene | 669.00 | 4,180.00 | 670.00 | 4,190.00 | 689.00 | 4,310.00 | 712.00 | 4,450.00 |
| Benzo(a)pyrene | 127.00 | 795.00 | 127.00 | 797.00 | 132.00 | 828.00 | 138.00 | 865.00 |
| Benzo(b)fluoranthene | 67.40 | 422.00 | 67.50 | 422.00 | 69.00 | 432.00 | 70.80 | 443.00 |
| Benzo(k)fluoranthene | 23,800.00 | 149,000.00 | 23,800.00 | 149,000.00 | 24,900.00 | 156,000.00 | 26,200.00 | 164,000.00 |
| Chrysene | 7,170.00 | 44,900.00 | 7,180.00 | 44,900.00 | 7,340.00 | 45,900.00 | 7,530.00 | 47,100.00 |
| Dibenz(a,h)anthracene | 344.00 | 2,150.00 | 346.00 | 2,160.00 | 369.00 | 2,310.00 | 397.00 | 2,490.00 |
| Indeno(1,2,3-c,d)pyrene | 2,020.00 | 12,700.00 | 2,030.00 | 12,700.00 | 2,110.00 | 13,200.00 | 2,200.00 | 13,800.00 |
| Naphthalene | 22.20 | 360.00 | 22.20 | 361.00 | 22.70 | 369.00 | 23.30 | 378.00 |

* Methyl tertiary-butyl ether

All chemical concentrations expressed in milligrams per liter (mg/L).

Soil Class 3

| Chemicals of Concern | Ground Water to Indoor Air | | | | | | | |
|-------------------------|----------------------------|------------|-------------|------------|-------------|------------|-------------|------------|
| | <15 Feet | | 15-30 Feet | | 31-50 Feet | | >50 Feet | |
| | Residential | Non-Resid. | Residential | Non-Resid. | Residential | Non-Resid. | Residential | Non-Resid. |
| Benzene | 4.39 | 27.50 | 4.42 | 27.60 | 4.80 | 30.10 | 5.26 | 32.90 |
| Toluene | 159.00 | 2,580.00 | 160.00 | 2,600.00 | 174.00 | 2,820.00 | 190.00 | 3,090.00 |
| Ethylbenzene | 391.00 | 6,350.00 | 393.00 | 6,380.00 | 427.00 | 6,930.00 | 468.00 | 7,590.00 |
| o, m and p-Xylenes | 42.40 | 688.00 | 42.70 | 692.00 | 46.40 | 752.00 | 50.80 | 824.00 |
| MTBE* | 12,700.00 | 206,000.00 | 12,800.00 | 207,000.00 | 13,900.00 | 226,000.00 | 15,300.00 | 249,000.00 |
| Benzo(a)anthracene | 669.00 | 4,190.00 | 670.00 | 4,190.00 | 690.00 | 4,320.00 | 714.00 | 4,470.00 |
| Benzo(a)pyrene | 126.00 | 789.00 | 126.00 | 790.00 | 129.00 | 804.00 | 131.00 | 822.00 |
| Benzo(b)fluoranthene | 68.90 | 431.00 | 69.30 | 433.00 | 74.90 | 469.00 | 81.70 | 511.00 |
| Benzo(k)fluoranthene | 23,500.00 | 147,000.00 | 23,600.00 | 147,000.00 | 23,900.00 | 150,000.00 | 24,400.00 | 153,000.00 |
| Chrysene | 7,330.00 | 45,800.00 | 7,360.00 | 46,100.00 | 7,960.00 | 49,800.00 | 8,660.00 | 54,200.00 |
| Dibenz(a,h)anthracene | 337.00 | 2,110.00 | 337.00 | 2,110.00 | 342.00 | 2,140.00 | 347.00 | 2,170.00 |
| Indeno(1,2,3-c,d)pyrene | 2,010.00 | 12,600.00 | 2,010.00 | 12,600.00 | 2,050.00 | 12,800.00 | 2,090.00 | 13,100.00 |
| Naphthalene | 22.80 | 370.00 | 22.90 | 372.00 | 25.00 | 406.00 | 27.50 | 446.00 |

* Methyl tertiary-butyl ether

All chemical concentrations expressed in milligrams per liter (mg/L).

(c) The action levels in ground water for the ground water to outdoor air pathway for chemical(s) of concern shall be as follows for the applicable soil type:

Soil Class 1

| Chemicals of Concern | Ground Water to Outdoor Air | | |
|------------------------------------|-----------------------------|-------------------|-------------------|
| | Residential | Non-Residential | Excavation Worker |
| Benzene | 818.00 | 515.00 | 5,520.00 |
| Toluene | 32,500.00 | 53,100.00 | 68,800.00 |
| Ethylbenzene | 82,700.00 | 135,000.00 | 175,000.00 |
| o, m, and p-Xylenes | 8,560.00 | 14,000.00 | 18,100.00 |
| Methyl tertiary-butyl ether (MTBE) | 758,000.00 | >1E ⁺⁶ | >1E ⁺⁶ |
| Benzo(a)anthracene | 24,800.00 | 15,600.00 | 507,000.00 |
| Benzo(a)pyrene | 7,680.00 | 4,840.00 | 157,000.00 |
| Benzo(b)fluoranthene | 2,020.00 | 1,270.00 | 41,200.00 |
| Benzo(k)fluoranthene | >1E ⁺⁶ | >1E ⁺⁶ | >1E ⁺⁶ |
| Chrysene | 212,000.00 | 133,000.00 | >1E ⁺⁶ |
| Dibenz(a,h)anthracene | 78,400.00 | 49,400.00 | >1E ⁺⁶ |
| Indeno(1,2,3-c,d)pyrene | 123,000.00 | 77,200.00 | >1E ⁺⁶ |
| Naphthalene | 1,200.00 | 1,970.00 | 2,550.00 |

All chemical concentrations expressed in milligrams per liter (mg/L).

Soil Class 2

| Chemicals of Concern | Ground Water to Outdoor Air | | |
|------------------------------------|-----------------------------|-------------------|-------------------|
| | Residential | Non-Residential | Excavation Worker |
| Benzene | 860.00 | 541.00 | 5,800.00 |
| Toluene | 34,000.00 | 55,600.00 | 72,000.00 |
| Ethylbenzene | 86,300.00 | 141,000.00 | 183,000.00 |
| o, m and p-Xylenes | 8,960.00 | 14,600.00 | 18,900.00 |
| Methyl tertiary-butyl ether (MTBE) | 885,000.00 | >1E ⁺⁶ | >1E ⁺⁶ |
| Benzo(a)anthracene | 31,600.00 | 19,900.00 | 645,000.00 |
| Benzo(a)pyrene | 8,200.00 | 5,170.00 | 167,000.00 |
| Benzo(b)fluoranthene | 2,720.00 | 1,710.00 | 55,500.00 |
| Benzo(k)fluoranthene | >1E ⁺⁶ | >1E ⁺⁶ | >1E ⁺⁶ |
| Chrysene | 286,000.00 | 180,000.00 | >1E ⁺⁶ |
| Dibenz(a,h)anthracene | 38,700.00 | 24,400.00 | 789,000.00 |
| Indeno(1,2,3-c,d)pyrene | 131,000.00 | 82,400.00 | >1E ⁺⁶ |
| Naphthalene | 1,430.00 | 2,340.00 | 3,030.00 |

All chemical concentrations expressed in milligrams per liter (mg/L).

Soil Class 3

| Chemicals of Concern | Ground Water to Outdoor Air | | |
|------------------------------------|---------------------------------|---------------------------------|-------------------|
| | Residential | Non-Residential | Excavation Worker |
| Benzene | 1,350.00 | 848.00 | 9,080.00 |
| Toluene | 51,500.00 | 84,100.00 | 109,000.00 |
| Ethylbenzene | 129,000.00 | 211,000.00 | 273,000.00 |
| o, m, and p-Xylenes | 13,600.00 | 22,200.00 | 28,800.00 |
| Methyl tertiary-butyl ether (MTBE) | >1E ⁺⁶ | >1E ⁺⁶ | >1E ⁺⁶ |
| Benzo(a)anthracene | 33,000.00 | 20,800.00 | 673,000.00 |
| Benzo(a)pyrene | 3,870.00 | 2,440.00 | 78,900.00 |
| Benzo(b)fluoranthene | 9,560.00 | 6,020.00 | 195,000.00 |
| Benzo(k)fluoranthene | ≥1E ⁺⁶ 642,000.00 | ≥1E ⁺⁶ 405,000.00 | >1E ⁺⁶ |
| Chrysene | 991,000.00 | 625,000.00 | >1E ⁺⁶ |
| Dibenz(a,h)anthracene | 7,210.00 | 4,540.00 | 147,000.00 |
| Indeno(1,2,3-c,d)pyrene | 61,500.00 | 38,700.00 | >1E ⁺⁶ |
| Naphthalene | 4,030.00 | 6,590.00 | 8,540.00 |

All chemical concentrations expressed in milligrams per liter (mg/L).

- (d) The action levels in soil for the direct contact with soil pathway for chemical(s) of concern shall be as follows for all soil types:

| Chemicals Of Concern | Direct Contact | | |
|------------------------------------|----------------|-----------------|-------------------|
| | Residential | Non-Residential | Excavation Worker |
| Benzene | 9.8 | 100 | 310 |
| Toluene | 590 | 5,900 | 24,000 |
| Ethylbenzene | 1,500 | 17,000 | 160,000 |
| o, m and p-Xylenes | 660 | 6,400 | 7,000 |
| Methyl tertiary-butyl ether (MTBE) | 5,300 | 52,000 | 57,000 |
| Benzo(a)anthracene | 11 | 63 | 810 |
| Benzo(a)pyrene | 1.1 | 6.3 | 81 |
| Benzo(b)fluoranthene | 11 | 63 | 810 |
| Benzo(k)fluoranthene | 110 | 630 | 8,100 |
| Chrysene | 1,100 | 6,700 | 41,000 |
| Dibenz(a,h)anthracene | 1.1 | 6.7 | 41 |
| Indeno(1,2,3-c,d)pyrene | 11 | 67 | 410 |
| Naphthalene | 54 | 530 | 1,900 |

All chemical concentrations expressed in milligrams per kilogram (mg/kg).

- (e) The Soil Action Levels for Total Petroleum Hydrocarbon (TPH) shall be as follows:

| Petroleum Fraction | Soil Class 1 | Soil Class 2 | Soil Class 3 |
|-------------------------------------|--------------|--------------|--------------|
| Light Distillate Fraction (C6-C12) | 1,000 | 5,000 | 8,000 |
| Middle Distillate Fraction (C10-20) | 2,000 | 10,000 | 20,000 |
| Heavy Distillate Fraction (C20-C34) | 5,000 | 20,000 | 40,000 |

All chemical concentrations expressed in milligrams per kilogram (mg/kg).

(f) The action levels in soil for the soil to indoor air, soil to outdoor air, soil to drinking water leaching and soil to non-drinking water leaching pathway for chemical(s) of concern shall be as follows for the applicable soil type:

Soil Class 1

| Chemicals of Concern | Soil to Indoor Air | | Soil to Outdoor Air | | | Soil to Drinking Water Leaching | Soil to Non-Drinking Water |
|------------------------------------|--------------------|-------------------|---------------------|-------------------|-------------------|-----------------------------------|----------------------------|
| | Residential | Non-Residential | Residential | Non-Residential | Excavation | | |
| Benzene | 1.04 | 6.50 | 32.70 | 20.60 | 221.00 | 0.149 | 12.80 |
| Toluene | 61.300 | 994.00 | 1,930.00 | 3,150.00 | 4,090.00 | 49.100 | 760.00 |
| Ethylbenzene | 199.000 | 3,230.00 | 6,280.00 | 10,300.00 | 13,300.00 | 45.500 | 2,480.00 |
| o, m and p-Xylenes | 15.700 | 254.00 | 494.00 | 806.00 | 1,040.00 | 469.00 | 194.00 |
| Methyl tertiary-butyl ether (MTBE) | 1,240.00 | 20,200.00 | 39,300.00 | 64,200.00 | 83,100.00 | 0.470 | 14,600.00 |
| Benzo(a)anthracene | 476,000.00 | >1E ⁺⁶ | >1E ⁺⁶ | >1E ⁺⁶ | >1E ⁺⁶ | 22.20 | >1E ⁺⁶ |
| Benzo(a)pyrene | 245,000.00 | >1E ⁺⁶ | >1E ⁺⁶ | >1E ⁺⁶ | >1E ⁺⁶ | 50.60 | >1E ⁺⁶ |
| Benzo(b)fluoranthene | 165,000.00 | >1E ⁺⁶ | >1E ⁺⁶ | >1E ⁺⁶ | >1E ⁺⁶ | 55.30 | >1E ⁺⁶ |
| Benzo(k)fluoranthene | >1E ⁺⁶ | >1E ⁺⁶ | >1E ⁺⁶ | >1E ⁺⁶ | >1E ⁺⁶ | 501.00 | >1E ⁺⁶ |
| Chrysene | >1E ⁺⁶ | >1E ⁺⁶ | >1E ⁺⁶ | >1E ⁺⁶ | >1E ⁺⁶ | 441,000.00 4,410.00 | >1E ⁺⁶ |
| Dibenz(a,h)anthracene | >1E ⁺⁶ | >1E ⁺⁶ | >1E ⁺⁶ | >1E ⁺⁶ | >1E ⁺⁶ | 9.40 94.00 | >1E ⁺⁶ |
| Indeno(1,2,3-c,d)pyrene | >1E ⁺⁶ | >1E ⁺⁶ | >1E ⁺⁶ | >1E ⁺⁶ | >1E ⁺⁶ | 244.00 | >1E ⁺⁶ |
| Naphthalene | 54.000 | 877.000 | 1,710.00 | 2,790.00 | 3,610.00 | 39.80 | 632.00 |

All chemical concentrations expressed in milligrams per kilogram (mg/kg).

Soil Class 2

| Chemical of Concern | Soil to Indoor Air | | Soil to Outdoor Air | | | Soil to Drinking Water Leaching | Soil to Non-Drinking Water |
|------------------------------------|--------------------|-----------------|---------------------|-----------------|------------|------------------------------------|----------------------------|
| | Residential | Non-Residential | Residential | Non-Residential | Excavation | | |
| Benzene | 1.15 | 7.22 | 51.00 | 32.10 | 344.00 | 0.252 | 21.60 |
| Toluene | 70.800 | 1,150.000 | 3,130.00 | 5,110.00 | 6,610.00 | 105.000 | 1,630.00 |
| Ethylbenzene | 233.000 | 3,780.000 | 10,300.00 | 16,800.00 | 21,800.00 | 83.000 | 4,530.00 |
| o, m and p-Xylenes | 18.000 | 291.000 | 793.00 | 1,300.00 | 1,680.00 | 825.000 | 342.00 |
| Methyl tertiary-butyl ether (MTBE) | 1,370.000 | 22,200.000 | 60,500.00 | 98,900.00 | 128,000.00 | 0.788 | 24,400.00 |
| Benzo(a)anthracene | 596,000.000 | >1E^+6 | >1E^+6 | >1E^+6 | >1E^+6 | 18,600.00 | >1E^+6 |
| Benzo(a)pyrene | 306,000.000 | >1E^+6 | >1E^+6 | >1E^+6 | >1E^+6 | >1E^+6 | >1E^+6 |
| Benzo(b)fluoranthene | 206,000.000 | >1E^+6 | >1E^+6 | >1E^+6 | >1E^+6 | >1E^+6 | >1E^+6 |
| Benzo(k)fluoranthene | >1E^+6 | >1E^+6 | >1E^+6 | >1E^+6 | >1E^+6 | 738,000.00 | >1E^+6 |
| Chrysene | >1E^+6 | >1E^+6 | >1E^+6 | >1E^+6 | >1E^+6 | >1E^+6 451,000.00 | >1E^+6 |
| Dibenz(a,h)anthracene | >1E^+6 | >1E^+6 | >1E^+6 | >1E^+6 | >1E^+6 | >1E^+6 | >1E^+6 |
| Indeno(1,2,3-c,d)pyrene | >1E^+6 | >1E^+6 | >1E^+6 | >1E^+6 | >1E^+6 | >1E^+6 | >1E^+6 |
| Naphthalene | 67.300 | 1,090.000 | 2,980.00 | 4,860.00 | 6,300.00 | 84.20 | 1,340.00 |

All chemical concentrations expressed in milligrams per kilogram (mg/kg).

Soil Class 3

| Chemical of Concern | Soil to Indoor Air | | Soil to Outdoor Air | | | Soil to Drinking Water Leaching | Soil to Non-Drinking Water |
|------------------------------------|--------------------|-----------------|---------------------|-----------------|------------|---------------------------------|---------------------------------|
| | Residential | Non-Residential | Residential | Non-Residential | Excavation | | |
| Benzene | 1.42 | 8.86 | 267.00 | 168.00 | 1,800.00 | 0.937 | 82.30 |
| Toluene | 86.000 | 1,400.000 | 16,200.00 | 26,500.00 | 34,300.00 | 479.000 | 7,420.00 7,610.00 |
| Ethylbenzene | 282.000 | 4,570.000 | 53,100.00 | 86,800.00 | 112,000.00 | 313.000 | 17,500.00 |
| o, m and p-Xylenes | 21.700 | 353.000 | 4,100.00 | 6,700.00 | 8,670.00 | 3,060.000 | 1,300.00 |
| Methyl tertiary-butyl ether (MTBE) | 1,970.000 | 32,000.000 | 368,000.00 | 601,000.00 | 778,000.00 | 3.440 | 109,000.00 |
| Benzo(a)anthracene | 716,000.000 | >1E^+6 | >1E^+6 | >1E^+6 | >1E^+6 | >1E^+6 | >1E^+6 |
| Benzo(a)pyrene | 366,000.000 | >1E^+6 | >1E^+6 | >1E^+6 | >1E^+6 | >1E^+6 | >1E^+6 |
| Benzo(b)fluoranthene | 251,000.000 | >1E^+6 | >1E^+6 | >1E^+6 | >1E^+6 | >1E^+6 | >1E^+6 |
| Benzo(k)fluoranthene | >1E^+6 | >1E^+6 | >1E^+6 | >1E^+6 | >1E^+6 | >1E^+6 | >1E^+6 |
| Chrysene | >1E^+6 | >1E^+6 | >1E^+6 | >1E^+6 | >1E^+6 | >1E^+6 | >1E^+6 |
| Dibenz(a,h)anthracene | >1E^+6 | >1E^+6 | >1E^+6 | >1E^+6 | >1E^+6 | >1E^+6 | >1E^+6 |
| Indeno (1,2,3-c,d)pyrene | >1E^+6 | >1E^+6 | >1E^+6 | >1E^+6 | >1E^+6 | >1E^+6 | >1E^+6 |
| Naphthalene | 82.800 | 1,340.000 | 15,400.00 | 25,100.00 | 32,500.00 | 362.000 | 5,890.000 |

All chemical concentrations expressed in milligrams per kilogram (mg/kg).

(4) Multiple chemical adjustments.

Where ten or more non-carcinogenic or carcinogenic chemicals of concern are present when analyzing for Analytical Groups 4 and/or 5, the standard for each chemical of concern shall be adjusted to meet the following goals:

- (a) For chemicals of concern having carcinogenic effects, the cumulative carcinogenic risk for all chemical(s) of concern shall not exceed a total excess upper bound cancer risk of 1×10^{-5} (i.e., one excess cancer in a population of 100,000);
- (b) For chemicals of concern having non-carcinogenic effects, the cumulative risk for all chemical(s) of concern shall not exceed a hazard index of 1.
- (c) A cumulative adjustment shall be made for each of the following pathways:
 - (i) Ground water ingestion;
 - (ii) Direct contact with soil;
 - (iii) Soil to indoor air; and
 - (iv) Ground water to indoor air.

(K) Interim Response Action.

- (1) If an Interim Response ~~Actions~~ Action is to be conducted it must be implemented within ninety days of approval of a Tier 1 Delineation conducted pursuant to paragraph (I) of this rule, a Tier 2 Evaluation conducted pursuant to paragraph (L) of this rule or a Tier 3 Evaluation conducted pursuant to paragraph (M) of this rule. Once an Interim Response Action has been completed, previously identified potentially complete exposure pathways shall be re-evaluated.
- (2) An Interim Response Action Notification shall be submitted on a form prescribed by the state fire marshal ten days prior to beginning the Interim Response Action. The notification shall include the following:
 - (a) A description of the Interim Response Action;
 - (b) The anticipated volume of soil to be ~~removed~~ excavated, if applicable;
 - (c) The estimated volume of petroleum contaminated soil to be removed from the site and free product and/or ground water to be recovered, if applicable;
 - (d) The anticipated length of time of the interim response action;
 - (e) A site map indicating the limits of excavation if soil is to be removed; ~~and~~
 - (f) A proposed sampling and analysis plan; and
 - (g) A brief description of the rationale for the selected Interim Response Action.
- (3) Prior approval of an interim response action shall be obtained from the state fire marshal if:

- (a) The combined total volume of soil to be excavated for all tier evaluations will be greater than eight hundred cubic yards;
 - (b) The anticipated time to initiate and complete the interim response action is greater than three months; or
 - (c) More than one interim response action is to be conducted for all tier evaluations.
- (4) A report summarizing the Interim Response Action(s) shall be submitted to the state fire marshal within sixty days of completing the activities and shall contain, at a minimum, the following information as appropriate:
- (a) A completed Petroleum Contaminated Soil form as provided by the state fire marshal;
 - (b) Copies of laboratory data sheets and chain-of-custody form(s);
 - (c) A site map showing the limits of the excavation zone(s) and sample locations;
 - (d) A discussion of sample collection, field screening and preservation techniques;
 - (e) A discussion of the treatment technique used to address chemical(s) of concern in soil and/or ground water;
 - (f) Actual volume of soil and/or ground water remediated; ~~and~~
 - (g) A discussion of soil and ground water disposal techniques; and
 - (h) Laboratory analysis summary form as prescribed by the state fire marshal.

(L) Tier 2 Evaluation.

The purpose of a Tier 2 Evaluation is to define the distribution of chemical(s) of concern to the applicable action levels, determine the current and potential future land use for the UST site and surrounding properties, develop a site conceptual exposure model and develop site-specific target levels using spreadsheets and models approved by the state fire marshal. A Tier 2 Evaluation shall be conducted in accordance with all of the following:

- (1) Determination of the distribution of chemical(s) of concern.
 - (a) The distribution of chemical(s) of concern shall be delineated in all directions from the source areas(s) to the applicable Tier 1 action level(s) determined for the UST site.
 - (b) Soil borings and ground water monitoring wells shall be installed in accordance with paragraph (H)(1)(d) of this rule.
 - (c) If the highest concentration of a particular chemical(s) of concern is determined to be below detection limits and below action levels as specified by this rule during the Tier 1 Source Investigation conducted pursuant to paragraph (H) of this rule, then that chemical(s) of concern may be excluded from future tier evaluations.

- (d) If the determination of the likely distribution of chemical(s) of concern requires off-site access, owners and operators shall use their best efforts to obtain permission to enter such off-site areas to complete the investigations required by this rule. At a minimum, this effort shall include at least three attempts to contact the property owner within a ninety day period for access permission. If access cannot be obtained, owners or operators shall submit written notice to the state fire marshal within forty-five days after determining off-site access cannot be obtained or forty-five days after the third unsuccessful request for access. The notice shall describe the efforts taken by the owners or operators to obtain off-site access, ~~and~~ the reasons why access could not be obtained, and include contact information for the off-site access requests along with copies of documents and/or phone logs. Owners and operators shall take additional action to obtain off-site access if requested by the state fire marshal.

(2) Land use determination.

- (a) Land use for the UST site shall be residential unless:

- (i) The current land use at the UST site is not residential and seventy-five percent of the area within three hundred feet of the property boundaries of the UST site is non-residential land use; or
- (ii) A land use restriction as approved by the state fire marshal for the UST site in accordance with paragraph (L)(4)(a)(ii)(c) of this rule has been documented and recorded in the county where the UST site is located or the owners and operators enter into an environmental covenant with the state fire marshal in accordance with sections 5301.80 through 5301.92 of the Revised Code, ~~or implement a deed restriction as approved by the fire marshal.~~

- (b) Land use for the UST site and adjacent properties shall be determined as residential or non-residential using reasonably available information based on the following:

- (i) The historical land use of the UST site and adjacent properties;
- (ii) The current land use of the UST site and adjacent properties;
- (iii) The historical zoning or planning designation for the UST site and adjacent properties;
and
- (iv) The current zoning or planning designation for the UST site and adjacent properties.

(3) Action level determination.

Action levels for the UST site shall be determined in accordance with the following:

- (a) Non-residential land use.

- (i) If the UST site meets the non-residential land use determination pursuant to paragraph (L)(2)(a) of this rule, then the owners and operators shall compare the concentrations of chemical(s) of concern to the appropriate non-residential action levels and ground water use action levels in paragraph (J)(3) of this rule.

- (a) If the concentrations of all chemical(s) of concern are at or below the action levels for

all applicable pathways, then no further action is required. The owners and operators shall prepare a Tier 2 Evaluation report in accordance with paragraph (L)(7) of this rule.

- (b) If the concentration of a specific chemical of concern is at or below the action level(s), then no further evaluation is necessary for that chemical of concern and for the corresponding complete exposure pathway.
- (c) If one or more of the concentrations of chemical(s) of concern are above non-residential land use and/or ground water use action levels as determined in accordance with paragraph (I)(2) of this rule for any applicable pathway, owners and operators shall develop a site conceptual exposure model pursuant to paragraph (L)(4) of this rule.

(b) Residential land use.

If the UST site does not meet the non-residential land use determination pursuant to paragraph (L)(2) of this rule, owners and operators shall develop a site conceptual exposure model pursuant to paragraph (L)(4) of this rule.

- (c) If chemical(s) of concern have migrated off the UST site, action levels shall be developed for each impacted property pursuant to paragraph (J) of this rule according to the corresponding land use.

(4) Site conceptual exposure model.

A site conceptual exposure model shall be developed to clearly describe the conditions under which an exposure to chemical(s) of concern may occur by identifying exposure pathways and points of exposure in accordance with the following:

(a) Pathway evaluation.

(i) Exposure pathway identification.

Identify all exposure pathways that exceed Tier 1 action levels determined pursuant to ~~paragraph~~ paragraphs (H)(2) and (L)(3) of this rule. Pathway identification shall include identifying all receptors, media and transport mechanisms and routes of exposure in accordance with the following:

(a) Receptor identification

Identify current and potential future receptors that may be exposed to the release. At a minimum, the following potential receptors shall be evaluated:

- (i) Adults and children for residential scenarios;
- (ii) Adults for non-residential scenarios;
- (iii) Adults for excavation worker scenarios; and
- (iv) Aquatic life and recreational receptors in a surface water body located within 300

feet of the UST site.

(b) Media identification.

The environmental media that are likely to contain concentrations of chemicals of concern shall be identified for evaluation. The following environmental media shall be evaluated:

- (i)* Soil;
- (ii)* Ground water;
- (iii)* Surface water;
- (iv)* Indoor air; and
- (v)* Outdoor air.

(c) Transport mechanisms identification.

All fate and transport mechanisms for chemical(s) of concern in the environmental media shall be identified. The following transport mechanisms shall be evaluated for all applicable pathways:

- (i)* Atmospheric dispersion;
- (ii)* Volatilization;
- (iii)* Enclosed space vapor accumulation; and
- (iv)* Soil leaching and ground water transport.

(d) Routes of exposure identification.

The following routes of exposure shall be evaluated:

- (i)* Ingestion;
- (ii)* Inhalation; and
- (iii)* Direct contact.

(ii) Pathway completeness evaluation.

Evaluate exposure pathways to determine if the exposure pathways identified in the site conceptual exposure model developed in accordance with paragraph (L)(4)(a)(i) of this rule are complete.

(a) An exposure pathway is incomplete when any one of the following criteria exists:

- (i)* There is no point(s) of exposure identified pursuant to paragraph (L)(4)(b) of this

rule, for a chemical of concern in an identified environmental media;

- (ii) Site-specific data demonstrates that there is no transport mechanism in the identified environmental media to move the chemical(s) of concern from the source area(s) to the point(s) of exposure;
- (iii) Site-specific data demonstrates that there are no route(s) of exposure for the identified receptor
- (iv) Points of exposure are eliminated by ground water use restrictions enforceable by a local government and/or regulatory agency, ~~a deed restriction~~, or by an environmental covenant with the state fire marshal;
- (v) Points of exposure are eliminated by land use restrictions enforceable by a local government and/or regulatory agency, ~~a deed restriction~~, or by an environmental covenant with the state fire marshal.

(b) If the pathway cannot be determined to be incomplete according to the criteria listed in paragraph (L)(4)(a)(ii)(a) of this rule, the exposure pathway shall be considered complete.

(c) Land use restrictions.

Where points of exposure are eliminated based on a land use restriction, owners and operators shall enter into an environmental covenant with the state fire marshal in accordance with sections 5301.80 through 5301.92 of the Revised Code ~~or implement a deed restriction as approved by the fire marshal~~ that is recorded in the county where the UST site is located for the purpose of restricting the land use to activities that are consistent with the land use determination. A copy of the mechanism used shall be provided with the Tier 2 Evaluation report.

(d) Ground water use restrictions.

Where points of exposure are eliminated based on a ground water use restriction, owners and operators shall enter into an environmental covenant with the state fire marshal in accordance with sections 5301.80 through 5301.92 of the Revised Code ~~or implement a deed restriction as approved by the fire marshal~~ that is recorded in the county where the UST site is located for the purpose of restricting the drinking water use to activities that are consistent with the ground water use determination. A copy of the mechanism used shall be provided with the Tier 2 Evaluation report.

(iii) Pathway evaluation conclusions.

- (a) If an exposure pathway is determined to be complete in accordance with paragraph (L)(4)(a)(ii)(b) of this rule, then owners and operators shall evaluate points of exposure pursuant to paragraph (L)(4)(b) of this rule.
- (b) If an exposure pathway is determined to be incomplete in accordance with paragraph (L)(4)(a)(ii)(a) of this rule, then no further evaluation will be required for that exposure pathway. The determination that an exposure pathway is incomplete shall be documented and based on information and data collected during the Tier 2

Evaluation.

(b) Points of exposure.

(i) Identify point(s) of exposure based on the current and reasonably anticipated future use at the UST site and in the surrounding area. At a minimum, all of the following potential point(s) of exposure shall be evaluated:

(a) Where ground water has been determined to be a drinking water source in accordance with paragraph (I)(2)(c) or (I)(2)(e) of this rule, the point of exposure shall be one of the following, whichever is closest to the source area(s):

(i) Any potable well located on the UST site;

(ii) The property line when the UST site is located in a Drinking Water Source Protection Area;

(iii) The Drinking Water Source Protection Area boundary if a Drinking Water Source Protection Area is within 300 feet of the UST site;

(iv) The property line, unless one of the following can be demonstrated:

(A) No potable wells are located on or within 300 feet of the UST site based on a physical survey and an ordinance requires a mandatory tie-in to a municipal water system for all properties in the surrounding area;

(B) No potable wells are located on or within 300 feet of the UST site based on a physical survey and an ordinance prohibits the installation of potable water wells at all properties within the surrounding area; or

(C) No potable wells are located on or within 300 feet of the UST site based on a physical survey and 100 percent of the properties within 300 feet of the UST site are connected to a municipal water source or a municipal source is readily available; ~~or~~

~~(D) A roadway or railroad separates the source from the down gradient property where a well could be installed, in which case the point of exposure shall be the property line of that property.~~

(v) If the point of exposure is determined to be the property line in accordance with paragraph (L)(4)(b)(i)(a)(ii) or (L)(4)(b)(i)(a)(iv), and a roadway or railroad separates the source area from a property where a potable well could be installed, the point of exposure may be extended across the roadway or railroad to the property line of that property;

(vi) If a point of exposure has not been identified in ~~paragraph~~ paragraphs (L)(4)(b)(i)(a)(i) ~~through to~~ (L)(4)(b)(i)(a)(iv) of this rule, the point of exposure shall be 300 feet from the source area(s) or an alternate point of exposure approved by the state fire marshal; or

~~(vi)~~(vii) Not withstanding ~~paragraph~~ paragraphs (L)(4)(b)(i)(a)(i) ~~through to~~

(L)(4)(b)(i)(a)(~~+~~)(vi), the state fire marshal may require that point(s) of exposure be evaluated other than or in addition to those specified in paragraph (L)(4)(b) of this rule.

- (b) Surface water where a surface water body exists within 300 feet of the UST site;
 - (c) Residential and/or other buildings located or anticipated to be located above soil or ground water containing concentrations of chemical(s) of concern;
 - (d) Subsurface structures, such as utility manways and underground tunnels; and
 - (e) Surface and subsurface soil areas where:
 - (i) The current or reasonably anticipated future use is determined to be residential land use then a point of exposure for direct contact with surface soil shall be zero to ten feet below ground surface.
 - (ii) The current and reasonably anticipated future use is determined to be non-residential then a point of exposure for direct contact with surface soil shall be zero to two feet below ground surface.
- (c) If the distribution of chemical(s) of concern cannot be defined on properties that are impacted or potentially impacted by the release, concentrations of chemical(s) of concern at the affected property boundary line(s) shall meet action levels appropriate to each property's land use determination.

(5) Site-specific target level development.

- (a) Fate and transport of chemical(s) of concern above action levels that have complete exposure pathways shall be evaluated by conducting one or a combination of the following:
 - (i) Develop site-specific target levels by replacing default values specified by the state fire marshal for the geological, hydrogeological, and physical parameters in the algorithms used to develop action levels with site-specific values;
 - (ii) Utilize analytical fate and transport modeling, approved by the state fire marshal, to predict-concentrations of chemical(s) of concern at each point of exposure; or
 - (iii) Back calculate site-specific target levels by utilizing analytical fate and transport models, approved by the state fire marshal, from the point(s) of exposure to the source area for any complete pathway(s). The calculated site-specific target levels must be protective of human health and the environment at each point of exposure determined pursuant to paragraph (L)(4)(b) of this rule.
- (b) The default values shall not be replaced by alternative literature values. Any non-default input data shall be representative of the UST site conditions.
- (c) Proper documentation of the modeling work shall be prepared and submitted to the state fire marshal within the Tier 2 Evaluation report. The documentation shall include input values, assumptions and the results of the modeling. Model results must be reproducible by the state fire marshal.

- (d) After determining site-specific target levels, the maximum concentrations of chemical(s) of concern for each complete exposure pathway shall be compared to the calculated site-specific target levels.
- (e) Where site-specific target levels are developed based on land use other than residential land use and non-residential land use is not established in accordance with paragraph (L)(2)(a)(i) of this rule, owners and operators shall enter into an environmental covenant with the state fire marshal in accordance with sections 5301.80 through 5301.92 of the Revised Code ~~or implement a deed restriction as approved by the fire marshal~~ to restrict the land use to activities that are consistent with the land use determination. A copy of the mechanism used shall be provided with the Tier 2 Evaluation report.
- (f) Where site-specific target levels are developed based on ground water use other than drinking water use and non-drinking water use is not established in accordance with paragraph (I)(2)(d) of this rule, owners and operators shall enter into an environmental covenant with the state fire marshal in accordance with sections 5301.80 through 5301.92 of the Revised Code ~~or implement a deed restriction as approved by the fire marshal~~ to restrict the drinking water use to activities that are consistent with the ground water use determination. A copy of the mechanism used shall be provided with the Tier 2 Evaluation report.

(6) Tier 2 decisions.

Upon submission of the Tier 2 Evaluation report, the state fire marshal will evaluate the submitted information for completeness and either issue a letter of approval or a letter requesting additional information, as appropriate. The maximum concentrations of chemical(s) of concern shall be compared to the action level or Tier 2 site-specific target levels, as applicable.

- (a) If the concentrations of all chemical(s) of concern are at or below Tier 2 site-specific target levels for all pathways and no monitoring is required pursuant to paragraph (O) of this rule, then no further action is required. If required by paragraph (O) of this rule, a monitoring plan shall be developed for ground water and submitted with the Tier 2 Evaluation report, prepared in accordance with paragraph (L)(7) of this rule, to demonstrate that concentrations of all chemical(s) of concern will remain at or below Tier 2 site-specific target levels.
- (b) If the concentration of a specific chemical of concern is at or below the Tier 2 site-specific target levels, then no further evaluation is necessary for that chemical of concern and for the corresponding complete exposure pathway.
- (c) If the concentrations of chemical(s) of concern are above the Tier 2 site-specific target levels for one or more exposure pathways, then the owners and operators shall complete one or a combination of the following to address the chemical(s) of concern and the corresponding complete exposure pathways:
 - (i) An Interim Response Action, under paragraph (K) of this rule, may be implemented to eliminate a complete exposure pathway or to reduce concentrations of chemical(s) of concern in the source area(s) to a level at or below the Tier 2 site-specific target levels in accordance with paragraph (L) of this rule.
 - (ii) A Remedial Action Plan, pursuant to paragraph (N) of this rule, may be developed using the Tier 2 site-specific target levels for remedial action.

- (iii) A Tier 3 Evaluation plan in accordance with paragraph (M) of this rule may be developed and submitted with the Tier 2 Evaluation report.
 - (iv) A plan for approval by the state fire marshal to calibrate or disprove the fate and transport model using additional site-specific data. This plan shall be submitted with the Tier 2 Evaluation report.
- (7) Tier 2 Evaluation report.
- (a) Owners and operators shall prepare and submit the Tier 2 Evaluation report to the state fire marshal, within eighteen months from the approval of the Tier 1 Investigation report:
 - (b) The Tier 2 Evaluation report shall include all of the following information:
 - (i) A summary of the maximum concentrations for all chemical(s) of concern in soil and ground water, the potential drinking water use determination, depth-to-ground water and the soil class for each complete pathway determined during the Tier 1 Source Investigation and the Tier 1 Delineation activities;
 - (ii) Tier 2 Delineation documentation.

A summary of the Tier 2 Delineation data collection activities that includes, at a minimum, the following information:

 - (a) A summary of the rationale for sampling and testing locations;
 - (b) A description of the field methodologies employed, including instrument calibration techniques and the make and model of equipment used;
 - (c) A site map that accurately depicts the locations of current and historical underground storage tank system(s), property boundaries, street locations, above ground structures, underground utilities, on-site potable well(s) and soil.
 - (d) Drilling logs and well construction diagrams that include:
 - (i) Type of sampler used (e.g., Shelby tube, California sampler, split-spoon);
 - (ii) The presence of organic vapors as determined by field screening techniques;
 - (iii) A description of the presence of free product;
 - (iv) The location in decimal degrees accurate to within five feet of the actual location and reported to five decimal places;
 - (v) Depth at which saturated conditions were first encountered during drilling and the depth of the static water level;
 - (~~v~~)(vi) A complete description of the soil sample for each sampling interval including;

- (A) The color and moisture content;
 - (B) The USCS classification;
 - (C) The gradation consistency;
 - (D) A description of horizontal and/or vertical fracturing of bedrock encountered while drilling;
 - (E) The type and a description of bedrock with differentiation between weathered and competent bedrock;
 - (F) A description of any voids or significant pressure changes observed in bedrock drilling;
 - (G) A graphic illustration of each sample interval;
 - (H) A description of which soil sample interval(s) were sent to the laboratory for analysis; and
 - (I) The sample recovery for each interval in units of feet.
- (e) Monitoring well sampling and development logs, documenting the number and quantity of well purging volumes, date, time and duration of collection and development.
 - (f) Depth-to-fluid, depth-to-water, free product thickness measurements, and top-of-casing and ground water elevations in tabular form for each well. When available, include historical data in the table and reference the source(s) of all information presented.
 - (g) A ground water elevation contour map using all relevant monitoring wells to establish ground water contour and flow direction and clearly indicating the dates that ground water measurements were collected. Justification for the exclusion of specific monitoring wells in the determination of flow direction, if applicable, shall be provided.
 - (h) The calculation of the hydraulic gradient;
 - (i) Analytical laboratory results including:
 - (i) Laboratory analyses in tabular form, by environmental medium, including applicable action levels. Present current results along with historical results, when available. Indicate sample collection date(s) and reference source(s) of all information presented. All tables shall include the corresponding method detection limit for each analysis that was below detection limits; and
 - (ii) All analytical results, QA/QC procedures and data quality objectives including, without limitation, all laboratory certificates of analysis (data sheets), completed chain-of-custody forms indicating soil boring and/or monitoring well numbers and laboratory sample numbers.

- (j) Chemical(s) of concern concentration maps for soil in units of milligrams per kilogram (mg/kg) and ground water in units of milligrams per liter (mg/l). Maps shall include the location of sampling points, the depth of each soil sample interval; and the location of each source area(s). Maps shall include historical soil and ground water results for the release being investigated. Maps that include ground water data may be limited to the most recent four sampling events unless directed by the state fire marshal.
- (k) Documentation regarding off-site access pursuant to paragraph (L)(1)(d) of this rule, as appropriate.
- (iii) Land use determination documentation including:
 - (a) A map depicting the land use of the UST site and all surrounding properties within 300-feet of the UST site; and
 - (b) Supporting documentation and a summary of the land use determination conducted pursuant to paragraph (L)(2) of this rule.
- (iv) Land and ground water use restrictions including:
 - (a) A discussion of land and ground water use restrictions documenting the source(s) of all information that details the restriction(s); and
 - (b) Provide a copy of all ordinances, recorded land and ground water use restriction documents and recorded environmental covenants.
- (v) Site conceptual exposure model documentation.

Provide a summary of the pathway evaluation as developed in paragraph (L)(4)(a) and the point(s) of exposure in paragraph (L)(4)(b) of this rule. All sources of information in the report shall be documented.
- (vi) Documentation of site-specific target level development.

Provide a summary of the activities conducted, the results of the Tier 2 Evaluation and a description of models or other methods used to determine site-specific target levels. The summary shall include the following:

 - (a) A description of any models used to evaluate data pursuant to ~~paragraph~~ paragraphs (L)(5)(a) and (L)(5)(b) of this rule that provides all assumptions, input parameters and output values;
 - (b) Present maximum concentration of chemical(s) of concern, action levels and site-specific target levels in tabular form by environmental media and exposure pathway;
 - (c) Present results of geotechnical testing for soil properties in tabular form referencing the ASTM method used to perform each test. At a minimum, the following information shall be included:

- (i) Drilling logs;
 - (ii) Equipment and standard procedures used;
 - (iii) Analytical results, QA/QC procedures and data quality objectives including, without limitation, all laboratory certificates of analysis (data sheets), completed chain-of-custody form(s) indicating soil boring/monitoring well numbers and laboratory sample numbers; and
 - (iv) A site map showing the location(s) of geotechnical soil borings.
- (d) A summary and documentation of any field investigations conducted to collect site-specific data.
- (vii) A summary of the Interim Response Actions conducted pursuant to paragraph (K) of this rule, including the volume of soil removed and/or ground water treated.
- (viii) A summary of future actions and alternatives, including:
- (a) A discussion of remedial actions, if appropriate;
 - (b) A discussion of further tier analysis, if appropriate;
 - (c) A summary of monitoring events, as appropriate; and
 - (d) A discussion of interim response actions including the volume of soil removed and/or ground water treated.

(M) Tier 3 Evaluation.

(1) Tier 3 Evaluation plan.

- (a) If site-specific target levels are to be developed under a Tier 3 Evaluation, then a Tier 3 Evaluation plan shall be prepared and submitted to the state fire marshal ~~for approval with the Tier 2 Evaluation report in accordance with paragraph (L) of this rule~~ within ninety days of approval of the Tier 2 Evaluation pursuant to paragraph (L)(7)(a) of this rule. Unless otherwise provided in this rule, this plan shall include all the following:
- (i) A description of the objective of the Tier 3 Evaluation and the activities to be conducted;
 - (ii) A discussion of the effectiveness, cost and the rationale for selecting the Tier 3 Evaluation compared to other remedial action alternatives; and
 - (iii) An implementation schedule and the projected completion date of the proposed Tier 3 Evaluation.
- (b) Upon approval of the Tier 3 Evaluation plan by the state fire marshal, owners and operators shall conduct the activities in accordance with the approved Tier 3 Evaluation plan.

(2) Public participation.

- (a) For each confirmed release for which a Tier 3 Evaluation plan is submitted to the state fire marshal, the owners and operators shall provide notice to the public in a format approved by the state fire marshal by means designed to reach those members of the public directly affected by the release and the planned Tier 3 Evaluation. This notice may include, but is not limited to, public notice in local newspapers, block advertisements, public service announcements, publication in a state register, letters to individual households, or personal contacts by field staff.
- (b) The state fire marshal shall ensure that the UST site release information and decisions concerning the Tier 3 Evaluation plan are made available to the public for inspection upon request.
- (c) Before approving a Tier 3 Evaluation plan, the state fire marshal may hold a public meeting to consider comments on the proposed Tier 3 Evaluation plan if there is sufficient public interest, or for any other reason.

(3) Tier 3 decisions.

- (a) If the concentration of a particular chemical(s) of concern is at or below the Tier 3 site-specific target levels, then no further action is necessary for that chemical of concern and for the corresponding complete exposure pathway. If required by paragraph (O) of this rule, a monitoring plan shall be developed for ground water and submitted with the Tier 3 Evaluation report prepared in accordance with paragraph (M)(4) of this rule to demonstrate that concentrations of chemical(s) of concern will remain at or below Tier 3 site-specific target levels.
- (b) If the concentrations of chemical(s) of concern are above the Tier 3 site-specific target levels, then the owners and operators shall conduct one or a combination of the following:
 - (i) An Interim Response Action may be implemented, in accordance with paragraph (K) of this rule, to eliminate a complete exposure pathway or to reduce concentrations of chemical(s) of concern at the source area(s) to at or below the site-specific target levels;
or
 - (ii) The Tier 3 site-specific target level values may be used as target levels for remedial action and a Remedial Action Plan developed pursuant to paragraph (N) of this rule.

(4) Tier 3 Evaluation report.

Within ninety days from the projected completion date stated in the approved Tier 3 Evaluation plan a report summarizing the activities conducted in accordance with the Tier 3 Evaluation plan developed in paragraph (M)(1) of this rule and the results of the Tier 3 decisions described in paragraph (M)(3) of this rule shall be submitted to the state fire marshal for approval.

(N) Remedial Action.

(1) Remedial Action Plan

A Remedial Action Plan shall be prepared and submitted to the state fire marshal within ninety days of approval of the Tier 1 Investigation report pursuant to paragraph (I)(4) of this rule, approval of the Tier 2 Evaluation pursuant to paragraph (L)(7)(a) of this rule or approval of the

Tier 3 Evaluation report pursuant to paragraph (M)(4) of this rule. The Remedial Action Plan shall include, at a minimum, all of the following information:

- (a) A description of the remedial action program to be implemented;
- (b) Proposed target levels, identified by chemical(s) of concern and environmental media;
- (c) A conceptual design of the remedial action system, detailed engineering drawings are not necessary;
- (d) A brief description of remedial action alternatives considered, including a discussion of the reliability, effectiveness, cost, and time needed for completion, and the rationale for the selected program;
- (e) A Monitoring Plan, prepared in accordance with paragraph (O) of this rule, describing monitoring to be used to determine whether site-specific target levels are being achieved and to demonstrate that concentrations of chemical(s) of concern will remain at or below site-specific target levels, including locations of any monitoring wells designated for sampling;
- (f) A description of reporting frequency and proposed content of reports;
- (g) A description of all permits or other governmental approvals required for implementation of the plan;
- (h) A description of activities and studies, if any, required to be performed prior to implementation of the proposed remedial action; and
- (i) An implementation schedule, projected completion date and the submittal date for the completion report of the proposed remedial action.

(2) Public participation.

- (a) For each release for which a Remedial Action Plan is submitted to the state fire marshal, the owners and operators shall provide notice to the public in a format approved by the state fire marshal by means designed to reach those members of the public directly affected by the release and the planned remedial action. This notice may include, but is not limited to, public notice in local newspapers, block advertisements, public service announcements, publication in a state register, letters to individual households, or personal contacts by field staff.
- (b) The state fire marshal shall ensure that the UST site release information and decisions concerning the Remedial Action Plans are made available to the public for inspection upon request.
- (c) Before approving a Remedial Action Plan, the state fire marshal may hold a public meeting to consider comments on the proposed Remedial Action Plan if there is sufficient public interest or for any other reason.
- (d) The owners and operators shall give public notice that complies with paragraph (N)(2)(a) of this rule if implementation of an approved Remedial Action Plan does not achieve the established cleanup levels in the plan and termination of that plan is under consideration by the state fire marshal.

(3) Implementation of Remedial Action Plans.

- (a) Upon approval of the Remedial Action Plan, owners and operators shall implement the plan. Owners and operators shall monitor, evaluate, and report to the state fire marshal the results of implementation efforts.
- (b) If the treatment technology approved by the state fire marshal in the plan has been installed and operated for the time frame specified in the approved Remedial Action Plan and the technology is unable to reduce the concentration of chemical(s) of concern to a level at or below action or site-specific target levels, then the owners and operators shall:
 - (i) Re-evaluate the remedial action alternatives and submit a revised Remedial Action Plan;
 - (ii) Re-evaluate the assumptions and parameters used to develop the target levels, as appropriate.

(4) Completion report.

Following completion of remedial action in accordance with this rule, owners and operators shall prepare and submit a completion report no later than the submittal date provided in the approved plan. The completion report must demonstrate the remedial action objectives have been met. The report shall contain documentation supporting termination of the remedial action program. Upon approval of the report, the state fire marshal shall issue to the owners and operators written notice that no further action is required ~~at the UST site~~.

(O) Monitoring Plan.

(1) Purpose.

- (a) A monitoring plan shall be developed as appropriate to:
 - (i) Demonstrate that no further action is appropriate in accordance with paragraphs (L)(6) and (M)(3) of this rule;
 - (ii) Demonstrate that a remedial action completed in accordance with paragraph (N) of this rule has achieved target levels; and
 - (iii) Verify fate and transport model assumptions and predictions related to the development of site-specific target levels pursuant to paragraph (L)(5) of this rule. Historical data may be used to verify model assumptions and predictions or to reduce the time period of the monitoring plan.
- (b) The monitoring plan shall include, at a minimum, all of the following information:
 - (i) A description of the purpose and objective of the monitoring activity;
 - (ii) A description of monitoring activities to be conducted, including those conducted to implement engineering controls;
 - (iii) The location of the point(s) of demonstration and point(s) of exposure;

- (iv) A summary of sampling procedures;
 - (v) A description of the anticipated length and frequency of the monitoring activity;
 - (vi) An identification and description of the criteria to be used for termination of the Remedial Action Plan or monitoring activity, as appropriate; and
 - (vii) Criteria to be used for verifying ground water fate and transport model assumptions and predictions. The model assumptions shall be validated with empirical data collected from point(s) of demonstration.
- (c) If the objectives of the monitoring plan have been met, then owners and operators shall submit a completion report within 90 days after receiving analytical results of the last monitoring plan sampling event and in accordance with paragraph (O)(3) of this rule. If the objectives of the monitoring plan are not have not been met, then the owners and operators shall conduct one or more of the following within 90 days after receiving analytical results of the last monitoring plan sampling event:
- (i) Continue monitoring activities with state fire marshal approval;
 - (ii) Conduct an Interim Response Action in accordance with paragraph (K) of this rule;
 - (iii) Develop a Remedial Action Plan in accordance with paragraph (N) of this rule; or
 - (iv) Re-evaluate the assumptions and parameters used to develop site-specific target levels.
- (2) Point(s) of demonstration.

The monitoring plan shall include a point(s) of demonstration between the source area and the point of exposure and be submitted with the Tier 2 Evaluation report, Remedial Action Plan or Tier 3 Evaluation report.

The process for the selection of the point(s) of demonstration shall consider the location of the point(s) of exposure including the receptor and exposure route, the transport mechanism (e.g., ground water migration, vapor migration) and the estimated travel time from the source to the point(s) of exposure. The point(s) of demonstration shall be located to monitor the progress of the remedial action (including natural attenuation) and to verify the predictions related to the potential fate and transport of the chemical(s) of concern. The point(s) of demonstration shall be located sufficiently ~~up-gradient~~ upgradient of the point(s) of exposure to indicate whether continued migration of the chemical(s) of concern may impact the point(s) of exposure above the applicable action levels.

(3) Completion report.

Following completion of monitoring in accordance with ~~paragraph~~ paragraphs (O)(1) and (O)(2) of this rule, owners and operators shall prepare a completion report that demonstrates the monitoring objectives have been met. The report shall contain documentation supporting termination of the monitoring plan. Upon approval of the report, the state fire marshal shall issue to the owners and operators written notice that no further action is required ~~at the UST site.~~

(P) Petroleum contaminated soil.

The storage, treatment and disposal of petroleum contaminated soil generated from corrective actions undertaken pursuant to this rule shall be in accordance with rule 1301:7-9-16 of the Administrative Code.

(Q) Requests for extensions.

If owners and operators desire an extension of time in which to comply with any portion of this rule, the owner and operator shall:

- (1) Prepare a written request on a form prescribed by the state fire marshal, signed by the owners and operators, setting forth the following:
 - (a) The date the information was to be submitted;
 - (b) The reasons for requesting the extension;
 - (c) The length of time that the extension is requested for;
 - (d) The name and complete address of the UST site that is the subject of the extension request;
 - (e) The name of the state fire marshal employee that is assigned to monitor the corrective actions activities at the UST site; and
 - (f) The release number, assigned by the state fire marshal, for the UST site that is the subject of the extension request.
- (2) Submit a written request in accordance with paragraph (Q)(1) of this rule to the state fire marshal prior to the expiration of the time period that is the subject of the extension request. Submission of the written request required by paragraph (Q)(1) of this rule is accomplished only upon the actual receipt of the request by the state fire marshal. The state fire marshal may grant, modify, or deny any extension request at his sole discretion.

(R) ~~Alternate Technologies~~ Alternative methodologies and technologies.

- (1) ~~Technologies~~ Methodologies and technologies other than those specified in this rule may be used if the owner and operator:
 - (a) Demonstrates to the state fire marshal that the alternative methodology or technology is at least as effective as those required by this rule; and
 - (b) Obtains written approval from the state fire marshal to use the ~~alternate~~ alternative methodology or technology before the actual implementation of such methodology or technology. If the ~~alternate~~ alternative methodology or technology is approved by the state fire marshal, the owner and operator using such an alternative ~~technologies~~ methodology or technology shall comply with any conditions imposed by the state fire marshal on its use.
- (2) The state fire marshal may approve the ~~alternate~~ alternative methodology or technology for use at

a specific UST site or for use at all UST sites. If the state fire marshal approves an ~~alternate~~ alternative methodology or technology for use at all UST sites, the owners and operators must comply with any conditions imposed by the state fire marshal on the use of the ~~alternate~~ alternative methodology or technology.

(3) Notwithstanding paragraphs (R)(1) and (R)(2) of this rule, if a covenant not to sue is issued by the director of the environmental protection agency in accordance with sections 3737.88(A)(3) and 3746.12 of the Revised Code, no further action is required.

HISTORY: Eff 5-9-88; 9-1-92; 3-31-99; Replaces: 1301:7-9-13, eff. 3-1-05

Rule promulgated under: RC 119.03

Rule authorized by: RC 3737.88, 3737.882

Rule amplifies: RC 3737.88, 3737.882

R.C. 119.032 review dates: 03/01/2010

1301:7-9-14 **Voluntary Corrective Action.**

(A) Purpose and ~~Scope~~ scope.

For the purpose of prescribing rules pursuant to section 3737.88 of the Revised Code, the fire marshal hereby adopts this rule to establish standards for voluntary corrective action ~~and for eligibility to receive assistance from the fire marshal to perform voluntary corrective action at a petroleum brownfields site.~~ This rule is adopted by the fire marshal in accordance with Chapter 119- of the Revised Code and shall not be considered a part of the Ohio Fire Code.

(B) Definitions.

- (1) ~~"Governmental entity" means a general purpose unit of local government; a land clearance authority or other quasi governmental entity that operates under the supervision and control of or as an agent of a general purpose unit of local government; a regional council or group of general purpose units of local government; a state agency; or a redevelopment agency that is chartered or otherwise sanctioned by the state.~~
- (2) ~~"Nonprofit organization" means any corporation, trust, association, cooperative, or other organization that is operated mainly for scientific, educational, service, charitable, or similar purpose in the public interest; is not organized primarily for profit; and uses net proceeds to maintain, improve, or expand the operation of the organization;~~
- (3) ~~"Petroleum brownfields site" means real property, the expansion, redevelopment or reuse of which may be complicated by the release or suspected release of petroleum or a petroleum product excluded from the definition of hazardous substance under section 1301:7-9-03 of the Administrative Code from an underground storage tank system.~~
- (4) ~~"Property" means any parcel of real property, or portion thereof, and any improvements thereto, the limits of which have been described in writing by the owner of record or a legally appointed representative of the owner and that is, will be, or have been the subject of a voluntary action under this rule.~~
- (5) "Voluntary corrective action" means any and all corrective action undertaken by a person who is not an owner or operator, as those terms are defined in section 3737.87 of the Revised Code, or otherwise potentially liable for the costs of corrective action pursuant to section 3737.89 of the Revised Code in response to a release or suspected release from a petroleum UST system for the purpose of meeting applicable standards established by rules adopted pursuant to section 3737.882(B) of the Revised Code.

(C) ~~Exclusions.~~

~~For purposes of eligibility for assistance from the fire marshal under paragraph (E) of this rule, the term "petroleum brownfields site" does not include:~~

- (1) ~~A petroleum brownfields site that is the subject of any administrative or court order requiring corrective action issued under section 3737.882 of the Revised Code or section 9003(h) of the Resource Conservation and Recovery Act, 42 U.S.C. 6991(b), as amended;~~

~~(2) A portion of a petroleum brownfields site for which assistance for corrective action has been obtained under subtitle I of the Resource Conservation and Recovery Act, 42 U.S.C. 6991 et seq., as amended, from the Leaking Underground Storage Tank Trust Fund established under section 9508 of the Internal Revenue Code of 1986; or~~

~~(3) A petroleum brownfields site owned by, or under the custody and control of the federal government, except for land held in trust by the United States for an Indian tribe.~~

~~(D) Voluntary corrective action.~~

~~(1) Any person having a legal, equitable or possessory interest in a parcel of property may undertake voluntary corrective action in response to a release or suspected release from a UST system containing petroleum.~~

~~(2) Upon demonstration that the applicable standards established by rules adopted pursuant to section 3737.882(B) of the Revised Code have been met, the fire marshal shall issue the person that undertook voluntary corrective action written notice that no further corrective action is required. The written notice shall acknowledge that the person who completed voluntary corrective action has no liability under sections 3737.87 to 3737.882 of the Revised Code and the regulations adopted thereunder to remedy the release or suspected release.~~

~~(3) Written notice issued pursuant to paragraph ~~(D)~~(C)(2) of this rule that no further corrective action is required shall not be construed in any manner to suggest that the person completing voluntary corrective action has thereby assumed any liability or responsibility for the release or suspected release of petroleum, or for any residual contamination that may remain at the property.~~

~~(E) Voluntary corrective action assistance program.~~

~~(1) The fire marshal may provide assistance to conduct voluntary corrective action at a petroleum brownfields site in the form of conducting appropriate field investigations, including the collection and analysis of soil and groundwater samples, to identify contamination at a petroleum brownfields site for which a governmental entity, nonprofit organization, property owner or property developer has legal access to perform such environmental assessment activities.~~

~~(2) Assistance may be provided under paragraph (E)(1) of this rule only if the fire marshal determines all of the following:~~

~~(a) The release or suspected release from the petroleum underground storage tank system is of relatively low risk compared with other sites contaminated solely by petroleum or a petroleum product excluded from the definition of hazardous substance under rule 1301:7-9-03 of the Administrative Code.~~

~~(b) There is no viable responsible person; and~~

~~(c) Assistance will be provided to a party that is not potentially responsible for corrective action for the release or suspected release of petroleum.~~

~~(F) Applications for technical assistance.~~

- ~~(1) Any person considering undertaking voluntary corrective action at a petroleum brownfields site for which the applicant has or can obtain legal access to perform environmental assessment activities may submit an application to the fire marshal for technical assistance to assess the petroleum brownfields site. If the application is approved, the fire marshal will conduct appropriate field investigations, prepare a report using the environmental data collected, and supply the applicant with a copy of the report to enable the applicant to better estimate the costs of voluntary corrective action associated with property redevelopment.~~
- ~~(2) The applicant shall submit an application on a form prescribed and furnished by the fire marshal, accompanied by all requested supporting documentation, including without limitation the following:~~
- ~~(a) Documentation establishing the applicant's legal authority to perform environmental assessment and field investigation activities on the property that is the subject of the application;~~
 - ~~(b) An affidavit signed and submitted by the authorized representative of the applicant certifying that the applicant did not cause or contribute to the release or suspected release of petroleum at the property that is the subject of the application;~~
 - ~~(c) An application fee as determined by the fire marshal; and~~
 - ~~(d) If the applicant is not a government entity, a letter of support from the local government having jurisdiction over the petroleum brownfields site indicating its desired involvement, if any, in the project.~~
- ~~(3) Eligible applicants will be ranked and prioritized for technical assistance based on the following criterion:~~
- ~~(a) The likelihood of property redevelopment;~~
 - ~~(b) Evidence that the property is capable of becoming an operating business that provides jobs to the community and/or the property will be utilized to increase the quality of life in the community;~~
 - ~~(c) The ability of the applicant to fund redevelopment work without fire marshal assistance;~~
 - ~~(d) Evidence that the petroleum contamination or concern about liability related to the petroleum contamination is the sole or primary obstacle to redevelopment; and~~
 - ~~(e) Evidence that the community at large is aware of and supports the proposed redevelopment.~~
- ~~(4) Any award of technical assistance is within the discretion of the fire marshal based on the criteria listed in paragraph (F)(3) of this rule. Eligible applicants who do not receive technical assistance may resubmit their application for consideration in the next round of technical assistance application review.~~

~~(G)~~(D) Effect on other laws.

- (1) Nothing in this rule affects any liability or response authority under any federal or state law, including, but not limited to:

- (a) The Comprehensive Environmental Response Compensation, and Liability Act (42 U.S.C. 9601 et seq.);
 - (b) The Solid Waste Disposal Act (42 U.S.C. 6901 et seq.);
 - (c) The Federal Water Pollution Control Act (33 U.S.C. 1251 et seq.);
 - (d) The Toxic Substances Control Act (15 U.S.C. 2601 et seq.); and
 - (e) The Safe Drinking Water Act (42 U.S.C. 300f et seq.).
- (2) Any determination by the fire marshal for the purpose of assisting voluntary corrective action at a petroleum brownfields site does not release any responsible person from any obligations under 3737.87 to 3737.89 of the Revised Code and the regulations adopted thereunder, or effect any other rights under the citizen suits provision of the Resource Conservation and Recovery Act of 1976, 90 Stat. 2795, 42 U.S.C.A. 6901, as amended. The fire marshal reserves all enforcement and remedy rights available under the law.

HISTORY: Eff 9-1-92; 1-1-94; 3-31-99; Replaces: 1301:7-9-14, eff. 3-1-05

Rule promulgated under: RC 119.03

Rule authorized by: RC 3737.02, 3737.88 (A)

Rule amplifies: RC 3737.02, 3737.88 (A)

R.C. 119.032 review dates: 03/01/2010

1301:7-9-15 **Delegation of authority to inspect UST systems.**

(A) Purpose and scope

For the purpose of prescribing rules pursuant to section 3737.88 of the Revised Code, the state fire marshal hereby adopts this rule to establish procedures for delegating to certified fire safety inspectors, as defined in division (D) of section 3737.01 of the Revised Code, the authority to issue delegated UST permits and inspect UST systems for compliance with chapter 1301:7-9 of the Administrative Code. This rule is adopted by the state fire marshal in accordance with Chapter 119- of the Revised Code and shall not be considered a part of the "Ohio Fire Code."

- (1) Any individual who has been delegated by the state fire marshal to conduct UST inspections for compliance with chapter 1301:7-9 of the Administrative Code in accordance with paragraph (F) of this rule are restricted to inspect those activities requiring a permit as listed in paragraph (C) of rule 1301:7-9-10 of the Administrative Code.

(B) Delegation of authority to local fire agencies to issue permits and perform UST inspections

- (1) Any local fire agency wishing to have the state fire marshal delegate to its certified fire safety inspectors the authority to conduct inspections and issue permits for underground storage tank systems shall submit a written application to the state fire marshal. All applications shall be on a form prescribed and furnished by the state fire marshal and shall include, without limitation, all of the following:
 - (a) A list of certified fire safety inspectors within the agency who have been issued a certificate to inspect UST systems under paragraph (F) of this rule that will be assigned to conduct UST system inspections;
 - (b) A copy of the local ordinance or resolution which authorizes the agency to perform inspections and issue written permits for those situations identified in paragraph (C)(3) of this rule within the agency's jurisdictional area;
 - (c) A map or description of all political subdivisions depicting the agency's jurisdictional area; and
 - (d) The name, address, and telephone number of the agency's UST inspection coordinator as designated by the chief of the agency.
- (2) The state fire marshal shall review all applications. If the state fire marshal determines that the local fire agency has the necessary authority, the state fire marshal may delegate to the agency's certified fire safety inspectors the authority to inspect and issue delegated UST permits for UST systems as limited by this rule.
 - (a) Local fire agencies which have been delegated authority pursuant to this rule shall retain copies of all permits issued pursuant to paragraph (B)(4) of this rule and all inspection reports prepared within its jurisdictional area pursuant to paragraph (I) of this rule. The local fire agency shall deliver a copy of all delegated UST permits and all inspection reports to the state fire marshal within ~~30~~ thirty days of the final inspection.

- (b) If a local fire agency which has been delegated authority pursuant to this rule determines that any violation of this chapter exists, that a condition of a delegated UST permit has been violated, or that there has been any false statement or misrepresentation of a material fact on the delegated UST permit application or supporting documentation, the local fire agency shall initiate UST permit revocation proceedings. To initiate revocation proceedings, the local fire agency shall inform the state fire marshal in writing of the proposed UST permit revocation and the reason for the proposed revocation. Upon such notification, the state fire marshal may revoke the delegated UST permit in compliance with chapter 119- of the revised code.
 - (c) The state fire marshal shall retain any and all authority to bring an action against the responsible person for any violation of this chapter or section 3737.882 of the revised code.
 - (d) The state fire marshal shall retain the authority to revoke any authority delegated pursuant to this rule upon a determination by the state fire marshal that a local fire agency's certified fire safety inspector authorized to perform UST inspections pursuant to paragraph (F) of this rule failed to adequately inspect UST systems within the local fire agency's jurisdiction, failed to keep adequate records, failed to properly apply this chapter, or failed to comply with any requirements of this rule.
- (3) Local fire agencies which have been delegated authority pursuant to this rule to conduct UST inspections for compliance with chapter 1301:7-9 of the Administrative Code are subject to all of the following:
- (a) The authority of a certified fire safety inspector authorized to perform UST inspections pursuant to paragraph (F) of this rule shall be limited to the duties identified in paragraph (C) of this rule and to the following:
 - (i) Such inspectors may approve or deny an extension of the twelve month out of service period ~~temporary~~ within their jurisdictional area in accordance with paragraphs (E)(4) and (E)~~(5)~~(6) of rule 1301:7-9-12 of the Ohio Administrative Code. All approvals and denials shall be in writing and a copy shall be delivered to the state fire marshal within ~~30~~ thirty days of issuance.
 - (ii) Such inspectors may approve or deny the closure-in-place of an UST system within their jurisdictional area in accordance with paragraph (F) of rule 1301:7-9-12 of the Ohio Administrative Code. All approvals and denials shall be in writing and a copy shall be delivered to the state fire marshal within ~~30~~ thirty days of issuance.
 - (b) Certified fire safety inspectors authorized to conduct UST system inspections pursuant to paragraph (F) this rule shall comply with the operational and reporting requirements set forth in ~~paragraphs~~ paragraph (I)(4) through (I)(5) of this rule.
 - (c) UST inspections shall be performed by certified fire safety inspectors within the agency as listed in paragraph (B)(1)(a) of this rule. The local fire agency may allow other UST inspectors certified pursuant to paragraph (F) of this rule to conduct inspections within its jurisdictional area at its discretion and if not prohibited by local ordinance.
 - (d) The state fire marshal retains the authority to conduct inspections within the jurisdiction of any local fire agency that has been delegated the authority to conduct inspections under this rule.

- (e) Certified fire safety inspectors conducting UST system inspections pursuant to paragraph (F) of this rule shall be limited in the inspections they are allowed to conduct as set forth in ~~paragraphs~~ paragraph (H)(1) to (H)(6) of this rule, except that certified fire safety inspectors assigned to conduct UST inspections within the jurisdictional area of the local fire agency may also conduct UST system inspections of USTs owned by the political subdivision where the local fire agency has jurisdiction.
- (4) Local fire agencies which have been delegated authority pursuant to this rule shall issue a ~~delegated~~ UST permit in a form prescribed and provided by the state fire marshal to those responsible persons who have submitted a completed ~~delegated~~ UST permit application. ~~Delegated~~ UST permits shall be issued in accordance with paragraph (C) of rule 1301:7-9-10 of the Administrative Code.
- (a) No local fire agency shall issue any ~~delegated~~ UST permit pursuant to this rule unless it has been delegated the authority to do so in writing by the state fire marshal.
 - (b) A local fire agency which has been delegated authority pursuant to this rule shall issue permits for UST systems only within its jurisdictional area.
 - (c) A local fire agency may determine a reasonable fee for all ~~delegated~~ UST permits and permit related inspections, if any, within its jurisdiction.
 - (d) Any permit issued by a local fire agency shall not be construed as authority to violate any provision of this chapter.
 - (e) If a local fire agency which has been delegated authority pursuant to this rule determines that a ~~delegated~~ UST permit application is incomplete, that there has been a false statement or misrepresentation of a material fact on the ~~delegated~~ UST permit application or supporting documentation, or that the proposed activity is in violation of this chapter, the local fire agency shall initiate permit application denial proceedings. To initiate denial proceedings, the local fire agency shall inform the state fire marshal in writing of the proposed denial and the reason for the proposed denial. Upon such notification, the state fire marshal may deny the ~~delegated~~ UST permit application in compliance with Chapter 119- of the Revised Code.

(C) Duties of certified UST inspectors conducting permit inspections

- (1) Any individual who has been certified by the state fire marshal to conduct UST inspections in accordance with paragraph (F) of this rule may inspect the activity for which a UST permit has been issued.
- (2) As part of an UST permit inspection, under no circumstances shall a certified UST inspector enter a confined space as defined in the Code of Federal Regulations 29 CFR 1910.146.
- (3) A certified UST inspector shall be physically on site for all of the following activities:
 - (a) In the case of an UST installation or replacement, the pre-installation pressure test of the UST, the examination of the excavation prior to the physical placing of the UST into the ground, the backfilling of the UST, the in-ground test of the piping and ancillary equipment prior to backfilling, the final tightness test of the UST system and the test of the release detection system prior to placing the UST system into service;

- (b) In the case of an UST modification, immediately before purging operations begin, immediately before the UST is cut open for entry, the final tightness test of the UST and the final test of the UST leak detection system prior to placing the UST system back into service;
 - (c) In the case of a modification for piping, the in-ground test of the piping prior to backfilling the piping, the final tightness test of the modified portion of the piping and the final test of the piping leak detection system, if applicable, prior to placing the UST system back into service;
 - (d) In the case of a modification of other UST components, the in-ground test of the component prior to backfilling the component, the final tightness test of the UST system and the final test of any leak detection systems, if applicable, prior to placing the UST system back into service;
 - (e) In the case of a major repair of an UST, immediately before purging operations begin, immediately before the tank is cut open for entry, the final tightness test of the UST and the final test of the UST leak detection system prior to placing the UST system back into service;
 - (f) In the case of a major repair of piping, the in-ground test of the piping prior to backfilling the piping, the final tightness test of the piping and the final test of the piping leak detection system, if applicable, prior to placing the UST system back into service;
 - (g) In the case of a major repair of other UST components, the in-ground test of the component prior to backfilling the component, the final tightness test of the component and the final test of any leak detection systems, if applicable, prior to placing the UST system back into service;
 - (h) In the case of an UST removal, immediately before purging operations begin, immediately before the tank is cut open for any purpose, the actual removal of the UST system from the ground and the final disposition of the UST before the UST leaves the site;
 - (i) In the case of closure-in-place of an UST system, immediately before purging operations begin, immediately before the opening of the tank top, and at the completion of the actual filling of the tank with inert solid material before covering the UST;
 - (j) In the case of the placing of an UST system out of service for more than ninety days, immediately before the UST, piping and ancillary equipment are secured; and
 - (k) In the case of the performance of a change in service of an UST system, immediately before purging operations begin and during any removal or closure-in-place of piping and ancillary equipment.
- (4) Any inspector certified to inspect UST systems under paragraph (F) of this rule who observes activity that is in conflict with normal work or safety requirements referenced by this chapter shall immediately notify the certified UST installer of the activity. If the certified UST installer fails to correct the activity in a timely manner, the certified UST ~~inspector~~ inspector shall instruct the certified UST installer to secure the UST system in a safe manner and to cease all UST related work. The certified UST inspector shall immediately notify the state fire marshal, and work shall not resume until approval is given by the state fire marshal.

(D) Application and examination requirements for an UST inspector

Any individual who wishes to apply to become certified as an UST inspector shall meet all of the following application requirements:

- (1) The applicant shall submit a complete application to the state fire marshal, on a form prescribed and furnished by the state fire marshal, accompanied by a non-refundable examination fee of twenty-five dollars. The fire marshal shall also assess the applicant any fee charged by the superintendent of the bureau of criminal identification and investigation for the results of a background check to the applicant;
- (2) The applicant shall be an individual and shall be at least eighteen years of age;
- (3) If the applicant is not a resident of Ohio, the applicant shall provide an irrevocable consent to legal service from Ohio on a form prescribed and furnished by the state fire marshal;
- (4) The applicant shall demonstrate compliance with one of the following:
 - (a) Has obtained a certificate of completion from an UST installer training program pursuant to ~~paragraphs~~ paragraph (M)(3)(a) ~~and (M)(3)(c)~~ or (M)(9) of rule 1301:7-9-11 of the Administrative Code; or
 - (b) Is a certified UST installer;
- (5) The applicant shall be a certified fire safety inspector as that term is defined in division (D) of section 3737.01 of the Revised Code.
- (6) The applicant has not been convicted of a felony;
- (7) The applicant shall not have had any authorization to act as a certified UST inspector pursuant to this rule previously revoked by the state fire marshal;
- (8) The applicant shall complete an UST inspector training program in accordance with paragraph (E) of this rule and submit an application to become a certified UST inspector under paragraph (D)(1) of this rule within one year of completing the UST inspector training program; and
- (9) The applicant shall satisfactorily pass the UST inspector examination.
 - (a) The examination shall be a written multiple-choice examination covering all aspects of the inspection of the installation, replacement, repair, closure-in-place, removal, modification, placing out of service, and performing a change in service of underground storage tank systems. The exam shall also cover knowledge of sections 3737.88 to 3737.882 of the Revised Code, this chapter of the Administrative Code, current technological and industry recommended practices with respect to the proper installation, replacement, repair, closure-in-place, removal, modification, placing out of service, and performing a change in service of UST systems. An applicant may request permission to take the examination in oral form for good cause shown, as determined by the state fire marshal.
 - (b) To satisfactorily pass the examination, the applicant shall obtain a minimum score of seventy-five per cent on the exam. Any applicant who fails an examination may request re-examination upon payment of a non-refundable twenty-five dollar fee. An application for re-examination will remain pending for that purpose for a period of one year after the date the

application was submitted. If the applicant has not requested re-examination within the one year period, the applicant must file a new application for certification with the state fire marshal.

- (c) The examination shall be offered by and at the discretion of the state fire marshal at such places as the state fire marshal determines. The state fire marshal shall announce the time and location of an examination at least twenty days in advance of the exam and shall, at least seven days in advance of the exam, provide notice of the exam to all persons who have completed applications for certification since the date of the previous examination.
- (d) Only persons who have filed applications and submitted fees in accordance with paragraph (D)(1) or (G)(1)(a) of this rule are eligible to take the examination.
- (e) All examinations will be graded and the applicants notified of the results within twenty days of the date of the examination. Examinations will not be returned to the applicant, but may be reviewed by the applicant at the office of the state fire marshal or alternate locations as approved by the state fire marshal.

(E) UST Inspector training and continuing education programs

- (1) The state fire marshal may conduct certified UST inspector training and continuing education programs. Any such program shall include appropriate instructional methods, ~~hands-on training,~~ and written pre-test and post-test examinations, as determined by the state fire marshal.
- (2) Any individual who wishes to attend a certified UST inspector training or continuing education program shall submit a complete application to the state fire marshal, on a form prescribed by the state fire marshal, accompanied by a non-refundable fee established by the state fire marshal, prior to the first scheduled day of the training program.
- (3) Attendance shall be required at all classroom ~~and hands-on sessions~~ except for valid reasons. The faculty is authorized to determine the validity of absences. Any absentee from any scheduled classroom ~~or hands-on session~~ shall make up such attendance as required by the faculty.
- (4) Upon conclusion of any certified UST inspector training or continuing education program, the state fire marshal shall issue a certificate of completion to all persons who complied with all of the following requirements:
 - (a) Attended all of the program's sessions or complied with paragraph (E)(3) of this rule;
 - (b) Submitted an application and fee to the state fire marshal pursuant to paragraph (E)(2) of this rule; and
 - (c) Successfully completed the program's pre-test and post-test examinations.

(F) Certification to inspect UST systems

- (1) The state fire marshal shall issue a certification to inspect UST systems to each applicant who meets the requirements of paragraph (D) of this rule. The certification to inspect shall be valid for two years following the date of issuance by the state fire marshal.

- (2) Individuals possessing valid certifications to inspect UST systems prior to March 15, 2005, ~~the effective date of this rule~~ may continue to perform UST inspections in accordance with this rule provided that the individual renews the certification to inspect in accordance with paragraph (G) of this rule.
- (3) Any certified fire safety inspector that has been assigned on or before December 31, 1996, to conduct UST system inspections by a local fire agency that has been delegated authority pursuant to this rule and is on the list submitted to state fire marshal pursuant to paragraph (B)(1)(a) of this rule may continue to conduct UST system inspections within the jurisdictional area of the local fire agency.
 - (a) The state fire marshal shall issue a certification to inspect UST systems to each fire safety inspector who meets the requirements of paragraph (F)(3) of this rule. The certifications to inspect shall be valid for two years following the effective date of this rule and shall limit the fire safety inspector to the jurisdictional area of the local fire agency where assigned.
 - (b) Each fire safety inspector who meets the requirements of paragraph (F)(3) of this rule shall comply with paragraph (G) of this rule for renewal of certification to inspect UST systems.
 - (c) The authority of a certified fire safety inspector to inspect UST systems in accordance with paragraph (F)(3) of this rule shall end upon separation of the inspector from the local fire agency.

(G) Renewal of certification to inspect UST systems

- (1) Certifications to inspect UST systems shall be renewed every two years following the date of issuance by the state fire marshal. Any individual certified to inspect UST systems pursuant to this rule who wishes to apply for renewal of a certification to inspect shall meet all of the following renewal requirements:
 - (a) Within thirty days prior to the expiration date of the certification to inspect, submit a certification to inspect renewal form to the state fire marshal on a form prescribed by and available from the state fire marshal accompanied by a non-refundable fee of twenty-five dollars;
 - (b) Demonstrate in a manner prescribed by the state fire marshal attendance at all courses required under paragraph (G)(3) of this rule; and
 - (c) Demonstrate one of the following:
 - (i) The certified UST inspector conducted a minimum of six UST inspections on separate permits pursuant to the certification to inspect that is sought to be renewed; or
 - (ii) The certified UST inspector is listed in accordance with paragraph (B)(1)(a) of this rule as a certified fire safety inspector assigned to conduct UST system inspections by a local fire agency that has been delegated authority pursuant to this rule.
- (2) Any certified fire safety inspector who previously failed to meet the renewal requirements for certification to inspect UST systems may seek renewal of certification to inspect from the state fire marshal provided that the following conditions are met:

- (a) The applicant submits a certification to inspect renewal form to the state fire marshal in accordance with paragraph (G)(1)(a) of this rule on or before December 31, 2005;
 - (b) The applicant demonstrates compliance with the requirements of paragraph (G)(1)(b) and (G)(1)(c)(ii) of this rule; and
 - (c) The applicant satisfactorily passes the UST inspector exam described in paragraph (D)(9) of this rule.
- (3) Upon a determination by the state fire marshal that substantial changes have been made to sections 3737.87 to 3737.882 of the Revised Code, this chapter of the Administrative Code or UST technology, the state fire marshal may require applicants for renewal of certifications to inspect UST systems to complete a continuing education course as specified by the state fire marshal as a condition of renewal of certification. The state fire marshal shall develop the continuing education course pursuant to paragraph (E) of this rule and shall notify all certified UST inspectors, in a timely fashion, of the continuing education requirement, the location, dates and times when the course will be offered.
- (4) The state fire marshal shall renew a certification to inspect UST systems for each applicant who meets the applicable requirements of ~~paragraph~~ paragraphs (G)(1) ~~through and~~ (G)(2)(e) of this rule. The renewal of a certification to inspect shall be valid for two years following issuance by the state fire marshal.
- (5) The state fire marshal may grant a variance from the timely submittal of renewal applications if the applicant demonstrates good cause as determined by the state fire marshal.

(H) Limitations on authority to inspect

- (1) Any individual certified to inspect UST systems pursuant to this rule shall not inspect the installation or replacement of, making major repairs on site to, closure-in-place of, removal of, modification of, change in service of or placing out of service more than ninety days of UST systems where that certified inspector performed work on the UST system being inspected, supervised the work on the UST system being inspected, or is employed by or associated with the certified installer whose work is being inspected.
- (2) Any individual certified to inspect UST systems pursuant to this rule shall not inspect the installation or replacement of, making major repairs on site to, closure-in-place of, removal of, modification of, change in service of or placing out of service more than ninety days of UST systems for any owner or operator where that certified inspector is employed by the owner or operator or any of the owner's or operator's companies, partnerships, subsidiaries, related companies, or the like. This prohibition does not prevent a certified inspector from conducting the necessary inspection when the only relationship between the certified inspector and the owner or operator is that associated with the inspection itself.
- (3) Any individual certified to inspect UST systems pursuant to this rule shall not inspect the installation or replacement of, making major repairs on site to, closure-in-place of, removal of, modification of, change in service of or placing out of service more than ninety days of UST systems for any owner or operator where the certified inspector is employed by the certified UST installer being inspected or any of the certified UST installer's companies, partnerships, subsidiaries, related companies, or the like.

- (4) Any individual certified to inspect UST systems pursuant to this rule shall not inspect the installation or replacement of, making major repairs on site to, closure-in-place of, removal of, modification of, change in service of or placing out of service more than ninety days of UST systems where the certified inspector is the owner or operator of the UST systems being inspected, is a partner in the partnership that is the owner or operator of the UST systems being inspected, or owns a substantial interest in any subsidiary of, related company to, or corporation that is the owner or operator of the UST systems being inspected. For purposes of this rule, "substantial interest" means the ability to directly influence the day-to-day operations of the subsidiary, related company, or corporation, including but not limited to the ability to hire, evaluate and dismiss employees.
- (5) Any individual certified to inspect UST systems pursuant to this rule shall not inspect the installation or replacement of, making major repairs on site to, closure-in-place of, removal of, modification of, change in service of or placing out of service more than ninety days of UST systems where the certified inspector is the certified UST installer being inspected, is a partner in the partnership that is the certified UST installer being inspected, or owns a substantial interest in a subsidiary of, related company to, or corporation that is the certified UST installer being inspected. For purposes of this rule, "substantial interest" means the ability to directly influence the day-to-day operations of the subsidiary, related company, or corporation, including but not limited to the ability to hire, evaluate and dismiss employees.
- (6) Any individual certified to inspect UST systems pursuant to this rule shall not inspect the installation or replacement of, making major repairs on site to, closure-in-place of, removal of, modification of, change in service of or placing out of service more than ninety days of UST systems where the certified inspector is employed by or associated with a corporation, association, partnership, individual or any other group or person providing any service related to the environmental assessment or testing for the installation of, making major repairs on site to, closure-in-place of, removal of, modification of, change in service of or placing out of service more than ninety days of UST systems, including, without limitation, the collection of any sample or preparation of any reports or other documents required pursuant to rule 1301:7-9-12 of the Administrative Code.

(I) Operational and reporting requirements for certified UST inspectors

- (1) For each visit to a location to conduct a permit inspection, the certified UST inspector shall entirely and accurately complete an inspection report on a form prescribed and provided by the state fire marshal, obtain the signature of the certified installer engaged in the activity inspected, and sign the inspection report prior to leaving the location.
- (2) Within thirty days of an inspection, the certified UST inspector shall cause the original of the completed inspection report form required by paragraph (I)(1) of this rule to be delivered to the state fire marshal. Those inspection report forms originating in areas where authority has been delegated to the certified fire safety inspectors of the local fire agency in accordance with paragraph (B)(2) of ~~the~~ this rule shall be submitted to the state fire marshal in accordance with paragraph (B)(2)(a) of this rule.
- (3) Prior to leaving the permit inspection location, the certified UST inspector shall cause a copy of the completed inspection report form required by paragraph (I)(1) of this rule to be delivered to the owner or the owners' representative of the UST system upon which the inspection was performed.

- (4) A certified UST inspector shall inform the state fire marshal of any change in the certified inspector's mailing address within thirty days of the change of address becoming effective. Notice of any change in a mailing address shall be in writing and directed to the state fire marshal.
- (5) A certified UST inspector shall conduct all inspections pursuant to and consistent with the inspection report form prescribed by the state fire marshal and in accordance with all applicable requirements of this chapter.
- (J) Grounds for denial to issue, refusal to renew, suspension, or revocation of a certificate to inspect UST systems.
- (1) Any application for a certification to inspect UST systems shall be denied by the state fire marshal in accordance with Chapter 119. of the Revised Code when any of the following occur:
- (a) The applicant failed to demonstrate compliance with any requirement in ~~paragraphs~~ paragraph (D)(1) to (D)(9)(e) of this rule; or
 - (b) The applicant made a misrepresentation or submitted false statements with the initial application.
- (2) An application for renewal of a certification to inspect UST systems shall be denied by the state fire marshal pursuant to Chapter 119. of the Revised Code when any of the following occur:
- (a) The applicant failed to demonstrate compliance with ~~paragraphs~~ paragraph (G)(1) to (G)(5) of this rule;
 - (b) The applicant made a misrepresentation or submitted false statements with the renewal application;
 - (c) The applicant obtained initial certification to inspect or any renewal of a certification to inspect through fraud or misrepresentation; or
 - (d) The applicant has been convicted of a felony.
- (3) Any certification to inspect and any renewal of a certification to inspect issued pursuant to this rule may be suspended or revoked by the state fire marshal pursuant to Chapter 119. of the Revised Code for any of the following reasons:
- (a) The certified inspector obtained initial certification to inspect or any renewal thereof through fraud or misrepresentation;
 - (b) The certified inspector was not present at the location during the performance of any activities described in ~~paragraphs~~ paragraph (C)(3) to (C)(3)(k) of this rule;
 - (c) The certified inspector failed to demonstrate compliance with any of the operation and reporting requirements in ~~paragraphs~~ paragraph (I) to (I)(5) of this rule;
 - (d) The certified inspector fails to attend any continuing education training required by the state fire marshal pursuant to paragraph (G)(3) of this rule within the time period prescribed by the state fire marshal;

- (e) The certified inspector filed any false document with the state fire marshal related to any inspection conducted pursuant to certification to inspect granted pursuant to this rule;
- (f) The certified inspector violated a provision of this chapter;
- (g) The certified inspector has been convicted of a felony;
- (h) The certified inspector has conducted any inspection prohibited by ~~paragraphs~~ paragraph (H) ~~to (H)(6)~~ of this rule; or
- (i) The certified inspector has conducted any inspection pursuant to this rule in a manner that is less than reasonable and prudent using guidelines and procedures established in training required by paragraphs (E)(1) of this rule.

HISTORY: Eff 11-26-90 (Emer.); 3-14-91; 1-1-97; 3-31-99; Replaces: 1301:7-9-15, eff. 3-1-05

Rule promulgated under: RC 119.03

Rule authorized by: RC 3737.88 (A)

Rule amplifies: RC 3737.88 (A)

R.C. 119.032 review dates: 03/01/2010

1301:7-9-16 **Petroleum Contaminated Soil.**

(A) Purpose and scope.

For the purpose of prescribing rules pursuant to divisions (A) and (E) of section 3737.88 and division (B) of section 3737.882 of the Revised Code, the state fire marshal hereby adopts this rule governing the storage, treatment, and disposal of petroleum contaminated soil ~~generated from~~ excavated during corrective actions undertaken in response to releases of petroleum from underground storage tanks. This rule is adopted by the state fire marshal in accordance with Chapter 119 of the Revised Code and shall not be considered a part of the "Ohio Fire Code."

(B) Definitions.

- (1) "Designated facility" means an area of land not open to the public that is owned by, or under a written lease or contract to, the owner and operator of an underground storage tank (UST) system that is used to store or treat petroleum contaminated soil generated from one or more of their UST sites.
- (2) "Disposal" means to abandon or discard.
- (3) "Excavated soil" means soil removed from the surface or subsurface in conjunction with a suspected release as that term is defined in paragraph (C)(34) of rule 1301:7-9-13 of the Administrative Code; in conjunction with a release as that term is defined in paragraph (C)(25) of rule 1301:7-9-13 of the Administrative Code; in conjunction with a confirmed release as that term is defined in paragraph (C) of rule 1301:7-9-13 of the Administrative Code; or in conjunction with the closure-in-place or permanent removal of an UST system pursuant to rule 1301:7-9-12 of the Administrative Code.
- (4) "Hazardous waste" has the same meaning as set forth in Chapter 3745-51 of the Administrative Code.
- (5) "Licensed disposal facility" means a facility that has obtained such permits or licenses ~~as that~~ this or another state may require to accept materials for permanent burial, destruction, or treatment including petroleum contaminated soil.
- (6) "Off-site" means not located on the same parcel of land as the UST system that generated petroleum contaminated soil or any parcel of land contiguous thereto that is owned or under the control of the owner or operator of said UST system.
- (7) "On-site" means located on the same parcel of land as the UST system that generated petroleum contaminated soil or any parcel of land contiguous thereto that is owned or under the control of the owner or operator of said UST system. Property separated by a public or private right-of-way or easement shall be considered contiguous.
- (8) "Petroleum contaminated soil (PCS)" means soil that contains chemical(s) of concern in concentrations that exceed one or more of the re-use action levels in Table 1 found in paragraph (D)(1) of this rule and excludes soil defined as hazardous waste.
- (9) "Re-use" means to use a material for:

- (a) The same purpose for which it was used originally;
 - (b) A different purpose for which the generator of the material receives compensation upon transfer to another party; or
 - (c) Another purpose having commercial value to the generator or a recipient of the material.
- (10) "Soil" means solid and semi-solid earthen materials or backfill consisting of clay, silt, sand, stones, or gravel and any debris contained therein.
- (11) "Storage" means to accumulate, collect, or stockpile excavated soil or petroleum contaminated soil on-site or off-site.
- (12) "Treatment" means use of any method, process, or technique other than storage or disposal designed to remove or reduce one or more chemical(s) of concern from petroleum contaminated soil.
- (C) Characterization, sampling, and analysis.
- (1) Characterization of excavated soil.
 - (a) Upon excavation of soil, the owner or operator shall determine whether the excavated soil is hazardous waste. Excavated soil that is determined to be a hazardous waste shall be managed pursuant to the applicable provisions of Chapters 3745-52 through 3745-69 of the Administrative Code.
 - (2) Sampling and analysis of excavated soil.
 - (a) Except as provided in paragraph (C)(2)(b) of this rule, sampling and analysis shall be conducted pursuant to rule 1301:7-9-17 of the Administrative Code.
 - (b) Excavated soil that is not stored on-site but is shipped directly to a licensed disposal facility following excavation shall be sampled and analyzed prior to shipment to the extent required by the licensed disposal facility receiving the soil. Persons arranging for off-site transport and transporters of excavated soil that qualifies as "hazardous material" shall comply with Federal Hazardous Material Transportation Rules, 49 C.F.R. Parts 171-179. Prior to shipment, additional analyses may be necessary to determine whether excavated soil is "hazardous material".
- (D) Re-use of excavated soil.
- (1) If excavated soil sampled and analyzed pursuant to the paragraphs (C) of this rule does not exceed re-use action levels in Table 1 of this rule for any chemical(s) of concern, then the owner or operator may use the soil for any lawful purpose. This paragraph shall not be interpreted as authorizing use of such soil for purposes prohibited or otherwise restricted by any applicable federal, state, or local laws and regulations.

-Table 1 Re-Use Action Levels-

| CHEMICAL OF CONCERN <u>Chemical of Concern</u> | ACTION LEVEL <u>Action Level</u> |
|---|---|
| Benzene | 0.015 |
| Toluene | 4.910 |
| Ethylbenzene | 4.550 |
| Total Xylenes | 15.700 |
| Methyl Tertiary Butyl Ether (MTBE) | 0.047 |
| Benzo(a)Anthracene | 2.200 |
| Benzo(b) Fluorathene <u>Fluoranthene</u> | 5.530 |
| Benzo(k) Fluoranthene <u>Fluoranthene</u> | 1.970 |
| Benzo(a)Pyrene | 1.100 |
| Chrysene | 1.270 |
| Dibenz(a,h)Anthracene | 0.940 |
| Indeno(1,2,3-cd)Pyrene | 0.150 |
| Naphthalene | 3.980 |
| TPH (C6-C12) | 1000 |
| TPH (C10-C20) | 2000 |
| TPH (C20-C34) | 5000 |

All chemical concentrations expressed in milligrams per kilogram (mg/kg)

- (2) If excavated soil sampled in accordance with paragraph (C) of this rule does not exceed the applicable action levels listed in rule 1301:7-9-13 of the Administrative Code, then the excavated soil may be deposited in the original excavation without further treatment. Following placement in the excavation, the soil shall be covered with a minimum of one foot of clean fill.
- (3) Following approval from the state fire marshal, excavated soil that exceeds the applicable action levels listed in rule 1301:7-9-13 of the Administrative Code may be deposited in the original excavation for the purpose of remediation pursuant to the corrective action requirements of rule 1301:7-9-13 of the Administrative Code. ~~If the excavated soil was deposited in the original excavation in accordance with paragraph (D)(4), and samples analyzed pursuant to rule 1301:7-9-12(I) of the Administrative Code are below action levels developed in rule 1301:7-9-12(I)(3) of the Administrative Code, then the owner or operator may prepare and submit a PCS Treatment Plan in accordance with paragraph (I) of this rule.~~
- (4) When soil samples have been collected, but the analytical results have not been received, the excavated soil may be deposited in the original excavation if the excavation is lined with a synthetic liner having a minimum thickness of ten mil.
- (5) ~~Soil at a UST site that exceeds the site-specific action levels calculated pursuant to rule 1301:7-9-13 of the Administrative Code but are not excavated may be remediated in place in accordance with the corrective action requirements of rule 1301:7-9-13 of the Administrative Code. If closure samples collected and analyzed pursuant to rule 1301:7-9-12(I) of the Administrative Code are below action levels developed pursuant to rule 1301:7-9-12(I) of the Administrative Code and PCS which was deposited in the original excavation pursuant to paragraph (D)(4) of this rule is determined to be above action levels, owners and operators are required to conduct one of the following:~~

- (a) Submit a PCS Treatment Plan pursuant to paragraph (I)(2) of this rule; or
 - (b) Excavate and properly dispose of the PCS within ninety days of collecting samples for the permanent removal of a UST system or portion of the UST system in accordance with 1301:7-9-12(G) of the Administrative Code.
- (6) The state fire marshal may approve the re-use of excavated soil in lieu of or in conjunction with the treatment requirements of this rule on a case-by-case basis where such re-use will provide a benefit to the citizens of Ohio and not cause harm to human health or the environment. The owner or operator may make a request in writing to the state fire marshal describing the proposed re-use. Should the state fire marshal approve the request, the state fire marshal may approve such terms or conditions, including treatment of the excavated soil prior to re-use, that the state fire marshal deems necessary to assure that the proposed re-use will not harm human health or the environment.
- (E) On-site storage of excavated soil.
- (1) Excavated soil remaining on-site shall be stored as follows:
 - (a) In portable containers that are free of holes or other damages that may allow a release of material, are secured with lids or covers to prevent infiltration of rainwater, and are individually labeled with the date of excavation and the words: "Non-hazardous soil or backfill. May contain soil contaminated by petroleum products."
 - (b) In stockpiles protected by a synthetic cover that prevents infiltration from rainwater or run-off of soil and by berms or other devices that diverts run-on of storm water. A twenty-four hour once in ten-year rain event shall be used to design such controls.
 - (c) During storage, stockpiles shall be placed on an asphalt pad, concrete pad, compatible synthetic liner having a minimum thickness of ten mil, or another material specifically approved by the state fire marshal that prevents the leaching of chemical(s) of concern. Synthetic liners shall be installed with overlaps of not less than twelve inches and shall be free of rips, tears, or other damage. Excavated soil shall be placed on the liner in a manner that insures liner integrity. A temporary fence, barrier, or other device shall be used to prevent unauthorized entry to storage areas.
 - (d) All storage techniques shall be constructed and maintained to minimize the release of petroleum vapors and odors.
 - (2) The owner or operator of the UST site used for storage of PCS shall inspect all storage areas monthly for damage to or unauthorized removal of drums, drum lids, labels, covers, berms, fences, other barriers, or signs used to deter unauthorized entry. ~~A written log of such inspections shall be maintained and made available to the fire marshal for review within twenty-four hours of receipt of a request for inspection.~~ A written log of such inspections shall be maintained for a period of five years. The log shall be made available for inspection during normal working hours upon twenty-four hours advance notice by the state fire marshal. Within forty-eight hours of discovery of damage or receipt of notice from the state fire marshal that damage has occurred, the owner or operator shall confirm whether damage has occurred, initiate such repairs as necessary to return the storage area to compliance with this rule, and place in the inspection log a description of the damage found and actions taken.

- (3) PCS may be stored on-site in portable containers for a period not to exceed one hundred and eighty days from the date the soil was first placed in the containers.
- (4) PCS may be stored on-site in a stockpile for a period not to exceed one hundred and twenty days from the date the soil was first placed in the stockpile.
- (5) The owner or operator shall maintain a record for five years of the estimated volume of the excavated soil being stored and the date the soil was first placed in containers or a stockpile.

(F) Off-site transportation of excavated soil and related documentation.

- (1) Prior to the off-site shipment of excavated soil, the owner or operator shall prepare a transport manifest identifying the origin, amount, and destination of the shipment. The owner or operator of the UST site or agent thereof shall sign the delivery record at the time of shipment. Following delivery, the transporter shall sign the record and return it to the owner or operator, who shall retain the record for a period of five years. The record shall be made available for inspection during normal working hours upon twenty-four hours advance notice by the state fire marshal.
- (2) Existing federal, state, and local transportation laws and regulations shall continue to apply to the shipment of PCS. This rule is not intended to displace or revise such laws and regulations.

(G) Temporary off-site storage areas.

- (1) PCS from one or more UST site(s) owned or under the control of the same owner or operator may be transported from the UST site to an off-site storage area and stored for a period not to exceed ninety days from date of excavation. The off-site storage area must be owned or under the control of the owner or operator of the UST site(s), that generated the PCS.
- (2) The owner or operator shall submit, on a form prescribed by the state fire marshal, the details of the origin, transportation and storage of the soil stored off-site within ten days of commencing off-site storage.
- (3) PCS delivered to a storage area shall be stored in accordance with the requirements of paragraphs (E)(1), (E)(2), and (E)(5) of this rule.
- (4) Prior to further transport of the PCS from the storage area, the owner or operator shall add the date of transport and destination to the delivery record required by paragraph (F)(1) of this rule.

(H) Disposal of petroleum contaminated soil.

- (1) Excavated PCS shall not be disposed on-site or off-site without first being treated to reduce chemical(s) of concern in accordance with this rule, unless the soil is disposed of at a licensed disposal facility.
- (2) Following disposal of PCS at a licensed disposal facility, owners and operators shall prepare a report that describes the final disposition of the excavated soil on a form prescribed by the fire marshal.
- (3) All PCS containing concentrations of chemical(s) of concern shall be managed in a manner that complies with applicable federal, state, and local requirements.

(I) Treatment of petroleum contaminated soil PCS.

(1) Applicability.

(a) A PCS Treatment Plan shall be submitted in accordance with paragraph (I)(2) through (I)(5) of this rule for approval to the fire marshal, unless one of the following occurs:

(i) The PCS was not returned to the original excavation and is disposed of at a licensed disposal facility; ~~or~~

(ii) The PCS is managed pursuant to Rule 1301:7-9-13 of the Administrative Code; or

(iii) The PCS meets the criteria in (D)(2) of this rule.

(b) PCS must be treated at one of the following locations:

(i) The UST site;

(ii) A designated facility; or

(iii) A licensed disposal facility.

(2) PCS Treatment Plan Contents.

Owners or operators shall submit a PCS Treatment Plan to the state fire marshal within ninety days of the UST system removal date or the date of generating the PCS stockpile. Treatment target concentrations shall be the re-use action levels from Table 1 of this rule unless a variance is granted by the state fire marshal. The PCS Treatment Plan shall include, but is not limited to the following information:

(a) Name of owner or operator;

(b) Name, address, and facility number of the UST site;

(c) Address of the designated facility or licensed disposal facility, if applicable;

(d) Contact person for the PCS Treatment Plan;

(e) The volume, in cubic yards, of soil to be treated;

(f) A description of the PCS treatment process to be implemented;

(g) A conceptual design of the PCS treatment system (detailed engineering drawings are not necessary);

(h) A brief description of the treatment alternatives considered, including a discussion of the reliability, effectiveness, cost, and time needed for completion, and the rationale for the selected program;

(i) A monitoring plan that describes the monitoring to be used to determine whether treatment target concentrations are being achieved;

- (j) A description of the reporting frequency and proposed content of reports;
- (k) A description of any permits (e.g., air emission, water discharge) or other governmental approvals required for implementation of the plan;
- (l) An implementation schedule and the projected completion date of the proposed PCS treatment activities; and
- (m) Site maps or drawings that accurately depict the location of the designated facility, the property boundaries, street locations, above ground structures, underground structures and utilities, soil stockpiles, PCS treatment areas, and other pertinent features.

(3) Public participation.

- (a) For each PCS Treatment Plan submitted to the state fire marshal, the owner and/or operator shall provide notice to the public.
- (b) Public notice shall be by means designated to reach those members of the public directly affected by the release and the planned treatment activities. This notice may include, but is not limited to, public notice in local newspapers, block advertisements, public service announcements, publication in a state register, letters to individual households, or personal contacts by field staff.
- (c) The state fire marshal shall ensure the UST site release information and decisions concerning the PCS Treatment Plan are made available to the public for inspection upon request.
- (d) Before approving a PCS Treatment Plan, the state fire marshal may hold a public meeting to consider comments on the proposed PCS Treatment Plan if there is sufficient public interest or for any other reason.

(4) Implementation of PCS Treatment Plans.

- (a) Upon approval of the PCS Treatment Plan, owners or operators shall implement the plan. Owners or operators shall monitor, evaluate, and report to the state fire marshal the results of implementation efforts in accordance with the reporting requirements contained in the plan.
- (b) If the treatment technology approved by the state fire marshal in the plan has been installed and operated for a minimum of one year and the technology is unable to reduce the concentrations of chemical(s) of concern to a level at or below applicable action levels, then the owner and operator must:
 - (i) Re-evaluate the assumptions and parameters used in the PCS Treatment Plan;
 - (ii) Re-evaluate the treatment alternatives; and
 - (iii) Submit a revised PCS Treatment Plan.
- (c) If treatment is able to reduce concentrations of chemical(s) of concern to a level at or below applicable action levels, than no further treatment is required.

(5) Reporting.

Following completion of PCS treatment in accordance with the approved plan, owners or operators shall prepare a PCS Treatment Completion Report that demonstrates that the treatment objectives have been met. The report shall contain documentation supporting termination of treatment activities in accordance with paragraph (I)(2) of this rule, including a description of the final disposition of the excavated soil, on a form prescribed by the state fire marshal.

(J) Releases from PCS treatment and storage facilities.

- (1) When directed by the state fire marshal, owners and operators shall assess the soil and ground water under any designated facility or UST site if the treatment or storage of PCS may, in the judgment of the state fire marshal, pose a current or potential threat to human health or the environment.
- (2) Upon the discovery of a petroleum impact suspected to be the result of the treatment or storage of PCS, the owner and operator shall conduct the following:
 - (a) Cease all additional applications of PCS until otherwise instructed by the state fire marshal;
 - (b) Notify the state fire marshal within twenty-four hours of the discovery of the soil or groundwater contamination; and
 - (c) Perform immediate corrective action in accordance with the requirements of rule 1301:7-9-13 of the Administrative Code and continue with the corrective action process, as necessary, to contain and clean up the release.

(K) Variances.

- (1) Owners and operators may submit a variance request to the state fire marshal to deviate from any method or requirement specified in this rule by demonstrating that the proposed variance is at least as effective as those required by this rule. Written approval must be obtained from the state fire marshal prior to implementation. If the variance is approved by the state fire marshal, the owners and operators shall comply with any conditions imposed by the state fire marshal. The state fire marshal may grant, modify, or deny any extension request at ~~their~~ his sole discretion.
- (2) The state fire marshal may approve the variance for use at a specific UST site or for use at all UST sites. If the state fire marshal approves a variance for use at all UST sites, the owners and operators shall comply with any conditions imposed by the state fire marshal on the use of the variance.

HISTORY: Eff 1-23-95; 3-31-99; Replaces: 1301:7-9-16, eff. 3-1-05

Rule promulgated under: RC 119.03

Rule authorized by: RC 3737.88 (A), 3737.88 (E), 3737.882

Rule amplifies: RC 3737.88 (A), 3737.88 (E), 3737.882

R.C. 119.032 review dates: 03/01/2010

Sampling and analysis of excavated soil for the purpose of treatment and disposal

(A) Purpose and scope.

For the purpose of prescribing rules pursuant to divisions (A) and (E) of section 3737.88 and division (B) of section 3737.882 of the Revised Code, the state fire marshal hereby adopts this rule governing the sampling and analysis of excavated soil arising from underground storage tank (UST) systems containing petroleum. This rule is adopted by the state fire marshal in accordance with Chapter 119 of the Revised Code and shall not be considered a part of the "Ohio Fire Code."

(B) Definitions.

- (1) "Excavated soil" means soil removed from the surface or subsurface in conjunction with a suspected release as that term is defined in paragraph (C)~~(34)~~ of rule 1301:7-9-13 of the Administrative Code; in conjunction with a release as that term is defined in paragraph (C)~~(25)~~ of rule 1301:7-9-13 of the Administrative Code; in conjunction with a confirmed release as that term is defined in paragraph (C) of rule 1301:7-9-13 of the Administrative Code; or in conjunction with the closure-in-place or permanent removal of an UST system pursuant to rule 1301:7-9-12 of the Administrative Code.
- (2) "Petroleum contaminated soil (PCS)" means soil that contains chemical(s) of concern in concentrations that exceed one or more of the re-use action levels in Table 1 of Rule 1301:7-9-16 of the Administrative Code and excludes soil defined as hazardous waste.
- (3) "Soil" means solid and semi-solid earthen materials or backfill consisting of clay, silt, sand, stones, or gravel and any debris contained therein.
- (4) "Licensed disposal facility" means a facility that has obtained such permits or licenses that this or another state may require to accept materials for permanent burial, destruction, or treatment, including petroleum contaminated soil.

(C) General requirements.

- (1) Excavated soil shall be segregated based upon apparent degree of contamination.
- (2) Each soil pile or container of soil shall be sampled in accordance with this rule. The soil sample containing the highest analytical result shall characterize the entire soil pile or container for disposal, treatment, or re-use.
- (3) All excavated soil shall be managed as PCS unless laboratory analysis indicates otherwise.
- (4) The volume of excavated soil, for each soil pile or container, shall be calculated to determine the number of soil samples that shall be collected to comply with this rule. In-situ soil volume shall be converted to excavated soil volume by multiplying the in-situ volume by an expansion factor of 1.25. This paragraph shall not apply to excavated soil stored in containers.

- (5) Analytical results obtained pursuant to paragraph (I) of rule 1301:7-9-12 of the Administrative Code shall not be used to characterize excavated soil generated during a permanent removal, change-in-service, or closure-in-place of an UST pursuant to rule 1301:7-9-12 of the Administrative Code.
- (6) All soil samples collected for the purposes of this rule shall be discrete grab samples. Composite soil samples shall not be used for the purposes of complying with this rule. All excavated soil shall be sampled within 48 hours of the completion of the excavation.
- (7) Grab samples shall be split into two components. One component shall be packaged for field screening, the other packaged for potential laboratory analysis. The sampling and packaging shall be in accordance with procedures established by the state fire marshal.
- (8) If field screening is not conducted on the grab samples, all of the grab samples collected shall be submitted for laboratory analysis.
- (9) All soil samples must be analyzed by an accredited laboratory.

(D) Combining Piles.

Excavated soil may be combined provided they are segregated in accordance with this rule. When combining soil, one or more of the following shall be conducted:

- (1) Excavated soil generated from various areas of an UST site may be combined at the discretion of the owner or operator;
- (2) Excavated soil from different facilities may be combined for purposes of characterizing the soil pile. However, if one or more of the chemical(s) of concern exceed re-use action levels, referenced in Table 1 of rule 1301:7-9-16 of the Administrative Code, the soil must be disposed of at a licensed disposal facility; or
- (3) If all the combined excavated soil has not been previously characterized prior to being combined, they shall be characterized in accordance with this rule.

(E) Sampling soil in drums and small containers.

- (1) Analytical results obtained from soil borings sampled pursuant to rule 1301:7-9-12 or 1301:7-9-13 of the Administrative Code may be used to characterize soil from such borings for purposes of this rule.
- (2) For excavated soil in containers having a capacity of fifty-five gallons (0.27 cubic yards) or less, one grab sample shall be collected from the center at mid-depth of the soil in the container. Each sample collected shall be submitted for laboratory analysis.

(F) Sampling soil in piles and large containers.

Excavated soil that has not been previously characterized pursuant to paragraph (E) of this rule shall be characterized as follows:

- (1) At a minimum, the number of soil samples required to be collected for field screening shall be the number set forth in Table 1 of this rule;

-Table 1 – PCS Sampling Requirements

| Cubic yards of soil generated | <25 | 25-100 | 101-250 | 251-450 | >450 |
|---|-----|--------|---------|---------|---|
| 1. Minimum number of grab samples to collect and field screen | 3 | 6 | 12 | 18 | 18 plus 1 sample per each additional 50 cubic yards (or fraction thereof) |
| 2. Minimum number of grab samples to submit to the laboratory if field screened | 2 | 3 | 6 | 8 | 8 plus 1 sample per each additional 100 cubic yards (or fraction thereof) |

- (2) Soil sample locations shall be determined by visually dividing the soil pile or the container into a sampling grid with sections of approximately equal surface area. The number of sample grids shall equal the minimum number of grab samples to be collected. The minimum number of grab samples to be collected is specified in Table 1 of this rule; and
- (3) A grab sample shall be collected from the center of each grid section at least twelve inches below the soil surface.
- (4) The minimum number of grab sample components to be submitted for laboratory analysis is specified in Table 1 of this rule. ~~The remaining component of the grab sample, with the highest field screening result, shall be selected for submittal for laboratory analysis.~~ All soil samples collected shall be split into two components; one packaged for field screening, the other packaged for potential laboratory analysis. The sampling and packaging shall be in accordance with procedures established by the state fire marshal. The samples with the highest field screening readings shall be submitted for laboratory analysis.

(G) Sample analysis.

Grab samples submitted for laboratory analysis shall be analyzed pursuant to paragraph (H)(1)(c) of rule 1301:7-9-13 of the Administrative Code.

HISTORY: Eff 1-23-95; 12-1-99; Replaces: 1301:7-9-17, eff. 3-1-05

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