3745-300-01 **Definitions - voluntary action program.**

[Comment: For dates of non-regulatory government publications, publications of recognized organizations and associations, federal rules, and federal statutory provisions referenced in this rule, see rule 3745-300-15 of the Administrative Code titled "Incorporation by reference - voluntary action program."]

The following definitions are applicable in this chapter of the Administrative Code:

(A)

(1) "Acceptance limit" is the numerical range in which an analyte shall be quantitated in a proficiency testing sample.

(2) "Accredited laboratory" means a laboratory that is accredited as follows:

(a) For analysis of asbestos, valid accreditation by one of the following:

(i) The American industrial hygiene association, asbestos analysts registry;

(ii) The national institute of standards technology, national voluntary laboratory accreditation program for asbestos fiber analysis;

(iii) An accreditation body recognized by "The NELAC Institute" (TNI).

(b) For analysis of any constituent other than asbestos, valid accreditation by an accreditation body recognized by "The NELAC Institute" (TNI).

~~(2)~~(3) "Activity and use limitations" are one or more restrictions or obligations created under sections 5301.80 to 5301.92 of the Revised Code with respect to real property. Activity and use limitations eliminate or mitigate exposure to a release of hazardous substances or petroleum. Examples of activity and use limitations include but are not limited to land use limitations and ground water use restrictions.

~~(3)~~(4) "Actual costs" are the actual, substantiated direct, indirect, and other costs associated with a specific voluntary action program activity.

~~(4) "Additional certification" is supplemental certification to perform analyses of specific analytes or parameter groups, using designated methods, for which the laboratory is not already certified pursuant to the laboratory's current certification under rule 3745-300-04 of the Administrative Code.~~

(5) "Affected media" are any environmental media present on or off property that contain concentrations of COCs.

(6) "Affected property" is a property, or portion thereof, for which a variance is being sought under rule 3745-300-12 of the Administrative Code.

(7) "Affiliated" means under common ownership or control.

(8) "Analyte" is a hazardous substance or petroleum, or a constituent of a hazardous substance or petroleum.

(9) "Applicable standards" are standards established in or pursuant to sections 3746.05, 3746.06, and 3746.07 of the Revised Code, or rule 3745-300-07, 3745-300-08, 3745-300-09, 3745-300-10, or 3745-300-11 of the Administrative Code, as applicable.

(10) "Audit findings" means written documentation which indicates the results of an audit conducted pursuant to rule 3745-300-14 of the Administrative Code provided to one or more of the following, as appropriate:

(a) A person who has performed a voluntary action.

(b) The current owner of a property that has been the subject of a voluntary action.

(c) A certified professional.

(d) A certified laboratory.

(e) An accredited laboratory.

(B)

(1) "Background levels" are the conditions at a property and areas surrounding a property that are unaffected by any current or past activities involving treatment, storage, or disposal of hazardous substances or petroleum. Background levels include naturally occurring substances.

(2) "Bioavailability" is that fraction of a COC that is available for uptake by a receptor upon exposure to a contaminated medium.

(C)

(1) "Capture zone" means all unsaturated and saturated subsurface areas that presently contribute or shall contribute ground water to a well.

(2) "Central management entity" is an organization that is designated as responsible to oversee compliance with applicable standards at a property that allows for any residential use. A central management entity also may oversee compliance at a property that allows recreational or commercial use. A central management entity may consist of one or more domestic business entities that own or hold an interest in the property. A central management entity may consist of a condominium unit owner's association for the property, which is subject to Chapter 5311. of the Revised Code. A central management entity does not consist of any association formed pursuant to Chapter 5312. of the Revised Code, or other fee simple owners of the property.

(3) "Central tendency value" is a parameter value from a probability distribution of parameter values which is an estimation of the median of that distribution.

(4) "Certificate" is the document issued by the director to an individual laboratory, certified under rule 3745-300-04 of the Administrative Code, that does either of the following:

(a) Authorizes ~~the laboratory~~laboratories under the prior version of rule 3745-300-04 of the Administrative Code, with an effective date of October 17, 2019, to perform analyses in support of a request for a no further action letter for the specified analytes or parameter groups, and using the methods listed on the document.

(b) Acknowledges that the individual is a certified professional for the purposes of this chapter and Chapter 3746. of the Revised Code.

(5) "Certified" or "certification" is the authorization of either of the following:

(a) A laboratory to perform analyses in support of a request for a no further action letter for the specific analytes or parameter groups and using the methods for which the director has determined the laboratory ~~meets~~met the requirements provided in the prior version of rule 3745-300-04 of the Administrative Code, with an effective date of October 17, 2019.

(b) An individual to issue no further action letters under rule 3745-300-05 of the Administrative Code.

(6) "Certified laboratory" is a laboratory ~~certified by~~ which maintains a certification from the director pursuant to the prior version of rule 3745-300-04 of the Administrative Code, with an effective date of October 17, 2019.

(7) "Certified professional" is an individual certified by the director pursuant to rule 3745-300-05 of the Administrative Code to issue no further action letters under section 3746.11 of the Revised Code.

(8) "Chemicals of concern" or "COCs" are specific constituents of hazardous substances or petroleum which are on or from a property and are identified during a voluntary action.

(9) "Chemical-specific intake" is the measure of exposure of a receptor to the COC and is equivalent to the administered dose. Chemical specific intake is equal to the mass of a substance in contact with the exchange boundary of a receptor per unit body mass per unit time, expressed in units of milligrams per kilogram per day.

(10) "Chemical testing method" is a method used for the preparation and analysis of an environmental sample to quantify for hazardous substances or petroleum, or constituents of hazardous substances or petroleum.

(11) "Class C release" means a release of petroleum occurring or identified from an underground storage tank system subject to sections 3737.87 to 3737.89 of the Revised Code for which the responsible person for the release is specifically determined by the fire marshal not to be a viable person capable of undertaking or completing the corrective actions required under those sections for the release. Class C release also includes any release designated as a class C release in accordance with rules adopted under section 3737.88 of the Revised Code.

(12) "Commercial land use" is land use with the potential for exposure of adult workers and patrons during a business day, and the potential for low frequency exposures of children who are visitors to commercial facilities during the business day. Commercial land use has the potential for exposure of adults to dermal contact with soil, inhalation of vapors and particles from soil, incidental ingestion of soil, and inhalation of volatile compounds due to vapor intrusion to indoor air. Examples of commercial land use include, but are not limited to, the following:

(a) Shopping centers.

(b) Restaurants.

(c) Retail gasoline stations.

(d) Retail establishments.

(e) Professional offices.

(f) Hospitals and clinics.

(g) Religious institutions.

(h) Hotels~~.~~, except for residential hotels, as defined in divison (A)(4) of section 3731.01 of the Revised Code.

(i) Motels.

(j) Warehouses.

(k) Parking facilities.

(l) Agricultural lands and facilities when demonstrated through a property-specific risk assessment.

(13) "Commercial land use with high frequency child exposure" is land use with the potential for exposure of adult workers and patrons during a business day, and the potential for high frequency exposures of children who are patrons to commercial facilities during the business day. Commercial land use has the potential for exposure of adults and children to dermal contact with soil, inhalation of vapors and particles from soil, incidental ingestion of soil, and inhalation of volatile compounds due to vapor intrusion to indoor air. Examples of commercial land use with high frequency child exposure include, but are not limited to, schools and child daycare facilities.

(14) "Complete exposure pathway" is a current or reasonably anticipated exposure pathway determined to be complete after the identification of current and reasonably anticipated property use and receptor populations and as a result of a pathway completeness determination.

(15) "Compliance audit" is the selection of any no further action letter submitted to the director with a request for a covenant not to sue for an audit for any purpose or combination of purposes described in paragraph (A) of rule 3745-300-14 of the Administrative Code. The audit may be conducted in accordance with paragraph (F) of rule 3745-300-14 of the Administrative Code or by any other means selected by the director.

(16) "Conflict of interest" is any circumstances which would affect the laboratory's ability to objectively analyze samples in connection with a voluntary action, including circumstances similar to those in paragraph (E)(3) of rule 3745-300-05 of the Administrative Code for certified professionals.

(17) "Consolidated saturated zone" is a saturated zone in bedrock.

(18) "Construction activities" include invasive activities that result in potential exposure of adult workers during the business day for a portion of one year. Exposures during construction activities are of greater intensity and shorter duration than those for the commercial and industrial land use categories. Construction activities have potential exposures of adults to dermal contact with soil, inhalation of vapors and particles from soil, and ingestion of soil. Examples of construction activities include, but are not limited to, excavation, grading, bulldozing, tilling, trenching, utility installation or maintenance, building construction, operation of heavy equipment, and traffic on unpaved roads on a construction site.

(19) "Continuing education unit" is a unit of credit customarily used for professional development courses. One continuing education unit equals ten hours of actual instruction in an approved continuing education course.

(20) "Course" is any educational activity with a clear purpose and objective which shall maintain, improve, or expand the skills and knowledge relevant to the investigation, assessment, or remediation of hazardous substances or petroleum.

(21) "Covenant not to sue" is a release from civil liability that is issued by the director under section 3746.12 of the Revised Code.

(22) "Cumulative risk" is the estimate of excess lifetime cancer risk attributable to the exposure of a receptor or receptor population to one or more COC in one or more environmental media, or through one or more routes of exposure.

(D)

(1) "Data verification" is the process of evaluating the completeness, correctness, and conformance/compliance of a specific data set against the method, procedural, or contractual requirements.

~~(1)~~(2) "Determination of sufficient evidence letter" is a notification from the director, pursuant to section 3746.02 of the Revised Code and this chapter, that a person or property that is the subject of an enforcement letter may or may not participate in the voluntary action program.

~~(2)~~(3) "Diligent inquiry" means conducting a thorough search of all reasonably available information, and making reasonable efforts to interview persons with knowledge regarding current and past uses of the property, waste disposal practices, and environmental compliance history.

~~(3)~~(4) "Director" is the director of the Ohio environmental protection agency or the director's designee.

~~(4)~~(5) "Discretionary audit pool" is any no further action letter submitted to the director with a request for a covenant not to sue in the preceding calendar year under section 3746.11 of the Revised Code that was either not included in or was not selected for audit from the random audit pool.

~~(5)~~(6) "Document" is any record, device, or item, regardless of physical form or characteristic, including but not limited to, electronic or hard copy records of reports, studies, data, correspondence, and all other information.

~~(6)~~(7) "Drinking water source protection area" has the same definition as in rule 3745-9-01 of the Administrative Code.

~~(7)~~(8) "Drinking water source protection plan" means the strategies to be implemented by a public water system to prevent, detect, and respond to water quality contamination in a drinking water source protection area, as adopted by the owner of the public water system and endorsed by Ohio EPA as meeting the requirements of the wellhead protection program and the source water assessment and protection program.

(E)

(1) "Enforcement letter" is a notification, in the form of an invitation to negotiate from the director, that the director intends to pursue enforcement under Chapter 3704., 3734., or 6111. of the Revised Code relating to a release or threatened release of hazardous substances or petroleum.

(2) "Engineered fill" is soil or aggregate materials derived from on-property or off-property locations which has been placed on the property to meet specific engineering requirements for the construction of buildings, utility lines, roadway sub-grade, or other structures. Engineered fill includes structural fill.

(3) "Engineering control" is any structure, system, or barrier, which is protective of human health, safety, and the environment, that effectively and reliably eliminates or mitigates human or important ecological resource exposure to hazardous substances or petroleum on, underlying, or emanating from a property.

(4) "Environmental covenant" is a servitude that imposes activity and use limitations on property that is the subject of a no further action letter submitted with a request for a covenant not to sue under section 3746.11 of the Revised Code.

An environmental covenant meets the requirements in section 5301.82 of the Revised Code.

(5) "Environmental media" are soil, sediment, surface water, and ground water. Environmental media also include naturally occurring transitional zones between soil, sediment, surface water, or ground water, such as bedrock, soil gas, and air.

(6) "Exposure" is contact of a receptor with a COC that is quantified as the amount of the COC available for absorption at the exchange boundaries of the organism, such as the skin, lungs, or gastrointestinal tract.

(7) "Exposure factor" is a parameter that defines one term in an equation used to quantify the exposure of a receptor to a COC by means of one exposure pathway. Exposure factors may be represented by point values or by a distribution of values.

(8) "Exposure factor point value" is a single numeric value selected from a distribution of numeric values of the exposure factor, selected on the basis of the value's representativeness of a central tendency or upper-bound value.

(9) "Exposure pathway" is a mechanism by which a receptor is exposed to a COC.

(10) "Exposure point concentration" is the mass of a COC per unit quantity of medium which is available for intake by a receptor.

(11) "Exposure route" is the manner in which a chemical or physical agent comes into contact with an organism (for example, ingestion, inhalation, or dermal contact with soil).

(12) "Exposure unit" is a geographic area within which an exposed receptor may reasonably be assumed to move at random and where contact with environmental media is equally likely at all sub-areas.

~~(F)~~

~~(1) "Fixed-base laboratory" is a laboratory at a permanent location that provides for the analysis of environmental media.~~

~~(2)~~(F) "Free product" is a separate liquid hydrocarbon phase that has a measurable thickness of greater than one one-hundredth of a foot.

(G)

(1) "Gallons" means U.S. gallons.

(2) "Generic direct-contact soil standard" is a generic numerical standard based on a single chemical exposure that results from ingestion of soil, dermal contact with soil, and inhalation of volatile and particulate emissions from soil.

(3) "Generic numerical standard" is a concentration of a hazardous substance or petroleum that ensures protection of public health and safety and the environment for the reasonably anticipated exposures associated with a residential, commercial, or industrial land use, construction activities, or potable ground water use. The generic numerical standard is determined pursuant to rule 3745-300-08 of the Administrative Code.

(4) "Good moral character" is such character as enables an individual to comply with the ethical responsibilities of a certified professional.

(5) "Ground water" is water underlying a property in a saturated zone that meets the following criteria:

(a) Capable of yielding, within eight hours after purging, a minimum of one and one-half gallons of water as determined in accordance with paragraph (F)(2)(b) of rule 3745-300-07 of the Administrative Code.

(b) The in situ hydraulic conductivity is greater than 5.0×10^{-6} centimeters per second as determined in accordance with standards of paragraph (F)(2)(b) of rule 3745-300-07 of the Administrative Code.

(c) This definition applies only to voluntary actions conducted under this chapter and Chapter 3746. of the Revised Code.

(H)

(1) "Hazard index" is a numerical value that describes the potential for an adverse non-cancer threshold effect to occur in an individual as a result of exposure of a receptor or receptor population to one or more COC in one or more environmental media through one or more routes of exposure over a specific time exposure period. This numerical value is expressed as the unitless sum of the hazard quotient values for each COC, each environmental medium, and each route of exposure.

(2) "Hazardous substance" includes any of the following:

(a) Any substance identified or listed in rules adopted under division (B)(1)(c) of section 3750.02 of the Revised Code.

(b) Any product registered as a pesticide under section 921.02 of the Revised Code when the product is used in a manner inconsistent with the product's required labeling.

(c) Any product formerly registered as a pesticide under that section for which the registration was suspended or canceled under section 921.05 of the Revised Code.

(d) Any mixture of a radioactive material with a substance described in paragraphs (H)(2)(a) to (H)(2)(c) of this rule.

(3) "Hazard quotient" is the value which quantifies non-carcinogenic risk for one chemical for one receptor population over a specified exposure period. The hazard quotient is equal to the ratio of a chemical-specific intake to the reference dose.

(4) "Historical records" means sources of information which assist in identifying current or past uses or occupants of a property, including but not limited to, aerial photographs, fire insurance maps, property tax files, recorded land title records, U.S. geological survey 7.5 minute topographic maps, local street directories, building department records, zoning or land use records that identify past uses or occupants of the property from the property's first commercial or industrial use through the present use, and records in the files of an owner or operator of the property.

(I)

(1) "Identified area" is a location at a property where a release of hazardous substances or petroleum has or may have occurred.

(2) "Imminent hazard" is any condition which poses an immediate risk of harm to public health, safety, or the environment. Examples of imminent hazards include, but are not limited to, the following:

(a) Threats of explosion.

(b) Discharges of hazardous substances or petroleum to surface water.

(c) Discharges to ground water of hazardous substances or petroleum that threatens existing drinking water supplies.

(d) Releases of hazardous substances or petroleum into the air which could result in an exposure at or to a concentration of chemicals that is immediately dangerous to life or health.

(e) Migration or releases of hazardous substances or petroleum which would threaten to immediately harm public health, safety, or the environment.

(3) "Important ecological resource" or "IER" is any specific ecological community, population, or individual organism protected by federal, state, or local laws and regulations, or ecological resources that provide important natural or economic resource functions and values. Important ecological resources include, but are not limited to, the following:

(a) Any surface water of the state, as that term is used in Chapter 3745-1 of the Administrative Code.

(b) Any wetland regulated under federal law and Chapter 6111. of the Revised Code.

(c) Any dedicated natural area or preserve.

(d) Any federally-listed or state-listed threatened or endangered species and the associated habitat.

(e) Any state of Ohio special interest or declining species and the associated habitat.

(f) Any state park or national park.

(g) Any federally designated wilderness area.

(h) Any national lakeshore recreational area.

(i) Any national preserve.

(j) Any state wildlife refuge or national wildlife refuge.

(k) Any federal, state, local, or private land designated for the protection of natural ecosystems.

(l) Any federally-designated or state-designated scenic or wild river.

(m) Any federal or state land designated for wildlife or game management.

(n) Wildlife populations and the associated important nesting areas and food resources, taking into consideration land use and the quality and extent of habitat on and in the vicinity of the property.

(4) "Incremental sampling" is a technique used to obtain a reproducible estimate of the exposure point concentration. An incremental sample is comprised of randomly collected sub-samples combined to form the sample.

(5) "Individual" is any person (as "person" is defined in section 1.59 of the Revised Code and in this rule), but not a corporation, business trust, estate, trust, partnership, or association. Individual is also not this state, any political subdivision of this state, any other body of this state or of a political subdivision of this state, and the United States and any agency or instrumentality thereof.

(6) "Indirect costs" are all costs other than direct costs which may be attributed to a fee source including, but not limited to, administrative overhead, training of personnel, reporting to the legislature, rule development, guidance development, program marketing, database management, and word processing. Indirect costs are determined by multiplying direct costs by the indirect rate.

(7) "Indirect rate" is the rate or per centage by which direct costs are multiplied to determine the indirect costs for a given fee or activity.

(8) "Industrial fill" is non-soil material that is derived from industrial or manufacturing operations and that has been placed on a property for the purpose of disposal, grading, or construction.

(9) "Industrial land use" is land use with the potential for exposure of adult workers and patrons during a business day, and the potential for low frequency exposures of children who are visitors to commercial or industrial facilities during the business day. Industrial land use has the potential for exposure of adults to dermal contact with soil, inhalation of vapors and particles from soil, incidental ingestion of soil, and inhalation of volatile compounds due to vapor intrusion to indoor air. Industrial land use is considered appropriate for an alternate cumulative cancer risk goal through a property-specific risk assessment in accordance with paragraph (B)(3)(b) of rule 3745-300-09 of the Administrative Code. Examples of industrial land use include, but are not limited to, manufacturing facilities such as metal-working shops, plating shops, blast furnaces, coke plants, oil refineries, brick factories, chemical plants, and plastics plants; assembly plants; non-public airport areas; lumber yards; power plants; limited access highways; railroad switching yards; and marine port facilities.

(10) "Initial certification" is any first certification issued to ~~either of the following:~~an individual who is certified by the director to issue no further action letters under rule 3745-300-05 of the Administrative Code.

~~(a) A laboratory to perform analyses of specific analytes or parameter groups, using designated methods, under rule 3745-300-04 of the Administrative Code.~~

~~(b) An individual who is certified by the director to issue no further action letters under rule 3745-300-05 of the Administrative Code.~~

(11) "Institutional control" is a restriction that is recorded in the same manner as a deed which limits access to or use of the property such that exposure to hazardous substances or petroleum are effectively and reliably eliminated or mitigated. Activity and use limitations are considered institutional controls when required pursuant to sections 5301.08 to 5301.92 of the Revised Code. Examples of institutional controls include land and water use restrictions.

(12) "Interim measures" are remedial activities undertaken to protect public health and safety and the environment until the property complies with applicable standards through a permanent remedy.

(13) "Investigatory auditing activities" means activities conducted prior to the issuance of audit findings, including, but not limited to, document review and analysis, field screening or sampling activities, and laboratory analysis.

(J) [Reserved.]

(K) "Key property personnel" means an individual or individuals identified by the owner or operator of a property, and confirmed by the volunteer, as having reliable knowledge of the uses or physical characteristics of the property.

(L)

(1) "Laboratory" is ~~a fixed-base laboratory or mobile laboratory that provides for the analysis of environmental media.~~an accredited laboratory or certified laboratory as defined by this rule.

(2) "Laboratory audit" is an evaluation of a laboratory ~~to determine the laboratory's qualifications for certification under rule 3745-300-04 of Administrative Code, or~~ to determine compliance ~~of a laboratory that is certified with such~~with the laboratory's obligations under rule 3745-300-04 of the Administrative Code. Laboratory audits may consist of a review of documents or other information submitted to Ohio EPA, or an on-site visit to the laboratory to review the laboratory's operations and to evaluate the facility and personnel.

(M)

(1) "Method" is the analytical procedure used to identify and calculate the concentration of an analyte or parameter group and is often designated by a method number from a compendium of standardized test methods (e.g., hazardous waste test methods included in U.S. EPA's "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods," U.S. EPA publication SW-846). If the method has been revised, the method includes the method number plus the revision suffix (e.g., "A, B, C," etc.). Therefore, proper citation of the method shall include the method number plus the revision suffix, if any.

(2) "Method detection limit study" is a procedure used by a laboratory to determine the laboratory's ability to reliably and accurately report to a specific concentration for an analyte or parameter group using the method for which the laboratory is applying for certification.

~~(3) "Mobile laboratory" is a laboratory that is not fixed at a permanent location. Mobile laboratory data provide real-time analysis of environmental media at a location on or near a property.~~

(N)

(1) "Native fill" is soil material derived from the property and transferred from one area of the property and placed in another area in such a manner that the original soil structure and physical properties may be altered from the initial pre-excavation conditions, but the chemical and physical properties remain consistent with other undisturbed native soils at the property.

(2) "Natural attenuation" is the in situ biotic and abiotic processes through which passive remediation occurs. Natural attenuation may include the following:

(a) Non-destructive processes, including but not limited to, the following physical processes:

(i) Adsorption.

(ii) Absorption.

(iii) Advection.

(iv) Dispersion.

(v) Diffusion.

(vi) Dilution from recharge.

(vii) Volatilization.

(b) Destructive processes, including but not limited to, the following chemical processes:

(i) Aerobic biodegradation.

(ii) Hypoxic biodegradation.

(iii) Anaerobic biodegradation.

(iv) Chemical degradation, including abiotic oxidation processes, hydrolysis, and other reactions.

(3) "Ninety-five per cent upper confidence limit" is the upper limit of an interval within a frequency distribution curve in which the observed mean of a data set occurs ninety-five per cent of the time.

(4) "No further action letter" is a document issued by a certified professional under affidavit upon determination by the person undertaking a voluntary action that either there is no information indicating there has been a release of hazardous substances or petroleum at or upon the property, or there has been a release of hazardous substances or petroleum at or upon the property and applicable standards were not exceeded or have been or shall be achieved in accordance with Chapter 3746. of the Revised Code and rules adopted thereunder.

(5) "No further action letter submitted to the director" means no further action letters submitted to the director for either of the following:

(a) A covenant not to sue has been requested from the director under division (D) of section 122.654, sections 3746.11 and 3746.12 of the Revised Code and paragraph (H)(1) of rule 3745-300-13 of the Administrative Code.

(b) A covenant not to sue has not been requested from the director, but Ohio EPA is obligated to review the no further action letter under division (C) of section 122.654 of the Revised Code.

(O)

(1) "Ohio EPA" means the Ohio environmental protection agency.

(2) "Operation and maintenance plan" is a written plan prepared in accordance with paragraph (F) of rule 3745-300-11 of the Administrative Code. An operation

and maintenance plan describes the remedy or remedial activities planned to demonstrate that the property meets and maintains compliance with applicable standards. As applicable, an operation and maintenance plan also describes the remedial activities planned so that the property achieves compliance with applicable standards within five years, or such other time frame as agreed upon by the director in an operation and maintenance agreement.

(3) "Other person responsible for operation and maintenance plan and agreement implementation" is the person responsible for implementation of the operation and maintenance plan and agreement through transfer of the operation and maintenance agreement, by assignment or in conjunction with acquisition of title to the property.

(4) "Owner or operator" includes both of the following:

(a) Any person owning or holding a legal, equitable, or possessory interest in or having responsibility for the daily activities on a property.

(b) In the case of property title or control of which was conveyed due to bankruptcy, foreclosure, tax delinquency, abandonment, or similar means to this state or a political subdivision of this state, any person who owned, operated, or otherwise controlled activities occurring on the property before the conveyance.

(P)

(1) "Parameter group" is a group of analytes similar in chemical characteristics quantitated using a specific method and technology.

(2) "Pathway deferral" is a demonstration made in accordance with rule 3745-300-11 of the Administrative Code that access to an off-property area known to contain or suspected to contain a complete exposure pathway has been refused following informed requests to access in order to complete assessment or remedy in accordance with this chapter. Compliance with applicable standards associated with the pathway are deferred until access to the off-property area is attained and the remedy is implemented and verified in accordance with this chapter.

(3) "Pathway exclusion" is a demonstration made in accordance with rule 3745-300-11 of the Administrative Code and approved by the director that excludes the releases of hazardous substances or petroleum associated with a potentially complete or complete exposure pathway to an off-property area from the release of liability provided by the covenant not to sue, and from

any demonstration of compliance with applicable standards that is otherwise required for issuance of the no further action letter.

(4) "Peer-reviewed" is a document or study that meets the following criteria:

(a) The document or study have been published in a recognized scientific journal or publication.

(b) The document or study is generally accepted within the scientific community as being accurate and reliable.

(c) The results in the document or study have been independently reproduced, or the methods described in the document or study have been proven to produce consistent results.

~~(5) "Performance-based method" is a method designed to quantitate for an analyte or parameter group that is not listed in a method published or endorsed by U.S. EPA or Ohio EPA.~~

~~(6)~~(5) "Persistent, bioaccumulative and toxic (PBT) chemicals" are those chemicals which do not readily degrade via biogeochemical processes, remain in the environment for long periods of time (as measured by a half-life or t 1/2 of greater than sixty days), are highly toxic and bioaccumulate in animal tissue (as indicated by an octanol water coefficient or k_{ow}, of greater than 4.5 and a bioaccumulation factor or BCF of greater than one thousand).

~~(7)~~(6) "Person" is defined in section 1.59 of the Revised Code and also includes this state, any political subdivision of this state, any other body of this state or of a political subdivision of this state, and the United States and any agency or instrumentality thereof.

~~(8)~~(7) "Petroleum" is oil or petroleum of any kind and in any form, including, without limitation, crude oil or any fraction thereof, petroleum, gasoline, kerosene, fuel oil, oil sludge, oil refuse, used oil, substances or additives utilized in the refining or blending of crude petroleum or petroleum stock, natural gas, natural gas liquids, liquefied natural gas, synthetic gas usable for fuel, and mixtures of natural gas and synthetic gas.

~~(9)~~(8) "Phase I property assessment" is all the activities required to evaluate a property in accordance with rule 3745-300-06 of the Administrative Code, Chapter 3746. of the Revised Code, and the standards provided in division (B) of section 3746.07 of the Revised Code.

~~(10)~~(9) "Phase II property assessment" is all the activities required to evaluate a property in accordance with rule 3745-300-07 of the Administrative Code, Chapter 3746. of the Revised Code, and the standards provided in division (C) of section 3746.07 of the Revised Code.

~~(11)~~(10) "Point of compliance" is any location on or off the property to which applicable standards shall be met and maintained.

~~(12)~~(11) "Practically reviewable" means information provided in a manner and in a form that, upon examination, yields information relevant to the property. Records that cannot feasibly be retrieved by reference to the location of the property, the geographic area in which the property is located, or the name of the owner or operator of the property are not practically reviewable.

~~(13)~~(12) "Professional development hour unit" is a unit hour for tracking continuing education, as required by paragraph (C) of rule 3745-300-05 of the Administrative Code.

~~(14)~~(13) "Professional services" is any conduct in connection with a voluntary action or in rendering a voluntary action opinion.

~~(15)~~(14) "Proficiency" is a demonstration of competence in projects similar in type and scope to voluntary actions.

~~(16) "Proficiency testing provider" is any entity that is accredited to provide proficiency testing samples and to evaluate proficiency testing results by a proficiency testing oversight body or proficiency testing provider accreditor designated by the national environmental laboratory accreditation conference institute.~~

~~(17) "Proficiency testing result" is the result derived by the laboratory from the analysis of a proficiency testing sample.~~

~~(18) "Proficiency testing sample" is a material or matrix spiked with a known concentration of one or more specific analytes representative of the analyte or parameter group. The proficiency testing sample is used to evaluate a laboratory's ability to identify and quantitate an analyte or parameter group using a specific method or technology.~~

~~(19)~~(15) "Property" is 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 or has been the subject of a voluntary action under this chapter.

~~(20)~~(16) "Property-specific risk assessment" is an analysis conducted in accordance with rule 3745-300-09 of the Administrative Code. This process includes the following steps:

(a) Selection of COCs.

(b) Exposure assessment.

(c) Toxicity assessment.

(d) Risk characterization, including uncertainty.

~~(21)~~(17) "Publicly available" means the source of the information allows access to the information by anyone upon request.

(Q) "Quality assurance program plan" or "QAPP" is a written document that details the data collection, storage, analysis, and quality assurance or quality control procedures used by a laboratory to assure that all data generated are scientifically valid, defensible, and of known precision and accuracy.

(R)

(1) "Radioactive material" is a substance that spontaneously emits ionizing radiation.

(2) "Random audit pool" is the pool of all of the no further action letters submitted to the director with a request for a covenant not to sue in the preceding calendar year under section 3746.11 of the Revised Code. Properties with a remedy or a risk assessment that have been issued and submitted after completion of the process and procedures, as defined by Ohio EPA, to comply with the "2007 Memorandum of Agreement," between Ohio EPA and U.S. EPA region 5, are excluded from the random audit pool.

(3) "Reasonably available" is any of the following situations:

(a) Information is publicly available or known of and available to the volunteer or owner or operator of the property.

(b) Information is provided or made available by the source within ninety days after receipt of a written request.

(c) Information is practically reviewable.

(4) "Receptor" or "receptor population" means humans or important ecological resources that are reasonably anticipated to come in contact with COCs, based

on the distribution of the COCs on the property and the activity patterns of those humans or important ecological resources on or off the property.

(5) "Recognized educational institution" is an institution which is accredited by an appropriate regional board or association of institutions of higher education.

(6) "Recreational activities" are highly variable exposure scenarios that require determination of applicable standards through a property-specific risk assessment conducted pursuant to rule 3745-300-09 of the Administrative Code. Recreational activities may have the potential for exposure of adults and children to dermal contact with soil or sediment, inhalation of vapors and particles from soil, incidental ingestion of soil or sediment, dermal contact with surface water, incidental ingestion of surface water, ingestion of fish, and inhalation of volatile compounds due to vapor intrusion to indoor air.

(7) "Reference concentration" is an estimate of a continuous inhalation exposure to the human population, including sensitive subgroups, that is likely to be without an appreciable risk of deleterious effects during a lifetime.

(8) "Reference dose" is a value representative of a daily exposure level for the human population, including sensitive subpopulations, that is not likely to cause an adverse non-cancer health effect during a specified period of time. For example, an acute, short-term, subchronic or chronic exposure period.

(9) "Release" is any past or current spilling, leak, pump, pour, emission, empty, discharge, injection, escape, leach, migration, dump, or disposal of any hazardous substance or petroleum into the environment, including, without limitation, the abandonment or discard of barrels, containers, or any other closed receptacle that contains any hazardous substance, petroleum, or pollutant or contaminant. "Release" does not include any of the following:

(a) Exposure of individuals to hazardous substances or petroleum in the workplace with respect to which those individuals may assert a claim against the individuals' employer and that is regulated under the Occupational Health and Safety Act and regulations adopted thereunder, or under Chapter 4167. of the Revised Code and rules adopted thereunder.

(b) Emissions from the engine exhaust of a motor vehicle, rolling stock, aircraft, vessel, or pipeline pumping station engine.

(c) Source material, by-product material, or special nuclear material from a nuclear incident, as "source material," "by-product material," "special nuclear material," and "nuclear incident" are defined in the Atomic

Energy Act, if the release is subject to financial protection requirements under section 170 of that act, unless any such material is mixed with a hazardous substance or petroleum.

(d) Any federally "permitted release" as defined in section 101(10) of the Comprehensive Environmental Response, Compensation, and Liability Act.

(e) The normal application of a fertilizer material that is intended to improve the quality or quantity of plant growth.

(10) "Relevant professional experience" is experience obtained through conducting or supervising voluntary actions or projects similar in type and scope to voluntary actions. Such experience shall indicate that the applicant is competent to conduct voluntary actions or to render voluntary action opinions. Relevant professional experience does not include experience that involves non-scientific or non-technical activities associated with assessment or remediation projects such as contract management, budget control, or other similar management activities.

(11) "Remedy" or "remedial activities" are actions that are taken at a property to treat, remove, transport for treatment or disposal, dispose of, contain, or control hazardous substances or petroleum, which are protective of public health and safety and the environment, and which are consistent with a permanent remedy, including, without limitation, excavation, treatment, off-property disposal, the use of engineering or institutional controls or activity and use limitations, the issuance and implementation of a consolidated standards permit under section 3746.15 of the Revised Code, and the entering into and implementation of an operation and maintenance agreement pursuant to section 3746.12 of the Revised Code.

(12) "Renewal certification" is ~~either of the following:~~the renewal of a certified professional's certification under rule 3745-300-05 of the Administrative Code.

~~(a) The renewal of a laboratory's current certification under rule 3745-300-04 of the Administrative Code.~~

~~(b) The renewal of a certified professional's certification under rule 3745-300-05 of the Administrative Code.~~

(13) "Residential land use" is land use with the potential for a high frequency of exposure of adults and children to dermal contact with soil, inhalation of vapors and particles from soil, incidental ingestion of soil, and inhalation of

volatile compounds due to vapor intrusion to indoor air. Examples of residential land use include, but are not limited to, residences, condominiums, dormitory residences, nursing homes, elder care and other long-term health care facilities, residential hotels, as defined in divison (A)(4) of section 3731.01 of the Revised Code, and correctional facilities.

(14) "Restricted residential land use" is residential land use that requires the implementation of institutional controls, engineering controls, any other remedial activities to comply with applicable standards for residential land use. Restricted residential land use is considered protective for, and may be applied to, residential land uses appropriate for a point of compliance less than the minimum depth of ten feet that is required by rule 3745-300-07 of the Administrative Code, vapor intrusion remedies, or ground water use restrictions. Restricted residential land use requires a central management entity to implement or oversee the institutional controls, engineering controls, and any other remedial activities used to comply with applicable standards pursuant to rule 3745-300-11 of the Administrative Code.

(15) "Risk mitigation measures" are the health and safety precautions and other such remedial activities that mitigate or eliminate human exposure to the COCs at the property as a result of excavation or construction activities. Risk mitigation measures reduce potential risks and provide protection to persons who perform excavation or construction activities or to other persons who would be exposed to COCs in environmental media as a result of the excavation or construction activities.

(S)

(1) "Sediment" is unconsolidated inorganic and organic material that has precipitated and deposited below surface waters. Sediment includes the following:

(a) Materials below the water surface under bankfull conditions in streams, lakes, and ditches.

(b) Materials below normal pool elevation for reservoirs.

(c) Materials within the federal and state jurisdictional boundaries of wetlands.

(d) Materials below maximum capacity for ponds and lagoons.

(e) Materials found below the ordinary high water mark of lake Erie, as defined by "International Great Lakes Datum."

(2) "Sole source aquifer" is an aquifer designated as a sole source aquifer under section 1424(e) of the Safe Drinking Water Act.

(3) "Source area" is any abandoned or discarded barrels, containers, or any other closed receptacle in environmental media, or any affected media, originally impacted by a release from which contamination is acting, has acted, or has the potential to act as a point of origin for the migration of the release throughout the environment.

(4) "Split sample" is a material or medium that consists of two or more individual samples collected at the same time and location and that are analyzed independently, with each sample analyzed at a different laboratory.

(5) "Standard operating procedures" or "SOPs" are a laboratory's written procedures to prepare samples and perform measurements of analytes or parameter groups.

~~(6) "Suspension period" is the period of time listed on the final findings and orders issued by the director to a certified laboratory, in which the certified laboratory is suspended for an analyte or parameter group and corresponding method.~~

(T)

(1) "Technology" is the laboratory instrumentation used to quantify an analyte or parameter group. Examples include, but are not limited to, gas chromatography, mass spectrometry, and inductively coupled plasma.

(2) "Tier I audit" is a review and analysis of documents that pertain to a no further action letter held or produced by a certified professional, a volunteer, the current owner of the property, an accredited laboratory, or a certified laboratory, as appropriate, and a site walkover of the property, in order to determine compliance with applicable standards, this chapter, or Chapter 3746. of the Revised Code.

(3) "Tier II audit" is a physical inspection and investigation of a property upon which a voluntary action was conducted in order to determine compliance with applicable standards, this chapter, or Chapter 3746. of the Revised Code, including sampling and analysis of soils, surface water, air, sediments, or ground water.

(U)

(1) "Unconsolidated saturated zone" is any saturated zone that is not in bedrock, including, but not limited to, saturated zones in soil, gravel, sand, silt, clay, or fill materials.

(2) "Unrestricted potable use standard" means ground water standards based on the assumption that ground water shall be used as a source of water for drinking, cooking, showering, and bathing. Unrestricted potable use standards include generic unrestricted potable use standards based on maximum contaminant levels or other established regulatory criteria in accordance with rule 3745-300-08 of the Administrative Code, generic risk-derived unrestricted potable use standards developed in accordance with rule 3745-300-08 of the Administrative Code, or property-specific risk-derived unrestricted potable use standards developed in accordance with rule 3745-300-09 of the Administrative Code.

(3) "Unrestricted residential land use" is considered protective for, and may be applied to, any land use, without further restriction.

(4) "Upper-bound value" is a parameter value from a distribution of such values which is within the highest decile (ten per cent) of that distribution.

(5) "Urban setting designation" is an area where the potable use pathway is determined to be incomplete under paragraph (C) of rule 3745-300-10 of the Administrative Code. An urban setting designation does not eliminate the volunteer's responsibility to address non-potable pathways or to protect ground water that meets unrestricted potable use standards.

(6) "U.S. EPA" means the United States environmental protection agency.

(V)

(1) "Voluntary action" is a series of measures that may be undertaken to identify and address contamination and potential sources of contamination of properties by hazardous substances or petroleum and to establish that the property complies with applicable standards.

(a) "Voluntary action" may include, without limitation, any of the following:

(i) A phase I property assessment.

(ii) A phase II property assessment.

(iii) A sampling plan.

(iv) A remedial plan.

(v) Remedial activities.

(vi) Such other actions the volunteer considers to be necessary or appropriate to address the contamination, followed by the issuance of a no further action letter that indicates the property complies with applicable standards.

(b) To demonstrate that applicable standards have been met, the person undertaking such measures shall establish either of the following:

(i) That there is no information indicating that there has been a release of hazardous substances or petroleum at or upon the property.

(ii) That there has been a release of hazardous substances or petroleum at or upon the property and that applicable standards were not exceeded or have been or shall be achieved in accordance with this chapter and Chapter 3746. of the Revised Code.

(2) "Voluntary action opinion" is any of the following:

(a) A no further action letter issued in accordance with this chapter and Chapter 3746. of the Revised Code.

(b) A written notice pursuant to division (B) of section 3746.11 of the Revised Code that the certified professional is not able to issue a no further action letter for a property because the property does not comply with applicable standards.

(c) An application for a variance pursuant to rule 3745-300-12 of the Administrative Code and section 3746.09 of the Revised Code.

(d) A request for an urban setting designation pursuant to paragraph (C) of rule 3745-300-10 of the Administrative Code.

(e) A summary report prepared pursuant to division (C) of section 3746.11 of the Revised Code.

(f) A request for a case-by-case determination pursuant to paragraph (B) of rule 3745-300-12 of the Administrative Code.

(g) A request for a pathway exclusion pursuant to paragraph (D) of rule 3745-300-11 of the Administrative Code.

(h) Verification of completion of remedial activities and determination of compliance with applicable standards pursuant to paragraph (E) of rule 3745-300-11 of the Administrative Code.

(i) A statement in support of a remedy revision notice that demonstrates the property complies with applicable standards through implementation of the remedial activities pursuant to paragraph (H)(2) of rule 3745-300-11 of the Administrative Code.

(j) Any other circumstance in which a certified professional determines compliance with applicable standards in a document submitted to Ohio EPA on behalf of a volunteer pursuant to this chapter.

(3) "Voluntary action program" means the program created under this chapter and Chapter 3746. of the Revised Code to provide a way to voluntarily investigate and clean up possible environmental contamination.

(4) "Volunteer" is a person who conducts a voluntary action and any authorized representative of the person who conducts the voluntary action. Volunteer does not include a "responsible person," as defined in section 3737.87 of the Revised Code, for a class C release on the property that is the subject of a voluntary action.

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CERTIFIED ELECTRONICALLY

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3745-300-02 **Eligibility for participation in the voluntary action program.**

[Comment: For dates of non-regulatory government publications, publications of recognized organizations and associations, federal rules, and federal statutory provisions referenced in this rule, see ~~paragraph (B) of~~ rule ~~3745-300-01~~3745-300-15 of the Administrative Code titled "Incorporation by reference - voluntary action program."]

(A) Applicability. Chapter 3746. of the Revised Code and this chapter apply ~~only~~ to only the investigation, identification and remediation of hazardous substances or petroleum for property which is eligible for the voluntary action program. All property is eligible for the voluntary action program except as provided in this rule ~~and Chapter 3746. of the Revised Code~~.

(B) Exceptions to eligibility. A property, that meets the description of one or more of paragraphs (B)(1) to (B)(8) of this rule is ineligible for participation in the voluntary action program. The application of this paragraph to a portion of a property does not preclude ~~the~~ participation ~~under this chapter and Chapter 3746. of the Revised Code,~~in the voluntary action program of other portions of a property to which paragraphs (B)(1) to (B)(8) of this rule do not apply.

(1) National priorities list sites. Any property identified on the national priorities list, pursuant to the Comprehensive Environmental Response, Compensation and Liability Act, and regulations adopted thereunder.

(2) Properties subject to the underground injection control program. Any property ~~or portion thereof~~ which is subject to requirements for site assessment, removal, or remediation regarding class I, II, III, and IV underground injection control wells, pursuant to the Safe Drinking Water Act~~, 42 U.S.C. 300f - 300j~~ and the regulations adopted thereunder, or Chapter 6111. of the Revised Code and rules adopted thereunder~~, regarding class I, II, III, and IV underground injection control wells~~.

Any property ~~or portion thereof~~ on which a class V underground injection control well is located is eligible for the voluntary action program if ~~it~~such property is not the subject of an order or permit ~~requiring~~that requires site assessment, removal, or remediation of hazardous substances or petroleum.

(3) Properties subject to federal or state corrective action permit obligations. Any property ~~or portion thereof which is required to perform~~where corrective action is required, pursuant to a federal or a state permit issued under the Resource Conservation and Recovery Act ~~(RCRA)~~, and the regulations adopted thereunder, ~~and~~or Chapter 3734. of the Revised Code and rules adopted thereunder, as applicable.

(4) Properties subject to federal enforcement. Any property that is the subject of a federal enforcement action which requires site assessment, removal, or remedial activities, pursuant to any federal laws and regulations, including, without limitation, the federal laws ~~set forth~~provided in division (A) of section 3746.02 of the Revised Code. For the purposes of this paragraph, "federal enforcement action" includes but is not limited to the issuance of administrative or judicial orders, injunctions, and consent decrees.

(5) Closure required ~~under Chapter 3734. of the Revised Code~~of hazardous waste or solid waste facility. Any property where closure of a hazardous waste facility or a solid waste facility is required~~ under Chapter 3734. of the Revised Code or rules adopted thereunder~~.

(a) "Solid waste facility," for purposes of this paragraph, includes any facility as defined in ~~section 3734.01 of the Revised Code, and~~ rules 3745-27-01 ~~and~~or 3745-500-02 of the Administrative Code~~, including but not limited to sanitary landfill facilities, municipal solid waste disposal facilities, residual waste landfill facilities, industrial solid waste facilities, solid waste transfer facilities, scrap tire facilities, solid waste incinerator or solid waste energy recovery facilities, or composting facilities~~. "Property where closure of a solid waste facility is required" includes the following:

(i) Any solid waste facility for which a license, plan approval, permit-to-install, registration, or other authorization has been issued pursuant to Chapter 3734. of the Revised Code and rules adopted thereunder.

(ii) Any solid waste facility, for which closure activities have been completed in accordance with Chapter 3734. of the Revised Code, during the term of any applicable post-closure care period required by Chapters 3745-27, 3745-29, and 3745-30~~, and 3745-560~~ of the Administrative Code.

(b) For the purposes of this rule, "property where closure of a hazardous waste facility is required" includes the following:

(i) Those portions of ~~a~~ property on which hazardous waste generator closure of any accumulation area is required pursuant to Chapter 3745-52 of the Administrative Code.

(ii) Those portions of ~~a~~ property on which "closure" of a "hazardous waste management unit" is required under Chapter 3734. of the Revised Code, as those terms are defined in section 3734.01 of the Revised Code, and rule 3745-50-10 of the Administrative Code,

respectively, regardless of whether or not a hazardous waste facility installation and operation permit has been issued. Properties on which "hazardous wastes," as defined in section 3734.01 of the Revised Code, were treated, stored, or disposed ~~of~~, are required to be closed in accordance with Chapter 3734. of the Revised Code and rules adopted thereunder.

(iii) Any hazardous waste management unit described in paragraph (B)(5)(b) of this rule, ~~for which closure activities have been completed in accordance with Chapter 3734. of the Revised Code,~~ during the term of any applicable post-closure care period required by Chapters 3745-55 and 3745-66 of the Administrative Code.

~~[Comment: Division (H) of section 3734.02 of the Revised Code and rule 3745-27-13 of the Administrative Code require that authorization be received from the director prior to engaging in the filling, grading, excavating, building, drilling, or mining on land where a hazardous waste facility, or a solid waste facility was operated.]~~

(6) Petroleum underground storage tank systems. Any property that is subject to site assessment, removal, or remediation, pursuant to sections 3737.88, 3737.882, and 3737.89 of the Revised Code and rules adopted thereunder regarding underground storage tank systems, including any ~~underground storage tank~~ systems which contain or ~~had~~ previously contained petroleum. However, this paragraph shall not apply to property with either of the following:

(a) A class C release, provided that the volunteer is not a responsible person as defined in section 3737.87 of the Revised Code.

(b) A release other than a class C release, provided that the following:

(i) The volunteer is not a responsible person, as determined by the fire marshal pursuant to Chapter 3737. of the Revised Code.

(ii) The voluntary action also addresses hazardous substances or petroleum that are not subject to the rules adopted under division (B) of section 3737.882 of the Revised Code pertaining to a corrective action.

(iii) The fire marshal has not issued an administrative order concerning the release or referred the release to the attorney general for enforcement.

(7) Oil and gas. Any property that is subject to site assessment, removal, or remediation, pursuant to Chapter 1509. of the Revised Code and rules adopted thereunder.

(8) Properties subject to an enforcement letter. Any property that is the subject of an enforcement letter from the director relating to a release or threatened release of hazardous substances or petroleum on~~, underlying~~ or ~~emanating~~ from the property which poses a substantial threat to public health or safety or the environment, except when sufficient evidence of entry and participation in the voluntary action program is demonstrated, as provided in paragraph (C) of this rule.

(C) Sufficient evidence of entry into the voluntary action program. A property which is the subject of an enforcement letter may be eligible with respect to paragraph (B)(8) of this rule for participation in the voluntary action program upon satisfaction of the requirements of ~~this paragraph.~~the following:

(1) ~~Following~~After receipt of the enforcement letter, the person seeking to enter the voluntary action program ("proposed volunteer") ~~must~~shall present sufficient evidence to ~~the director~~Ohio EPA that the proposed volunteer has done or is doing the following:

(a) Has entered into the voluntary action program prior to receipt of the enforcement letter. Entry into the voluntary action program means the following:

(i) Commencement of a voluntary action by completion of a phase I property assessment report.

(ii) Retention of a certified professional to conduct the voluntary action.

(iii) Other activities identified in paragraphs (C)(2) and (C)(3) of this rule.

(b) Is proceeding expeditiously to address the release or threatened release of hazardous substances or petroleum identified in the enforcement letter. "Proceeding expeditiously" means conducting a voluntary action through the achievement of milestones which address the release or threatened release of hazardous substances or petroleum identified in the enforcement letter within a three-year period, unless otherwise established by the director.

~~(i) Entry into the voluntary action program means commencing a voluntary action by completing a phase I property assessment report, retaining a certified professional to conduct the voluntary~~

~~action, and conducting other activities identified in paragraphs (C)(2) and (C)(3) of this rule.~~

~~(ii) Proceeding expeditiously means conducting a voluntary action through the achievement of milestones which address the release or threatened release of hazardous substances or petroleum identified in the enforcement letter within a three year period, unless otherwise established by the director.~~

~~(iii)~~(c) Milestones include~~,~~ but are not limited to the following:

~~(a)~~(i) Assessment of identified areas and releases or threatened releases of hazardous substances or petroleum identified in the enforcement letter.

~~(b)~~(ii) Completion of a phase II property assessment work plan.

~~(c)~~(iii) Completion of phase II property assessment activities or a phase II property assessment report.

~~(d)~~(iv) Completion of a risk assessment.

~~(e)~~(v) Completion of a remedial action bench scale, treatability, pilot, or similar study.

~~(f)~~(vi) Completion of a remedial action plan.

~~(g)~~(vii) Completion of soil ~~and/or~~remedies, ground water remedies, or both.

~~(h)~~(viii) Submittal of a no further action letter to the director.

(2) Not later than thirty days ~~from~~after the receipt of an enforcement letter, the proposed volunteer ~~must~~shall submit to ~~the director, and the director will consider~~Ohio EPA for consideration, at a minimum, evidence ~~showing~~that shows completion of the following ~~requirements~~:

(a) A phase I property assessment report, which meets the requirements ~~contained~~ in paragraph (G) of rule 3745-300-06 of the Administrative Code, was completed prior to receipt of the enforcement letter for the property for which a no further action letter ~~will~~shall be sought.

(b) A detailed summary of planned data collection activities, a schedule ~~for conducting~~to conduct planned data collection activities, a detailed

description of how such data ~~will~~shall be evaluated, and a general description of and estimation of the time frame for ~~completing~~completion of each milestone of the phase II property assessment activities and determinations described in paragraph (F) of rule 3745-300-07 of the Administrative Code and any other voluntary activities necessary to address the threat identified in the enforcement letter.

(c) Documentation of recent or ongoing activity at the property, which demonstrates that the proposed volunteer is proceeding expeditiously to achieve milestones which address the threat identified in the enforcement letter. Such documentation shall have been prepared prior to receipt of the enforcement letter. Recent completion of the activities required in paragraphs (C)(2)(a) and (C)(2)(b) of this rule may satisfy the requirements of this paragraph.

(3) Not later than sixty days ~~from~~after receipt of the enforcement letter, or such other time period as approved by ~~the director~~Ohio EPA, the proposed volunteer, through the certified professional, ~~must~~shall demonstrate to the director that all existing documentation and data pertaining to the voluntary action have been reviewed by the certified professional and ~~must~~shall submit to ~~the director~~Ohio EPA the following ~~documentation~~:

(a) A copy of the contract between the proposed volunteer and the certified professional to complete the voluntary action, or an affidavit by a certified professional that verifies that the certified professional has been retained to complete the voluntary action and describes the scope of services the certified professional has been retained to provide with respect to the voluntary action.

(b) A schedule for ~~completing~~completion of a phase II property assessment in accordance with rule 3745-300-07 of the Administrative Code, if applicable.

(c) A schedule for ~~completing~~completion of the voluntary action in accordance with this chapter that specifies target milestone dates for ~~completing~~completion of the voluntary action, through ~~submission~~submittal of a no further action letter ~~to the director~~.

(4) Upon the ~~submission~~submittal of all items ~~contained in~~required by paragraphs (C)(2) and (C)(3) of this rule, the director ~~will review those items for compliance with paragraph (C)(1) of this rule, determine whether the proposed volunteer has demonstrated sufficient evidence of entry into the voluntary action program and is proceeding expeditiously to address the release or threatened release~~

~~of hazardous substances or petroleum identified in the enforcement letter, and send a determination of sufficient evidence letter to the proposed volunteer indicating whether the agency intends, at that time, to proceed with enforcement or to consider the proposed volunteer a participant in the voluntary action program.~~ shall do the following:

(a) Review the items for compliance with paragraph (C)(1) of this rule.

(b) Determine whether or not the proposed volunteer meets the following:

(i) Has demonstrated sufficient evidence of entry into the voluntary action program.

(ii) Is proceeding expeditiously to address the release or threatened release of hazardous substances or petroleum identified in the enforcement letter.

(c) Send a determination of sufficient evidence letter to the proposed volunteer indicating whether or not Ohio EPA intends, at that time, to proceed with enforcement or considers the proposed volunteer a participant in the voluntary action program.

(5) Upon receipt of the determination of sufficient evidence letter ~~determining~~that describes that the proposed volunteer has demonstrated sufficient evidence, the proposed volunteer may participate in the voluntary action program, unless the property is otherwise ineligible pursuant to paragraphs (B)(1) to (B)(7) of this rule. ~~In order to remain eligible with respect to paragraph (B)(8) of this rule, the proposed volunteer must do the following:~~

(6) In order to remain eligible with respect to paragraph (B)(8) of this rule, the proposed volunteer shall do the following:

(a) Substantially comply with any schedule established pursuant to paragraphs (C)(3)(b) and (C)(3)(c) of this rule, as appropriate.

(b) Submit progress reports to the director. The initial report ~~must~~shall be submitted within three months after receipt of the director's determination of sufficient evidence letter referenced in paragraph (C)(4) of this rule~~; thereafter~~. Thereafter, progress reports ~~must~~shall be submitted every three months, and ~~must~~shall continue until ~~submission~~submittal to the director of a complete no further action letter for the property. ~~Progress~~At a minimum, progress reports ~~must~~shall include the following:

(i) ~~A description~~Description of the status of the work and actions taken toward achieving compliance with the schedule of work and target milestone dates during the reporting period.

(ii) ~~A description~~Description of any difficulties encountered or deviations from the schedule of work and target milestone dates during the reporting period and actions taken to address the difficulties or deviations.

(iii) ~~A description~~Description of activities planned and target milestone dates for the next reporting period.

(iv) ~~An identification~~Identification of any replacement of or addition to the certified professional identified in the contract or scope of services affidavit submitted to the director pursuant to paragraph (C)(3)(a) of this rule.

(v) ~~An indication~~Indication of any anticipated change in the target or actual completion dates for each milestone of the voluntary action, including project completion, and an explanation for any deviation from any applicable schedules, which shall be subject to Ohio EPA approval.

~~(6)~~(7) The requirements of paragraphs (C)(1) to ~~(C)(5)~~(C)(6) of this rule do not have to be met prior to conducting a voluntary action if Ohio EPA has ~~not~~ taken ~~any~~none of the following actions within any continuous one year period ~~following the~~after issuance of an enforcement letter ~~or a determination of sufficient evidence letter, whichever is later~~:

(a) Conducted inspections of or other investigation activities concerning the property~~;~~.

(b) ~~Taken~~Collected samples at the property.

(c) Sent correspondence to any owners, operators, or other responsible parties concerning activities at or the condition of the property.

(d) Conducted discussions or negotiations with any owners, operators, or other responsible parties concerning activities at or the condition of the property.

(e) Exchanged correspondence, conducted discussions, or engaged in other activities with or on behalf of ~~the U.S.EPA~~U.S. EPA concerning ~~site~~

assessment, removal, or remediation activities in connection with the property.

~~Upon a submission to the director of a statement that Ohio EPA has not taken any of the foregoing actions contained in this paragraph within a continuous one year period following the issuance of an enforcement letter or a determination of sufficient evidence letter, whichever is later, the director will determine whether the statement of inactivity is true and, in a timely manner, respond in writing to the proposed volunteer as to whether the agency intends to proceed with enforcement or to consider the proposed volunteer a participant in the voluntary action program.~~

(8) Upon a submittal to the director of a statement that Ohio EPA has taken none of the actions provided in paragraphs (C)(7)(a) to (C)(7)(e) of this rule within a continuous one year period after issuance of an enforcement letter, the director shall determine whether or not the statement of inactivity is true and shall respond in writing to the proposed volunteer as to whether or not Ohio EPA intends to proceed with enforcement or considers the proposed volunteer a participant in the voluntary action program.

~~(7)~~(9) Nothing in this rule precludes ~~the agency~~Ohio EPA from proceeding with an enforcement action at any time if any of the following occur:

(a) The volunteer does not expeditiously proceed with the voluntary action by ~~adhering~~adherance to the schedules submitted to Ohio EPA pursuant to ~~paragraph~~paragraphs (C)(5)(b) and (C)(6) of this rule.

(b) The director determines that the volunteer is in violation of any of the requirements of paragraph (C) of this rule.

(c) The property is later determined to be ineligible for the voluntary action program under this chapter.

~~(8)~~(10) The director shall provide written notice to a volunteer if ~~the agency~~Ohio EPA intends to proceed with an enforcement action pursuant to paragraph ~~(C)~~ ~~(7)~~(C)(9) of this rule.

(D) Demonstration of return to compliance in support of eligibility. A property which is ineligible for participation in the voluntary action program pursuant to paragraphs (B)(1) to (B)(8) of this rule may become eligible for participation upon a written demonstration to ~~the agency's~~Ohio EPA's satisfaction that the property is no longer subject to the laws or regulations which made ~~it~~the property ineligible. The demonstration ~~must~~shall include a written statement from the applicable state or

federal agency or department; which confirms that the property is no longer subject to such requirements.

Effective: 10/17/2019

Five Year Review (FYR) Dates: 7/31/2019 and 10/17/2024

CERTIFIED ELECTRONICALLY

Certification

10/07/2019

Date

Promulgated Under: 119.03
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3745-300-03 **Voluntary action program fees.**

(A) Applicability. Fees shall be derived from the estimated actual costs associated with performing all of the tasks, duties, and services related to the relevant application or voluntary action program activity. Fees shall be primarily based upon the following:

(1) The estimated typical time to complete each task, duty, or service.

(2) The person or persons performing each task, duty, or service.

(3) The applicable hourly rate plus fringe benefits for the person or persons performing the task, duty, or service.

(4) The estimated frequency of each task, duty, or service.

(B) The voluntary action program fees for the activities listed below are as follows:

(1) Initial certification of professionals: two thousand five hundred dollars.

(2) Annual fee for certified professionals: two thousand dollars.

~~(3) Initial certification of a fixed-base laboratory: five thousand dollars.~~

~~(4) Annual fee for certified laboratories: five hundred dollars.~~

~~(5)~~(3) No further action letter submitted for a covenant not to sue with no environmental covenant: fifteen thousand seven hundred dollars.

~~(6)~~(4) No further action letter submitted for a covenant not to sue that includes an environmental covenant: eighteen thousand two hundred dollars.

~~(7)~~(5) No further action letter submitted for a covenant not to sue after having completed the voluntary action program memorandum of agreement track: ten thousand dollars.

~~(8)~~(6) No further action letter submitted for a covenant not to sue after having completed the voluntary action program memorandum of agreement track that includes an environmental covenant: twelve thousand five hundred dollars.

~~(C) For initial certification, a mobile laboratory shall pay the actual costs incurred by Ohio EPA relating to reviewing the application package and performing an audit pursuant to rule 3745-300-04 of the Administrative Code.~~

~~(D) In addition to payment of all applicable initial certification and renewal certification fees pursuant to paragraph (B) of this rule, a certified laboratory shall pay the following:~~

~~(1) The actual costs incurred by Ohio EPA that are associated with laboratory requests for reinstatement or modification of the laboratory's certification pursuant to rule 3745-300-04 of the Administrative Code.~~

~~(2) The actual costs incurred by Ohio EPA for all travel time and costs in performing audits of fixed-base laboratories pursuant to rule 3745-300-04 of the Administrative Code.~~

~~(3) The actual costs incurred by Ohio EPA for all time and travel costs in performing compliance audits of certified laboratories pursuant to rule 3745-300-04 of the Administrative Code.~~

~~(4) The actual costs incurred by Ohio EPA for all time and travel costs for reviewing application packages for additional certification and performing audits pursuant to rule 3745-300-04 of the Administrative Code.~~

~~(E)~~(C) For all activities not addressed by paragraph (B)~~, (C), or (D)~~ of this rule, the actual costs incurred by Ohio EPA shall be charged to and paid by the beneficiary or subject, as applicable, of the activity. These activities may include, but are not limited to, the following:

(1) Providing site-specific technical assistance.

(2) Reviewing demonstrations of sufficient evidence of entry into the voluntary action program.

(3) Reviewing urban setting designation requests.

(4) Reviewing a variance request or a case-by-case ground water demonstration.

(5) Enforcing or administering compliance schedule agreements.

(6) Monitoring compliance with operation and maintenance agreements, risk mitigation plans, or institutional controls.

(7) Reviewing remedy changes.

(8) Any other activities necessary for the enforcement or administration of this chapter and Chapter 3746. of the Revised Code.

~~(F)~~(D) In addition to any applicable existing permit fees, any person requesting a consolidated standards permit shall pay the actual direct and indirect costs related to obtaining and administering the consolidated standards permit.

~~(G)~~(E) Full payment of fees shall accompany any application or form, and shall be made using a form prescribed by Ohio EPA. Payment by check or money order shall be made payable to "Treasurer, State of Ohio" and shall indicate in the memo field the applicable fees being paid. Payment by use of an Ohio EPA-prescribed electronic system shall be completed in compliance with terms for system use. Fees are not refundable, unless specifically provided for in this chapter.

~~(H)~~(F) Any certification, permit, covenant, renewal, or other action by the director under this chapter or Chapter 3746. of the Revised Code which requires payment of a fee or cost shall not be made effective until full payment of all applicable fees or costs is received by Ohio EPA.

Effective: 6/5/2023

Five Year Review (FYR) Dates: 10/17/2024

CERTIFIED ELECTRONICALLY

Certification

05/24/2023

Date

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3745-300-04 **Certified laboratories.**

[Comment: For dates of non-regulatory government publications, publications of recognized organizations and associations, federal rules, and federal statutory provisions referenced in this rule, see rule 3745-300-15 of the Administrative Code titled "Incorporation by reference - voluntary action program."]

(A) ~~Certified data; authority~~Authority of a certified laboratory to perform analyses.

(1) A certified laboratory produces certified data under affidavit in accordance with rule 3745-300-13 of the Administrative Code only when the analyses are performed within the laboratory's current certification. Certification may limit the analysis of certain environmental media, as indicated on the laboratory's certificate issued by Ohio EPA under this chapter.

(2) In order to produce certified data to support a voluntary action under this chapter and Chapter 3746. of the Revised Code, the following shall occur:

(a) The certified laboratory shall be certified for each analyte, parameter group, and method at the time the laboratory performs the analyses.

(b) The certified laboratory's analyses shall remain consistent with the laboratory's standard operating procedures (SOPs) and quality assurance program plan (QAPP).

(c) The certified laboratory's SOPs and QAPP used to produce certified data shall be consistent with all of the following:

(i) Requirements in the published method published or endorsed by U.S. EPA.

(ii) The applicable minimum requirements in paragraph ~~(G)~~(D) of this rule.

(iii) Any additional requirements specified during approval for analysis using performance-based methods under paragraph (B)(1)(c) of this rule.

(iv) Where there is a conflict between paragraph (A)(2)(c)(i) of this rule and paragraph (A)(2)(c)(ii) of this rule or paragraph (A)(2)(c)(iii) of this rule, requirements consistent with paragraph (A)(2)(c)(ii) of this rule or paragraph (A)(2)(c)(iii) of this rule take precedence.

(3) Certification pursuant to this rule is applicable to analyses performed in support of a voluntary action, including but not limited to the issuance of a no further

action letter under this chapter and Chapter 3746. of the Revised Code. Certification pursuant to this rule does not constitute certification under any other state or federal laboratory certification or accreditation program.

(4) For certification obtained that relies on third-party accreditation, the certified laboratory shall maintain in good standing the accreditation provided in paragraphs (B)(1)(d) and (B)(1)(e) of this rule.

(5) A volunteer may request that a certified laboratory analyze the constituents of a hazardous substance when a chemical testing method or technology does not exist to measure the concentration of the hazardous substance. When a hazardous substance is comprised of more than one constituent, the certified laboratory shall obtain certification for each constituent, even if the constituent is not listed as a hazardous substance.

(6) If a certified laboratory no longer intends to retain certification, the certified laboratory may return the certificate with a notice to Ohio EPA that indicates the certified laboratory's intent to withdraw from certification. Upon withdrawal, the laboratory shall not report data as certified data under this chapter.

(B) Methods for the analysis of analytes or parameter groups are the following:

(1) A laboratory ~~may apply for certification pursuant to this rule~~ certified pursuant to this rule for any method used for the analysis of any analyte or parameter group that meets the following criteria, except as provided in paragraph (B)(2) of this rule:

(a) Certification is restricted to hazardous substances or petroleum. If a chemical testing method or technology does not exist to measure the concentration of the hazardous substance, then certification to test for constituents of the hazardous substance may be granted pursuant to paragraph (A)(5) of this rule.

(b) Chemical testing methods. A certified laboratory may apply for certification for any chemical testing method published or endorsed by U.S. EPA. A certified laboratory shall use a published or endorsed method only in the manner for which that method is designed.

(c) Performance-based methods. At the request of a laboratory, Ohio EPA may evaluate whether to certify a laboratory to perform analyses using a performance-based method. A laboratory shall demonstrate the laboratory's ability to perform the method using a proficiency testing sample as provided in paragraph (C)(1) of this rule, if available, and in

accordance with the application requirements in paragraph (D)(4) of this rule.

(d) Asbestos accreditations. A laboratory ~~that applies for~~holding certification for the analysis of asbestos shall have current accreditation in at least one of the following programs:

(i) American industrial hygiene association, asbestos analysts registry.

(ii) National institute of standards technology, national voluntary laboratory accreditation program for asbestos fiber analysis.

(iii) "The NELAC Institute" (TNI) recognized accreditation body.

(e) ~~"National Environmental Laboratory Accreditation Program" (NELAP) accreditation.~~Accreditations for any constituent other than asbestos. A laboratory that ~~applies for~~holds certification ~~of the~~for analysis of any constituent other than asbestos may rely on current ~~NELAP~~ accreditation from an accreditation body that is recognized by TNI.

(2) Testing for characteristic hazardous waste or for radioactive materials is not included for certification under this rule.

[Comment: Ohio EPA coordinates with the Ohio department of health for the Ohio department of health's review of any release of radioactive materials or substances.]

(3) Testing for sediment toxicity is not included for certification under this rule. Testing for sediment toxicity shall be performed in accordance with paragraph (F)(4)(b) of rule 3745-300-09 of the Administrative Code.

(C) Proficiency testing program.

(1) Use of proficiency testing samples; requirement to purchase proficiency testing samples through proficiency testing providers:

(a) Unless otherwise exempt from this requirement, a laboratory that ~~applies for~~holds certification under this rule shall do the following:

(i) Analyze proficiency testing samples representative of the analytes or parameter groups for certification.

(ii) Receive from the proficiency testing provider acceptable proficiency testing results pursuant to the criteria of this rule.

(b) The certified laboratory shall order proficiency testing samples from a proficiency testing provider that is approved to produce the proficiency testing samples and evaluate the proficiency testing results.

(c) For the purposes of this rule, a certified laboratory shall analyze a proficiency testing sample that was formulated and evaluated using the criteria established by TNI.

(i) If the laboratory ~~applies for~~holds certification for testing aqueous samples, the laboratory shall analyze a non-potable water sample or, if a non-potable water sample is not available, a drinking water sample.

(ii) If the laboratory ~~applies for~~holds certification for testing solid matrix samples, the certified laboratory shall analyze a solid matrix sample or, if a solid matrix sample is not available, an aqueous sample.

(d) Paragraph (C)(1) of this rule does not apply to certifications for asbestos or to the circumstances provided in paragraph (C)(2) of this rule.

(2) Criteria for analysis of proficiency testing samples, exceptions, and waivers. To demonstrate compliance with this rule for any analyte or parameter group a certified laboratory shall analyze proficiency testing samples, which a proficiency testing provider prepared and evaluated using TNI criteria, except as follows:

(a) When a non-potable water proficiency testing sample is not available for an analyte or parameter group for which the laboratory ~~applies for~~holds certification, proficiency testing samples prepared and evaluated based on drinking water criteria may be used instead.

~~(b) For mobile laboratories, each proficiency testing sample shall be analyzed while the laboratory is mobilized on location for a project and not at the laboratory's base of operations.~~

~~(c)~~(b) For any analyte or parameter group for which TNI has not published any proficiency testing criteria or for which proficiency testing samples are not available, Ohio EPA may waive the proficiency testing sample analysis requirement in paragraph (C)(2) of this rule. In the case of a waiver, certification for the analyte or parameter group shall be limited to the use of a performance-based method as described in paragraph (B)(1)(c) of this rule.

~~(d)~~(c) For any analyte or parameter group for which the certified laboratory holds ~~NELAP~~NELAC accreditation in good standing pursuant to paragraph (B)(1)(e) of this rule, analysis of proficiency testing samples is not required unless Ohio EPA determines that proficiency testing is required.

(3) Use of existing proficiency testing results. A certified laboratory may use the proficiency testing results obtained for another state or federal certification or accreditation program to demonstrate compliance with this rule, provided that the proficiency testing samples comply with this rule.

(4) Analysis of proficiency testing samples.

(a) The certified laboratory shall analyze proficiency testing samples that include the analyte or parameter group which corresponds to the scope of the laboratory's certification ~~or application for certification~~.

(b) The certified laboratory may analyze a proficiency testing sample on more than one technology to demonstrate proficiency for an analyte or parameter group and method. For example, a laboratory that ~~applies for~~holds certification for volatile organic compounds by gas chromatography and mass spectrometry may analyze the same proficiency testing sample on both technologies.

(c) Analysis of proficiency testing samples shall be conducted in accordance with the certified laboratory's SOPs and QAPP identified in paragraph (D) of this rule.

(d) The ordering and analysis of proficiency testing samples is based on a technology. To comply with this rule, a certified laboratory shall order a proficiency testing sample based on the technology that is representative of the certification. For example, to encompass the scope of a certification for volatile organic compounds, the certified laboratory shall ensure that the proficiency testing sample contains both aromatics and halocarbons.

(5) Reporting and time lines for proficiency testing studies are as follows:

(a) Reporting proficiency testing results. A laboratory that is certified ~~or that applies for certification~~ for multiple technologies for an analyte or parameter group shall analyze and report proficiency testing results for each technology, and may use the same proficiency testing sample. For example, the same volatile organic compound proficiency testing sample

may be analyzed on gas chromatography and mass spectrometry with a separate result reported for each technology.

~~(b) Time lines for the analysis of proficiency testing samples. A laboratory that applies for any initial or additional certification under this rule shall analyze the proficiency testing sample within the six months prior to the date the laboratory submits the laboratory's application, except as provided in paragraph (C)(2)(c) of this rule.~~

~~(c)~~(b) ~~After a laboratory received certification,~~ Ohio EPA may use periodic performance testing to assess a certified laboratory's ability to perform testing under this rule. Upon request, certified laboratories shall analyze proficiency testing samples and shall report the results to Ohio EPA.

(6) ~~Provide proficiency~~Proficiency testing reports submitted to Ohio EPA~~. A laboratory~~ shall ~~submit proficiency testing reports to Ohio EPA as follows~~include the following:

~~(a) Applications for initial or additional certification. A laboratory that applies for initial or additional certification shall submit to Ohio EPA a copy of each required proficiency testing report with the documentation listed in paragraph (D)(1) of this rule.~~

~~(b) Proficiency testing report content. Each proficiency testing report submitted to Ohio EPA shall include of the following:~~

~~(i)~~(a) Name of proficiency testing provider.

~~(ii)~~(b) ~~Laboratory~~Certified laboratory name and address.

~~(iii)~~(c) Opening and closing dates of the proficiency testing study.

~~(iv)~~(d) Date proficiency testing report was issued.

~~(v)~~(e) Analyte or parameter group with units, reported value, assigned value, and acceptance limits.

~~(vi)~~(f) Performance evaluation by proficiency testing provider.

~~(vii)~~(g) Technology code or method description.

~~(viii)~~(h) Sample matrix type.

(7) Ohio EPA evaluation of proficiency testing results. A laboratory that applies for initial or additional certification or renewal certification shall meet the proficiency testing requirements as follows:

(a) The proficiency testing samples are acceptable for use based on the criteria provided in this rule for the analyte or parameter group for which the laboratory applies for certification.

(b) The laboratory obtained acceptable proficiency testing results for each analyte and parameter group using the methods and technologies, including matrix type, for which the laboratory applies for certification.

(c) The laboratory submitted to Ohio EPA the proficiency testing report for proficiency testing samples analyzed within the time frame provided in paragraph (C) of this rule.

(d) Ohio EPA may require a laboratory that applies for certification for a performance-based method to analyze proficiency testing samples. These proficiency testing results shall be used to evaluate a laboratory's qualifications to apply for the performance-based method. For example, a laboratory that applies for initial or additional certification for n-Hexane by gas chromatography and mass spectrometry shall provide acceptable proficiency testing results for a non-potable water volatile proficiency testing sample analyzed using the same technology and method.

(D) Procedures to apply for initial, additional, or renewal certification.

(1) Applications for initial or additional certification. To apply for initial or additional certification, a laboratory shall submit the following, in the format prescribed by Ohio EPA:

(a) The completed original application for initial certification or additional certification, including the affidavit, signed by a person authorized to submit the affidavit on behalf of the laboratory, affirming, based upon knowledge, information, and belief, that all information provided in the application and associated documentation is true, accurate, and complete. The applications shall be on the form provided by Ohio EPA.

(b) The laboratory's QAPP that complies with paragraph (G) of this rule.

(c) The laboratory's proficiency testing report, in accordance with paragraph (C) of this rule, for the analytes and parameter groups for which the laboratory applies for certification. This requirement does not apply to asbestos,

~~or when proficiency testing samples are not required as described in paragraph (C)(2) of this rule.~~

~~(d) The SOPs that comply with paragraph (G) of this rule for each analyte, parameter group, and corresponding method for which the laboratory applies for certification, including, but not limited to, as appropriate, the following:~~

~~(i) SOPs for preparation and analysis of samples.~~

~~(ii) The interpretation of data, such as manual integration of instrument chromatographs.~~

~~(iii) SOPs for cleaning of canisters designed to collect air samples.~~

~~(e) The laboratory's method detection limit study for each analyte and parameter group, and corresponding method, except for the analytes or parameter groups provided under paragraph (B)(1) of this rule. The method detection limit study shall include use of spiked solutions and method blanks. The spiked solutions final spiking concentrations shall not exceed the laboratory's reporting limit. The following information shall be provided for each analyte and parameter group in spreadsheet format:~~

~~(i) Spiking concentration for each analyte or parameter group including units.~~

~~(ii) Method numbers for which the laboratory applies for certification.~~

~~(iii) Extraction, digestion, distillation, preparatory, and analysis dates or date range. The laboratory shall digest, extract, or distill all method detection limit study samples using the procedures included in the SOPs submitted under paragraph (D)(1)(d) of this rule.~~

~~(iv) Individual results of the method detection limit study samples.~~

~~(v) The calculated standard deviation, calculated method detection limit, and reporting limit for each analyte or parameter group.~~

~~(vi) For method detection limits calculated from quarterly method detection limit verification samples, information for the ongoing method detection limit verifications and documentation for the recalculations associated with the ongoing verifications, as appropriate.~~

(f) For a fixed-base laboratory that applies for initial certification, payment of the non-refundable certification fee required by rule 3745-300-03 of the Administrative Code.

(g) For a mobile laboratory that applies for initial certification or a certified laboratory that applies for additional certification, the actual costs incurred by Ohio EPA as required by rule 3745-300-03 of the Administrative Code.

(h) The information listed in paragraph (D)(3) of this rule, if the laboratory applies for certification for asbestos, or paragraph (D)(4) of this rule, if the laboratory applies for certification for a performance-based method, as provided in paragraph (B) of this rule.

(i) The information listed in paragraph (D)(5) of this rule, if the laboratory applies for certification for the analysis of any constituent other than asbestos that relies on maintaining accreditation in good standing from a NELAP accreditation body recognized by TNI.

(j) For additional certification requests, Ohio EPA may waive some requirements in paragraph (D)(1) of this rule, depending on the analyte, parameter group, or method the laboratory intends to add, and the current certification held by the laboratory.

(2) Applications for renewal certification. A certified laboratory shall submit to Ohio EPA a complete application, in the format prescribed by Ohio EPA, prior to the expiration date listed on the laboratory's current certificate. If Ohio EPA receives a renewal application less than ninety days prior to the expiration date on the laboratory's current certificate, the result may be a lapse in certification. A certified laboratory that requests certification changes shall comply with paragraph (Q) of this rule. To apply for renewal certification, a laboratory shall submit to Ohio EPA the following:

(a) The original completed application for renewal certification, including the affidavit, signed by a person authorized to submit the affidavit on behalf of the laboratory, affirming, based upon knowledge, information, and belief, that all information provided in the application and associated documentation is true, accurate, and complete. The application shall be on the form provided by Ohio EPA.

(b) The payment of the non-refundable annual fee required by rule 3745-300-03 of the Administrative Code.

(c) Notification of any analyte, parameter group, or method the laboratory intends to drop from the laboratory's certification.

(d) Notification of any analyte, parameter group, or method the laboratory intends to add to the laboratory's certification. The addition of an analyte, parameter group, or method also requires completion of the application for initial or additional certification as required by paragraph (D)(1) of this rule.

(e) If the laboratory intends for the laboratory's renewal certification to be based on maintaining third-party accreditation in good standing in accordance with paragraph (A)(4) of this rule, the laboratory shall provide the documentation required by paragraphs (D)(3) and (D)(5) of this rule.

(3) Asbestos certification.

(a) A laboratory that applies for initial or additional certification for the analysis of asbestos under paragraph (B)(1)(d) of this rule shall submit a copy of a current certificate or other form of documentation issued by an accreditation program listed in paragraph (B)(1)(d) of this rule. The submittal shall include the documentation required by paragraph (D)(1) of this rule, excluding paragraphs (D)(1)(c) and (D)(1)(e) of this rule.

(b) A certified laboratory that applies for renewal of the laboratory's asbestos certification shall submit a copy of a current certificate or other form of documentation issued by an asbestos accreditation program that documents that the accreditation remains in good standing.

(4) Performance-based method certifications. A laboratory that applies for initial or additional certification for any performance-based method as provided in paragraph (B)(1)(c) of this rule shall submit the documents listed in paragraph (D)(1) of this rule, and shall submit the following:

(a) Laboratory check sample data. At a minimum, seven data points for each analyte or parameter group and matrix.

(b) Quality control limits derived from the data points collected pursuant to paragraph (D)(4)(a) of this rule.

(c) In addition to compliance with the minimum requirements of paragraph (G) of this rule, any additional minimum requirements that are included in the SOPs used to analyze analytes or parameter groups in order to ensure the laboratory's ability to provide reliable, defensible, and representative data.

(d) Any other information Ohio EPA deems appropriate.

(5) Applications that rely on NELAP accreditation.

(a) A laboratory that applies for initial or additional certification for analysis of any constituent other than asbestos that relies on maintaining accreditation in good standing from a NELAP accreditation body recognized by TNI shall submit the following:

(i) A copy of the current certificate, or other form of documentation issued by the NELAP accreditation body, that documents that the accreditation remains in good standing.

(ii) Documentation from the NELAP accreditation body that supports the analytes, parameter groups, and methods for which the laboratory seeks certification.

(iii) Documentation required by paragraph (D)(1) of this rule, except that information required by paragraphs (D)(1)(c) and (D)(1)(e) of this rule, may be excluded, unless otherwise requested by Ohio EPA.

(b) A laboratory that applies for renewal certification for analysis of any constituent other than asbestos that relies on maintaining accreditation in good standing from a NELAP accreditation body recognized by TNI shall submit the following:

(i) A copy of the current certificate, or other form of documentation issued by the NELAP accreditation body, that documents that the accreditation remains in good standing.

(ii) Documentation from the NELAP accreditation body that supports the analytes, parameter groups, and methods for which the laboratory seeks renewal certification.

(iii) Documentation required by paragraph (D)(2) of this rule.

(E) Procedures used to evaluate laboratory applications for initial or additional certification are the following:

(1) Ohio EPA's review of a laboratory's application for certification begins within thirty days after receipt of a complete application. An application that contains all of the information required by paragraph (D) of this rule is considered complete. Ohio EPA's review includes, but is not limited to, the following:

(a) Review of the laboratory's application to ensure that all necessary components are included.

(b) For applications that rely on third-party accreditation bodies, review of the documentation required by paragraphs (D)(3) and (D)(5) of this rule that demonstrate that the accreditation is in good standing.

(c) A detailed review of the information required by paragraph (D) of this rule, such as a laboratory's SOPs, QAPP, method detection limit studies, proficiency testing results, or any other required information, as applicable.

(d) If applicable, a laboratory audit of the laboratory that applies for initial certification. Ohio EPA may conduct a laboratory audit of a certified laboratory that applies for additional certification. Laboratory audits are conducted in accordance with paragraph (J) of this rule.

(e) If applicable, review the laboratory's response to correct deficiencies that were identified during a laboratory audit conducted in accordance with paragraph (J) of this rule.

(f) A determination that the laboratory paid the fee and actual costs incurred by Ohio EPA as established in rule 3745-300-03 of the Administrative Code.

(2) Ohio EPA may request additional information that Ohio EPA deems relevant for consideration of the request for certification, even after Ohio EPA determines the application for certification is complete. The applicant shall provide the requested information in a timely manner. Failure to respond to Ohio EPA's request for additional information may be grounds for denial of the application.

(3) To receive certification, a laboratory shall demonstrate to the director's satisfaction that the laboratory complies with this rule. The laboratory shall possess the ability to provide reliable, defensible, and representative data that complies with the requirements for certified data under this rule.

(4) Unless the request for certification is withdrawn by the applicant, the director shall either approve or deny certification:

(a) If approved, the certification is valid for three years after the date of approval, unless the certification is suspended or revoked.

(b) If the director denies certification, the director shall provide to the applicant a letter that describes the deficiencies upon which the certification denial is based.

~~(F) Procedures used to evaluate certified laboratory applications for renewal certification are the following:~~

~~(1) A certified laboratory may renew the laboratory's certification under this rule for only the analytes, parameter groups, and methods for which the laboratory is currently certified, except as provided in paragraph (F)(2)(f) of this rule.~~

~~(2) As provided in paragraph (D)(2) of this rule, a certified laboratory shall submit a complete renewal application prior to the expiration date listed on the laboratory's current certificate. If Ohio EPA receives a renewal application less than ninety days prior to the expiration date on the laboratory's current certificate, the result may be a lapse in certification. Ohio EPA's review of the application for renewal certification begins thirty days after receipt of a complete application. An application that contains all of the information required by paragraph (D) of this rule is considered complete. Ohio EPA's review includes, but is not limited to, the following:~~

~~(a) Review of the laboratory's application to ensure that the laboratory is certified for the analytes, parameter groups, and methods listed on the application.~~

~~(b) For certifications that rely on third-party accreditation bodies, review of the documentation required by paragraphs (D)(3) and (D)(5) of this rule that demonstrate that the accreditation remains in good standing.~~

~~(c) In accordance with paragraph (J)(5) of this rule, the information required by paragraph (F)(2)(b) of this rule shall be provided in the laboratory's renewal application.~~

~~(d) Review of the laboratory's response to correct deficiencies that were identified during a laboratory audit conducted in accordance with paragraph (J) of this rule.~~

~~(e) A determination that the laboratory paid the annual fee and actual costs incurred by Ohio EPA for laboratory audits, as established in rule 3745-300-03 of the Administrative Code.~~

~~(f) Review any request for additional analytes, parameter groups, or methods the laboratory intends to add to the laboratory's certification, in accordance with paragraphs (D) and (E) of this rule.~~

~~(g) Ohio EPA may approve renewal of a laboratory's certification without the inclusion of the requested additional analytes, parameter groups, or methods. Ohio EPA's review of the requested additional analytes,~~

~~parameter groups, or methods shall continue and can be added to the certification at a later date if approved by the director.~~

~~(3) Ohio EPA may request additional information that Ohio EPA deems relevant for consideration of the request for renewal certification, even after Ohio EPA determines the application is complete.~~

~~(4) The director may deny a laboratory's application for renewal certification if the director determines that the laboratory failed to comply with any of the requirements of this rule.~~

~~(5) Renewal of a laboratory's certification past the expiration date on the certificate shall be addressed as follows:~~

~~(a) The director may choose to delay renewal of a laboratory's certification past the expiration date on the certificate if deficiencies that were identified during a laboratory audit remain unresolved. Renewal of a laboratory's certification may be approved after the expiration date and after resolution of any outstanding deficiencies.~~

~~(b) The director may choose to delay renewal of a laboratory's certification past the expiration date on the certificate if the renewal application is submitted less than ninety days prior to the expiration date on the certificate and Ohio EPA did not have adequate time to process the renewal application.~~

~~(c) If renewal of a laboratory's certification is delayed past the expiration date on the certificate for reasons identified in paragraph (F)(5)(a) or (F)(5)(b) of this rule, the laboratory is not required to submit an initial application to obtain certification renewal unless the director ultimately denies the request for renewal.~~

~~(G)~~(D) Minimum requirements for the QAPP and SOPs. Each certified laboratory shall have a written QAPP and written SOPs for every method and procedure used by the certified laboratory to produce certified data, and shall keep these documents at the certified laboratory for use by laboratory personnel. The QAPP and SOPs shall comply with paragraph (A)(2)(c)(iii) of this rule and the methods published or endorsed by U.S. EPA, except as specified in this rule.

(1) At a minimum, the QAPP shall include provisions that require the certified laboratory reports issued in compliance with this chapter to contain the following:

(a) An accompanying affidavit that complies with paragraph (P) of rule 3745-300-13 of the Administrative Code.

(b) At a minimum, a case narrative that includes the following:

(i) Discussion of any issues that impact the quality of the data with sample receipt, sample process, or sample analysis.

(ii) Discussion of any potential bias in sample results, as appropriate.

(c) A report of the analytical results determined by the methods indicated on the certified laboratory's certificate.

(d) A report of the quality control sample results and indication of whether applicable criteria were met.

(e) A copy of the chain of custody that accompanied the samples to the certified laboratory.

(f) At a minimum, a copy of the sample receipt form that records the following:

(i) Temperature of samples upon receipt by the certified laboratory, if the method requires monitoring.

(ii) Date and time the samples were received by the certified laboratory.

(iii) Notation of whether holding times specified in the SOPs for sampling preparation and analysis were exceeded.

(iv) Any exceptions or special instructions for sample handling, analysis, or reporting.

(v) Notation of whether samples include appropriate labeling, such as the date and time of sample collection and a sample identification notation.

(vi) Notation of whether sample containers contain appropriate sample preservatives, if applicable.

(vii) Description of the general condition of sample containers, including whether any containers were damaged or improperly filled.

(2) Data interpretation and reporting requirements. To ensure quality data interpretation and quality reporting of certified laboratory results, the QAPP or SOPs shall include, at a minimum, the following:

(a) SOPs shall include information regarding how the qualitative and quantitative analyses are performed and interpreted by the analysts.

(b) ~~Laboratories~~Certified laboratories shall report solid samples on a dry weight basis, unless otherwise dictated by the method or when inadequate sample volume limits the laboratory's ability to determine dry weight. The moisture content also shall be reported, when applicable. SOPs shall include processes and calculations for this purpose.

(c) Prior to issuance of the certified laboratory reports as certified data, certified laboratories shall complete peer review of applicable calibration, calibration verification, quality assurance, and quality control results, as well as sample laboratory results.

(d) SOPs for methods that include manual integration of chromatographic data to ensure that manual integrations are performed in a consistent and technically justifiable manner for standards, samples, and quality control solutions. The SOPs shall contain the following minimum requirements:

(i) Examples of proper and improper manual integrations.

(ii) Procedures to manually adjust data to ensure that obvious inaccuracies in automated integrations are corrected and that reported results accurately reflect the information contained in the analytical data.

(iii) Both original and modified chromatograms, including the chromatographic peaks and baselines, shall be peer reviewed.

(iv) The certified laboratory shall retain copies of the original and modified chromatograms. These shall be made available to Ohio EPA, or other interested parties, upon request.

(e) As appropriate, the QAPP or SOPs shall contain a provision that the certified laboratory shall narrate potential bias in sample results if the requirements in the SOP cannot be met, including, but not limited to, the following:

(i) Failure to meet required holding times.

(ii) Improper sample preservation.

(iii) Inability to perform corrective actions for calibration, calibration verification, or quality control outliers.

(iv) Insufficient sample amount.

(f) For dual column analysis, the following apply:

(i) Results shall only be reported if the analyte is detected in both columns.

(ii) If the certified laboratory does not designate a primary column, then the higher result shall be reported unless a matrix interference is causing the elevated concentration.

(iii) If the certified laboratory designates a primary column, then the results from the primary column shall be reported unless matrix interference is present.

(iv) In cases where matrix interference is present, the lower result, or both results, shall be included in the analytical report.

(g) Analytes reported as certified data shall meet all calibration, calibration verification, and quality control criteria. If analytes do not meet criteria, then the analytes shall not be reported as certified data except as provided in paragraph ~~(G)(2)(e)(iii)~~(D)(2)(e)(iii) or ~~(G)(4)(c)~~(D)(4)(c) of this rule. This applies to all analytes including, but not limited to, the following:

(i) Analytes traditionally known as poor performers or common laboratory contaminants.

(ii) Analytes that may meet method criteria through provisions of marginal exceedance.

(h) ~~Laboratories~~Certified laboratories shall not provide certified data for tentatively identified compounds.

(i) As appropriate, the QAPP or SOPs shall require the certified laboratory to report as certified data only for analytes specified in the method, unless the laboratory's certification specifically allows reporting of additional analytes for the method. If a certified laboratory report includes analytes that are not specified in the method and are not specifically allowed by the laboratory's certification, the laboratory shall identify the analytes as exceptions to the certified data attested to in the affidavit that is issued with the certified laboratory report.

(j) If a certified laboratory's certification relies on maintaining third-party accreditation in good standing, the laboratory shall not report certified data under this rule when the relied-upon third-party accreditation is not in good standing with the issuing accreditation body.

(k) Samples for metals analysis that are filtered prior to digestion shall be reported as dissolved metals. Unfiltered samples or samples that are filtered after digestion may be reported as total metals.

(3) Instrument calibration requirements. To ensure the quality of the data to be analyzed, the QAPP or SOPs shall comply with the approved method and shall include the following minimum instrument calibration requirements:

(a) At a minimum, SOPs shall include all of the following calibration requirements:

(i) Information about the frequency of initial calibration and calibration verification.

(ii) Criteria to evaluate results of initial calibration and calibration verification, including calibration blanks.

(iii) Without exception, corrective actions the analyst shall follow for initial calibration, calibration verification, and calibration blanks when these standards do not meet the criteria required by paragraph (G)(3)(a)(ii) of this rule, as applicable.

(iv) A prohibition against forcing the initial calibration curve through the origin.

(v) A prohibition against use of the zero point in an initial calibration curve, unless specified by the method or there are instrument limitations.

(vi) Nonlinear initial calibrations (e.g., quadratic calibration model) may be used but are restricted to compounds that have historically exhibited a nonlinear response.

(vii) Nonlinear initial calibration models shall not be used to extend the calibration range for compounds that normally exhibit a linear response.

(viii) The lowest standard concentration used for initial calibration shall be at or below the <u>certified</u> laboratory's practical quantitation limit.

(b) Standard operation procedures shall specify initial calibration models as follows:

(i) For quadratic calibration models, a minimum number of standard concentrations is six.

(ii) Unless otherwise specified by the method, for all other calibration models, the minimum number of standard concentrations is five.

(iii) If more than the minimum number of standard concentrations is used, only the lowest or highest standard concentrations may be omitted from the calibration model as long as the minimum number of standard concentrations from paragraph (G)(3)(b)(i) or (G)(3)(b)(ii) of this rule are retained for use.

(c) Calibration solutions shall meet the following minimum requirements:

(i) Unless the method allows for use of a different solution, the same solution used to prepare the initial calibration standards shall be used to prepare the continuing calibration verification standard.

(ii) Unless use of the same solution is specifically allowed by the method, when an initial calibration verification standard is included in a method, a different solution other than the one used to prepare the calibration curve shall be used.

(iii) A prohibition on the use of expired standards or spiking solutions, except for the analysis of air samples.

(iv) For analysis of air samples, expired standards or spiking solutions may be used if revalidated against an unexpired reference material or if recertified by the vendor. The certified laboratory shall keep on file the documentation of such revalidation or recertification.

(v) Retention time marker solutions shall be used for petroleum analysis. These solutions shall be analyzed before the instrument is calibrated.

(d) For all dual column analysis, the calibration criteria required by paragraphs (G)(3)(a) to (G)(3)(c) of this rule shall be met on the column used to report data as certified.

(4) Quality control. To ensure reliable data, the QAPP or SOPs shall comply with the approved method and shall include the following:

(a) Identify all reagents, standards, and spiking solutions to be used in sample preparation and analysis.

(b) Define criteria for the quality control solutions or provide reference as to where the information is available. When criteria are not met for all associated quality control solutions, including but not limited to the method blank and spiked laboratory control solutions, or when surrogate recoveries or internal standard recoveries fail to meet the defined criteria in samples or quality control solutions, corrective actions shall occur, except as provided in paragraph (G)(2)(e)(iii) or (G)(4)(c) of this rule. Upon re-analysis of the failed quality control solution once, appropriate corrective actions may include re-preparation of the entire batch, including re-digestion, re-distillation, or re-extraction.

(c) When surrogates, internal standards, method blanks, calibration verification solutions, or spiked laboratory control solutions are biased high and the associated samples are non-detect for the outlying analytes, corrective actions need not be taken, and reporting of certified data is acceptable.

(d) Include procedures to prepare initial, continuing, and calibration verification standard solutions and calibration blank solutions.

(e) Include procedures to prepare samples, including the weight or volume of the media.

(f) Calibration verification solutions shall contain all target analytes, except for the analysis of polychlorinated biphenyls. For polychlorinated biphenyl analysis, a spike mix that contains aroclors 1016 and 1260 is sufficient to represent the range of aroclors specified in the method.

(g) SOPs shall include information regarding quality control solutions, including all of the following:

(i) Frequency of analysis.

(ii) Weight or volume of the media used.

(iii) Criteria used to evaluate results.

(h) Quality control solutions shall be treated in the same manner as samples, including handling, preservation, preparation, and equipment use.

(i) All detections in the method blank equal to or greater than the reporting limit require corrective actions as specified in paragraph (G)(4)(b) of this rule.

(j) All calibration verification standards required by the method and evaluated for per cent recovery, as defined by the methods, shall be reported based on the true value of the standard.

(k) To report dual column analysis data as certified, criteria required by paragraph (G)(4)(b) of this rule for quality control solutions shall be met on the column used.

(5) Preparation of samples. To ensure the quality of the samples to be analyzed, the QAPP or SOPs shall comply with the approved method and shall include the following minimum requirements for preparation of samples:

(a) Identify requirements for sample preservation, storage, holding times (including beginning and ending times), and the proper sample collection container, including the following:

(i) If requirements from the approved method do not specify requirements for sample preservation, storage, holding times, and the proper sample collection container, the certified laboratory shall include such requirements in the QAPP or SOPs, as applicable.

(ii) Holding times described in the approved method shall not be increased by alternate preservation techniques or by alternate demonstrations.

(iii) Air samples from "Tedlar" bags shall not be reported as certified data. The transfer of air samples from "Tedlar" bags to a canister for air analysis shall be prohibited.

(b) Identify equipment used for sample preparation, and identify diluents used for all dilutions.

(c) Identify requirements to be followed for holding times for extracted, digested, or distilled samples, and the storage requirements and the proper storage containers for each.

(d) Include details to ensure that sample preparation specifications for digestion, distillation, clean-up, and extraction shall meet the final volume for analysis, either volumetrically measured or otherwise verified to meet volumetric specifications.

(e) If the preparatory batch standards (i.e., initial calibration or calibration verification standards) for digestion, distillation, or extraction are processed with the sample and the batch standards fail either quality

control criteria or calibration criteria, upon re-analysis of the failed quality control solutions or calibration solutions once, the entire batch shall be prepared again. The corrective action shall occur except as provided in paragraph (G)(2)(e)(iii) or (G)(4)(c) of this rule.

(f) Analysis of non-aqueous samples for volatile organic compounds shall utilize a closed-system purge-and-trap process consistent with "SW-846" method 5035 or method 5035A, unless the analytical method pre-dates December 1996.

(g) For organic extraction methods that include instruction for drying solid matrix samples, surrogates or any other spiking compounds shall be added with the drying agent and into the homogenous mixture of sample or quality control sample. Surrogates or any other spiking compounds may not be added via the extraction solvent to samples and the associated quality control solutions.

(6) Analysis of samples. To ensure the quality of the samples to be analyzed, the QAPP or SOPs shall comply with the approved method and shall include the following minimum requirements:

(a) Identify equipment and instrumentation used for analysis of samples.

(b) For organic analysis methods, samples with failing internal standard or surrogate criteria require re-analysis of the samples. Dilutions shall be made only if matrix interference is present. Dilutions shall not be made for the sole purpose to meet, or attempt to meet, internal standard or surrogate criteria.

(c) When mass spectrometry methods are used, designate the primary and secondary ions used for identification of compounds.

(d) ~~Laboratories~~Certified laboratories that report selective ion monitoring data shall include operating procedures for selective ion monitoring analysis within the associated SOP.

(7) At a minimum, the written QAPP shall meet any necessary requirements in paragraphs (G)(1) to (G)(6) of this rule and shall include provisions that describe the following:

(a) Procedures that require proper citation and use of method numbers, including the appropriate revision suffix, if applicable, shall be consistently identified and included on instrument printouts, ~~log books~~logbooks, analytical reports, and any other laboratory documents.

All method numbers plus the revision suffix, if applicable, shall correlate with the method number and revision suffix on the certificate issued under this rule.

(b) SOPs requirements shall be reviewed for potential updates at least once every two years.

(c) Describe storage requirements of samples during all phases of analysis.

(d) Provide details for the expiration of stock standards, solutions, and all working standards and solutions, or cross-reference to the location of that information.

(e) Identify how the certified laboratory shall establish quality control acceptance limits for the analysis of samples.

(f) Identify how the certified laboratory shall manage waste in accordance with all applicable federal, state, and local requirements.

(g) Include a provision to address initial and periodic training for personnel in sample receipt, preparation, analysis, and data interpretation and review:

(i) ~~Laboratory~~Certified laboratory personnel shall review the QAPP and applicable SOPs which relate to the tasks associated with laboratory personnel's duties at the laboratory. Laboratory personnel shall sign documentation that acknowledges review of the documents.

(ii) The certified laboratory shall maintain training records and documentation that the laboratory personnel reviewed the appropriate documents.

~~(H)~~(E) Standards of performance and conduct to maintain certification. To maintain certification under this rule, a certified laboratory shall do the following:

(1) Produce results as certified data pursuant to paragraph (A) of this rule when the certified laboratory is requested to provide data in support of a voluntary action under this chapter or Chapter 3746. of the Revised Code.

(2) Disclose when the certified laboratory does not hold certification for a requested analyte, parameter group, or method included in a request for analysis. After this disclosure, if the requester still requests the analysis to be performed, the certified laboratory shall specify in the affidavit that accompanies the analytical report the analytes, parameter groups, or methods for which the laboratory is not providing certified data.

(3) Comply with the methods for which the laboratory is certified.

(4) Notify Ohio EPA in writing within thirty days after any of the following:

(a) A change in management personnel or quality assurance personnel.

(b) A change in certified laboratory operations that affects the laboratory's ability to perform analyses pursuant to this rule.

(c) A change in name or ownership of the certified laboratory.

(d) A relocation of the certified laboratory, in whole or in part, or a change of address of the laboratory.

(e) Anything that results in the loss of accreditation, temporarily or permanently, that is relied upon for certification under paragraph (A)(4) of this rule for any analytes, parameter groups, or methods for which the certified laboratory holds certification.

(5) Perform acceptably on each certified laboratory audit conducted pursuant to this rule, and address in a timely manner the deficiencies that are identified by Ohio EPA.

(6) Perform analyses in accordance with the certified laboratory's QAPP and SOPs that are consistent with paragraph ~~(C)~~(D) of this rule when the laboratory produces certified data.

(7) Disclose when the certified laboratory cannot quantify at or below an applicable standard specified in a request for analysis as follows:

(a) The certified laboratory shall provide certified data that detects chemicals of concern in environmental media at or below the applicable standards, unless the certified laboratory discloses that the laboratory is incapable of achieving an applicable standard under the laboratory's certification.

(b) Unless the certified laboratory is otherwise informed of the need for a lower applicable standard, the certified laboratory shall quantify at or below the single chemical generic numerical standards in appendices A and B to rule 3745-300-08 of the Administrative Code.

(c) If a certified laboratory that performs analyses in support of a no further action letter but is not capable of detecting the chemicals of concern in environmental media at or below the applicable standards, the ~~certified~~ laboratory shall notify, in writing, the person who requests the analysis

that the laboratory cannot quantify at or below an applicable standard using a method for which the laboratory is currently certified. The certified laboratory may disclose this information in the analytical report or by other means.

(8) Not falsify any information on any application, SOP, QAPP, or any proficiency testing result, or any certified data used in support of a no further action letter, or any other submittal to Ohio EPA.

(9) Not perform analyses in support of a request for a no further action letter for which the certified laboratory has a conflict of interest.

(10) Provide Ohio EPA access to the certified laboratory's facility and documents, data, or information related to any voluntary action, or laboratory certification, in order to determine compliance with this chapter and Chapter 3746. of the Revised Code.

(11) Promptly and completely respond to all document and data requests made by the director under this chapter and Chapter 3746. of the Revised Code.

~~(12) Pay all costs and fees required by rule 3745-300-03 of the Administrative Code.~~

~~(13)~~(12) As required by this rule and rule 3745-300-13 of the Administrative Code, submit by affidavit all information, data, documents, and reports for use in support of a request for a no further action letter.

~~(14)~~(13) Conduct laboratory operations in compliance with all applicable federal and state laws, regulations and rules, including but not limited to, requirements for management and disposal of samples that meet the definition of "hazardous waste" in rule 3745-51-03 of the Administrative Code and other hazardous wastes stored on property in compliance with Chapters 3745-52 and 3745-65 of the Administrative Code.

~~(15)~~(14) Maintain in good standing any third-party accreditations relied upon for certification.

~~(I) Procedures for submittals under this rule are the following:~~

~~(1)~~(F) All ~~applications and~~ documentation provided to Ohio EPA in accordance with this rule shall be submitted to Ohio EPA in a format prescribed by Ohio EPA.

~~(2) Payment of fees or costs incurred by Ohio EPA under this rule shall be paid in accordance with paragraph (G) of rule 3745-300-03 of the Administrative Code.~~

~~(J)~~(G) Laboratory audits.

(1) At Ohio EPA's discretion, Ohio EPA shall audit certified laboratories to determine compliance with this rule~~ or to evaluate a laboratory's qualifications to become certified under this rule~~. Laboratory audits may consist of a review of either documents or other information submitted to Ohio EPA. Laboratory audits may include an on-site visit to the laboratory to review the laboratory's operations and to evaluate the laboratory's facility and personnel.

~~(a) During a laboratory audit, Ohio EPA shall evaluate a laboratory's qualifications to become certified to perform analyses in accordance with this rule, at either of the following occurrences:~~

~~(i) When a laboratory applies for initial certification.~~

~~(ii) During review of a certified laboratory's application for additional certification, renewal certification, or if the laboratory relocates the laboratory facility.~~

~~(b)~~(a) At any time and for any purpose, Ohio EPA shall evaluate a certified laboratory to determine a laboratory's compliance with the laboratory's obligations as a certified laboratory under this rule and the laboratory's ability to produce certified data in accordance with this rule. Ohio EPA may conduct this evaluation for any reason, including but not limited to, the following:

(i) When there is a change in laboratory personnel, management personnel, operational procedures, or other functional issue.

~~(ii) To evaluate a laboratory prior to the renewal of the laboratory's certification.~~

~~(iii)~~(ii) If Ohio EPA receives a complaint regarding the certified laboratory's performance.

~~(c) Ohio EPA may conduct audits of mobile laboratories while the laboratory is either mobilized on a project or at the laboratory's headquarters. Ohio EPA may conduct an audit of the location where the data undergoes quality assurance review, if the quality assurance review is not performed in the mobile laboratory.~~

(2) In order to determine compliance with this rule, an audit of a certified laboratory may include, but is not limited to, the following:

(a) Review of the certified laboratory's SOPs, QAPP, analytical reports and associated data, affidavits, and other documents.

(b) On-site visit and review of the certified laboratory's sample receiving area, waste storage area, analytical testing areas, and other pertinent areas of the certified laboratory. During the visit, Ohio EPA may review the following:

(i) ~~Log books.~~Logbooks.

(ii) Sample storage procedures.

(iii) Instrumentation set-up and software programs.

(iv) Equipment calibration and maintenance procedures.

(v) Data review procedures.

(vi) Record filing and storage.

(vii) Project management and communication procedures.

(viii) Data reporting procedures.

(ix) Record files.

(x) Any other information or area of the laboratory deemed appropriate by Ohio EPA.

(c) Interviews of laboratory personnel to determine knowledge of personnel who perform the analyses.

(d) Review of any other documentation that Ohio EPA considers appropriate, including, if applicable, review of any documents related to third-party accreditation relied upon for certification.

(e) Review of performance testing results, as required by paragraph (C) of this rule.

(f) Evaluation of whether any violations of this rule are material in a laboratory's ability to report reliable, defensible, and representative data that satisfies the requirements for certified data under this rule.

(3) Ohio EPA shall prepare an audit report that indicates any deficiencies that are identified during the audit that require corrective actions by the laboratory.

Failure to address the deficiencies in a timely manner may result in suspension or revocation of a laboratory's certification~~, denial of a request for initial or additional certification, or denial of a laboratory's request to renewal the laboratory's certification~~.

(4) If Ohio EPA identifies any deficiencies during a certified laboratory audit, the laboratory shall correct those deficiencies to Ohio EPA's satisfaction~~ before receipt of an initial, additional, or renewal certification~~.

~~(5) If the current certification was not previously based on third-party accreditation and the laboratory elects to provide documentation of third-party accreditation during a laboratory audit, the laboratory shall include in the laboratory's renewal application documentation that demonstrates that the accreditation remains in good standing for the purpose of the laboratory's renewal certification.~~

~~(6) Pursuant to rule 3745-300-03 of the Administrative Code, Ohio EPA shall recover Ohio EPA's actual costs to conduct audits.~~

~~(K)~~(H) Laboratory certifications:

(1) ~~After completion of the requirements in this rule, the director shall provide to the laboratory a certificate that identifies the analytes, parameter groups, or methods for which the laboratory may perform analyses.~~ The certification, issued by the director, may limit the analysis of certain environmental media.

(2) The certification automatically expires three years after the date of issuance, unless the laboratory's certification is suspended~~,~~ or revoked, ~~or renewed~~ prior to the certification's expiration.

~~(3) The certification expiration date for additional certification is the same as that of the laboratory's initial certification or renewal certification, as applicable.~~

~~(4)~~(3) The certification applies only to the individual certified laboratory facility identified in the certificate.~~ Entities that own or operate multiple laboratories shall apply for a separate certification for each laboratory facility.~~

~~(5) If a laboratory changes location, the laboratory shall reapply for certification as an initial application to continue the laboratory's certification.~~

~~(6)~~(4) The effective certificate shall be displayed in a prominent location in the certified laboratory.

~~(7)~~(5) If a laboratory's certification is revised, the revised certification supersedes any prior certification.

~~(L)~~(I) Retention of documents and data.

(1) A certified laboratory shall maintain all documents and data prepared or acquired in connection with a voluntary action for a period of at least ten years after the date that the laboratory's analyses were submitted to a certified professional or volunteer.

(2) The certified laboratory may retain the documents and data using any available technology, provided that the laboratory can readily retrieve the documents and data in legible condition when retrieval is requested by Ohio EPA during the ten-year retention period.

(3) If a certified laboratory does not intend to retain such documents and data after ten years, the laboratory shall notify Ohio EPA of such intent, and shall provide Ohio EPA the opportunity to obtain the documents and data.

(4) The documents and data shall be retained until the notice described in paragraph ~~(L)(3)~~(I)(3) of this rule is provided to Ohio EPA, and Ohio EPA notifies the certified laboratory in writing whether Ohio EPA shall obtain the documents and data.

(5) Notification of Ohio EPA pursuant to this paragraph is not required as long as a certified laboratory continues to retain all documents and data.

(6) Failure to provide documents or data requested by Ohio EPA may result in permanent revocation of the laboratory's certification in accordance with paragraph ~~(O)(3)~~(L)(3) of this rule.

~~(M)~~(J) Out-of-state laboratories.

(1) As a condition of certification under this rule, certified laboratories~~, or companies that own mobile laboratories,~~ located outside the state of Ohio consent to service of process and to personal jurisdiction of any Ohio court or the Ohio environmental review appeals commission in proceedings that adjudicate any rights or obligations under this chapter and Chapter 3746. of the Revised Code, or in which the cause of action involves, in whole or in part, the laboratory's performance under this chapter or Chapter 3746. of the Revised Code.

(2) Out-of-state certified laboratories consent to Ohio EPA's right of entry for inspection or investigation, and to the service of administrative warrants, inspection warrants, or other appropriate search warrants as a condition of certification under this rule.

~~(N)~~(K) Appeal of certification determinations. The ~~issuance,~~ denial, suspension, or revocation of any laboratory certification is a final action of the director, which is subject to the procedure for appeal provided in Chapter 3745. of the Revised Code.

~~(O)~~(L) Revocation or suspension of certification.

(1) The director may revoke or suspend a laboratory's certification issued pursuant to this rule, for a period to be determined by the director, upon finding that a laboratory failed to comply with paragraph ~~(H)~~(E) of this rule, except as provided in paragraphs ~~(O)(2)~~(L)(2) and ~~(O)(3)~~(L)(3) of this rule.

(2) The director may permanently revoke a laboratory's certification if the laboratory falsifies any information in connection with the laboratory's certification or any voluntary action, in violation of paragraph ~~(H)(8)~~(E)(8) of this rule.

(3) The director shall permanently revoke a laboratory's certification if the laboratory does not comply with a request for documents and data, in violation of paragraph ~~(H)(11)~~(E)(11) of this rule.

(4) If a laboratory's certification relies upon maintaining third-party accreditation in good standing, the director may revoke or suspend a laboratory's certification upon finding that the laboratory's third-party accreditation is no longer maintained in good standing.

(5) Upon revocation or suspension of certification, the laboratory shall promptly return to Ohio EPA the certificate to which the revocation or suspension applies.

~~(P)~~(M) Procedure to request reinstatement of certification.

(1) Procedures to request reinstatement of certification after a suspension period are as follows:

(a) A suspended laboratory may request to reinstate the laboratory's certification for a suspension issued because of the laboratory's failure to comply with paragraphs ~~(H)(1)~~(E)(1) to ~~(H)(7)~~(E)(7), ~~(H)(9)~~(E)(9) to ~~(H)(10)~~(E)(10), and ~~(H)(12)~~(E)(12) to ~~(H)(14)~~(E)(14) of this rule.

(b) After the suspension period, the laboratory may request reinstatement of the laboratory's certification by providing ~~the following:~~ a

~~(i) A~~ written request for reinstatement and any documentation to demonstrate that the laboratory resolved all findings which resulted in the suspension.

~~(ii) Information consistent with requirements for a renewal certification as required by paragraph (D) of this rule. Ohio EPA's evaluation of the information submitted shall be consistent with paragraph (F) of this rule.~~

(2) Pursuant to rule 3745-300-03 of the Administrative Code, the certified laboratory is required to pay any costs incurred by Ohio EPA to review requests for reinstatement.

~~(3) During a laboratory's suspension period, a laboratory may request adjustments to the laboratory's suspended certification so that the laboratory's reinstated certification reflects new analytes, parameter groups, or methods after completion of the laboratory's suspension period. Adjustments are subject to paragraphs (D), (E), (F), and (Q) of this rule.~~

~~(4)~~(3) If Ohio EPA conducts a certified laboratory audit of the laboratory ~~as a result of paragraph (P)(3) of this rule,~~ the laboratory shall do one of the following:

(a) Perform acceptably on the audit.

(b) Prior to reinstatement of the laboratory's certification, shall correct any deficiencies that are identified during the audit. Laboratory audits shall be conducted consistent with paragraph ~~(J)~~(G) of this rule.

~~(5) If a laboratory's certification renewal date occurs during a laboratory's suspension period, the laboratory need not submit a request for renewal in accordance with paragraph (D) of this rule. Instead, the laboratory shall comply with this paragraph for reinstatement of the laboratory's certification.~~

~~(6)~~(4) A ~~reinstated~~ certification shall expire ~~one year from the date of the conclusion of the suspension period. The laboratory may renew the laboratory's certification in compliance with paragraph (D) of this rule~~on the date listed in the original issuance.

~~(Q)~~(N) Procedures to request modifications to certifications.

(1) A laboratory shall request a modification to the laboratory's certificate to reflect changes in company name or address~~, or to update or remove methods from a certificate. Such a request shall be made on the laboratory's renewal application, or~~ through use of a cover letter ~~when making a request for a modification during a non-renewal period~~.

~~(2) In accordance with rule 3745-300-03 of the Administrative Code, the laboratory is required to pay any costs incurred by Ohio EPA to review a request for modification of the laboratory's certification.~~

~~(R) Recertification following expiration or revocation of certification.~~

~~(1) A laboratory that seeks recertification after a certification expires or was revoked shall comply with the requirements for initial certification provided in paragraphs (D) and (E) of this rule.~~

~~(2) Ohio EPA may waive any portion of these requirements, and may require an alternate recertification process.~~

Effective: 6/5/2023

Five Year Review (FYR) Dates: 10/17/2024

CERTIFIED ELECTRONICALLY

Certification

05/24/2023

Date

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3745-300-05 **Certified professionals.**

[Comment: For dates of non-regulatory government publications, publications of recognized organizations and associations, federal rules, and federal statutory provisions referenced in this rule, see rule 3745-300-15 of the Administrative Code titled "Incorporation by reference - voluntary action program."]

(A) Criteria for certification.

(1) Individuals applying for certification shall provide such information and evidence as Ohio EPA deems reasonably necessary to enable the director to determine that the individual meets the qualifications provided in this rule.

(2) The director shall issue a certificate to an individual upon a demonstration, to the director's satisfaction, of the following:

(a) The individual has earned a minimum of a bachelor's degree from a recognized educational institution in biology, chemistry, environmental sciences, geology, hydrogeology, toxicology, scientific subdisciplines of public health or hazardous waste management, appropriate areas of engineering, or in a curriculum determined to be equivalent by the director. The charter or accreditation of the recognized educational institution shall have been effective as of the date the individual's degree was granted.

(b) The individual possesses eight years of relevant professional experience three of which are supervisory or project management related. Such experience shall consist of an average minimum of twenty hours per week. Relevant professional experience that consists of less than an average minimum of twenty hours per week shall be applied toward the satisfaction of this requirement on a pro rata basis.

(c) The individual possesses the professional competence and knowledge to perform the tasks required of a certified professional. This determination shall be made by a review of evidence including, but not limited to, references, Ohio EPA comments on past work submitted to Ohio EPA, the application form, and other sources the director deems appropriate. To make this determination, the director ~~shall~~may consider the following:

(i) Proficiency of the individual.

(ii) Duration of the individual's relevant employment.

(iii) Previous performance of the individual with regard to various investigative methods used, including but not limited to, whether such experience includes work at sites where subsurface investigations that involved hazardous substances or petroleum occurred.

(iv) Previous performance of the individual with regard to past performance working with Ohio EPA.

(v) Previous performance of the individual with regard to the various types of remedial systems designed and monitored.

(vi) Performance of the individual with regard to risk and exposure assessments.

(vii) Performance of the individual with regard to evaluating laboratory data quality and sufficiency to conduct a voluntary action.

(viii) Number of individuals and disciplines of other professionals supervised or coordinated by the individual.

(ix) Nature of conclusions reached and recommendations and opinions presented by the individual.

(x) Any other factors the director deems relevant.

(d) The individual completed initial certification training in accordance with this rule. Each individual who applies for initial certification shall complete initial certification training by attending all sessions of the initial certification training. Initial certification training shall consist of at least eight hours of instruction pertaining to the technical implementation of Chapter 3746. of the Revised Code, this chapter, and the standards of conduct a certified professional shall exercise when professional services are provided under Chapter 3746. of the Revised Code and this chapter.

(i) The training may be conducted by Ohio EPA or a third-party in a manner and using materials approved by Ohio EPA. Ohio EPA shall review, and, with or without modification, shall approve the training syllabi, and the scope and content of training and training materials used by a third party prior to use at an initial certification training.

(ii) Ohio EPA or the third party who conducts the initial certification training may charge each person who registers for or who attends

the initial certification training a non-refundable fee, established at a level sufficient to defray the actual costs of the training. The fee amount is subject to Ohio EPA approval.

(iii) Upon the conclusion of each initial certification training, Ohio EPA or the third-party shall provide each person who completed the initial certification training a certificate of completion. The third party shall submit to Ohio EPA the name and contact information of each person who completed the initial certification training.

(iv) Initial certification training is valid for one year after the date the individual completes the initial certification training as provided in the certificate of completion. If the individual who applies for initial certification does not submit the application within one year after completion of the initial certification training, the individual shall re-take the training.

(e) Possesses good moral character. Evidence of an inability to comply with the ethical responsibilities required of a certified professional with good moral character includes, but is not limited to, acts that involve dishonesty, fraud, or deceit.

(3) An individual who has earned advanced degrees from recognized educational institutions in addition to those required to meet the minimum educational requirements may request that the director credit that additional education toward the requirements for relevant professional experience if the individual can demonstrate to the director's satisfaction that the advanced degree constitutes relevant experience. Credit may be granted in accordance with the following:

(a) One year credit for each relevant master's degree.

(b) Two years credit for a relevant doctorate degree.

(c) A maximum of two years credit may be granted for such additional education.

(4) Certification shall be denied if the director finds the following:

(a) The individual does not meet the requirements provided in paragraph (A)(2) of this rule.

(b) The individual committed an act that involves dishonesty, fraud, or deceit, or otherwise lacks sufficient honesty or integrity.

(c) The individual fails to pay the fees and costs as provided in this chapter.

(5) An individual may be denied certification if the director finds that the individual is or was subject to certification or license denial, revocation, or suspension in this state, another state, or under a federal program.

(6) Except as provided in paragraphs (A)(4) and (A)(5) of this rule, an individual who meets the qualifications of paragraph (A)(2) of this rule and pays the application fee shall be issued a certificate.

(B) Procedure for initial certification.

(1) An individual who applies for certification shall submit to Ohio EPA a complete and current version of an initial application in a manner prescribed by Ohio EPA.

(2) The individual shall submit full payment of the non-refundable fee, as described in paragraph (B)(1) of rule 3745-300-03 of the Administrative Code.

(3) The individual shall submit official transcripts from the appropriate educational institutions to verify that the educational qualifications specified in paragraphs (A)(2)(a) and (A)(3) of this rule are met.

(4) The individual shall submit a certificate of completion that demonstrates the individual's completion of the initial certification training in accordance with paragraph (A)(2)(d) of this rule.

(5) All documents and information submitted to Ohio EPA pursuant to this paragraph shall be accompanied by an affidavit from the individual affirming that upon knowledge, information, and belief, all information submitted in support of the individual's certification application is true, accurate, and complete.

(6) Within fourteen days after receipt, Ohio EPA shall conduct a completeness review of an individual's initial certification application, as follows:

(a) Ohio EPA shall not consider an incomplete application, and shall notify the individual of any reasons the application is incomplete, and of any additional information required for further consideration of the application.

(b) The director shall not initiate final review of an application until Ohio EPA determines that the application is complete.

(c) Nothing in this rule prevents Ohio EPA from requiring an individual to promptly provide any information necessary to determine whether to approve or deny certification.

(7) Within forty-five days after Ohio EPA determines that an application is complete, the director shall either approve or deny certification. The initial certification is valid for one year after the date of approval. If the director denies certification, the director shall provide a letter that describes the deficiencies upon which the certification denial is based.

(8) Each individual shall demonstrate to the director's satisfaction that the individual meets the requirements for certification. Ohio EPA may require an individual to appear for a personal interview to answer questions pertaining to an application. If a personal interview is scheduled, the time to approve or deny an application as provided in paragraph (B)(7) of this rule shall be extended to twenty days after the date a personal interview is conducted. If an individual twice fails to appear for a personal interview scheduled with Ohio EPA, the application ~~shall~~may be denied unless the director finds such failure to appear was due to circumstances beyond the individual's reasonable control.

(C) Procedure for renewal of certification.

(1) An individual who applies for certification renewal shall submit to Ohio EPA a complete and current version of a renewal application in a manner prescribed by Ohio EPA. The complete renewal application shall be submitted before certification expires to maintain continuous certification. Submittal of a renewal application after the expiration date shall result in a lapse in the individual's certification.

(2) A complete renewal application shall include the following:

(a) Full payment of the annual fee described in paragraph (B)(2) of rule 3745-300-03 of the Administrative Code.

(b) Compliance with the standards of conduct described in paragraph (E) of this rule.

(c) Fulfillment of the continuing education requirements described in paragraph (C)(3) of this rule.

(d) Completion of initial certification training, if applicable, in accordance with paragraph (A)(2)(d) of this rule.

(e) All documents and information submitted to Ohio EPA pursuant to this paragraph shall be accompanied by an affidavit from the individual, affirming that upon knowledge, information, and belief, all information submitted in support of the renewal application is true, accurate, and complete.

(3) To maintain certification, a certified professional either shall demonstrate to the director's satisfaction that the certified professional has completed a minimum of twelve professional development hour units in the certification period, as described in this rule, of relevant continuing education, or shall obtain an excuse or modification of those requirements in accordance with paragraph (C)(10) of this rule. Professional development hour units may be earned as follows:

(a) Attendance at and successful completion of any of the following:

(i) Relevant college courses.

(ii) Relevant continuing education courses.

(iii) Seminars.

(iv) In-house courses.

(v) Workshops.

(vi) Meetings.

(vii) Conventions.

(viii) Conferences pertaining to investigation, assessment, or remediation of hazardous substances or petroleum.

(b) Presentation and instruction at any of the following:

(i) Courses, seminars, workshops, or other meetings identified in paragraph (C)(3)(a) of this rule.

(ii) Instruction of courses in biology, chemistry, environmental sciences, geology, hydrogeology, toxicology, scientific subdisciplines, hazardous waste management, appropriate areas of engineering.

(iii) Other core courses that do not qualify under paragraph (C)(3)(a) of this rule, but demonstrate the certified professional's knowledge

of the subject matter relevant to the investigation, assessment, or remediation of hazardous substances or petroleum.

(c) The director has final authority with respect to approval of courses, credit, professional development hour unit value for courses, and other methods of earning credit.

(4) The conversion of other units of credit to professional development hour units is as follows:

(a) Once college or unit semester hour equals twenty professional development hour units.

(b) One college or unit quarter hour equals fifteen professional development hour units.

(c) One continuing education unit equals ten professional development hour units.

(d) One hour of attendance at seminars, in-house courses, workshops, or professional or technical presentations made at meetings, conventions, or conferences equals one professional development hour unit.

(5) A certified professional's initial presentation or instruction of a course, seminar, workshop, or other meeting described in paragraph (C)(3) of this rule ~~shall~~may be eligible to receive credit for twice the professional development hour units that would be credited for attendance of the part of the course, seminar, workshop, or other meeting presented or instructed by the certified professional. This additional credit is not available to full-time faculty.

(6) Professional development hour units shall not be earned for the following:

(a) Any worker health and safety training.

(b) Any course, seminar, or workshop designed primarily for hazardous waste facility personnel as training on the requirements of Chapter 3734. of the Revised Code or the rules adopted thereunder. Partial credit may be claimed and earned for the portions of such course, seminar, or workshop that relate to the performance of a voluntary action, such as waste characterization and hazardous waste management.

(c) Attendance at a course, seminar, or workshop more than once in a certification period.

(7) A certified professional shall earn a minimum of six of the twelve professional development hour units in the certification period by attendance of courses and seminars conducted by Ohio EPA that are approved for professional development hour units.

(8) A certified professional who has not submitted a no further action letter to the director in request of a covenant not to sue within the past four calendar years shall demonstrate having done either of the following:

(a) Attended and completed initial certification training in accordance with paragraphs (A)(2)(d)(i) to (A)(2)(d)(iii) of this rule within the past four calendar years.

(b) Attended and completed an alternative Ohio EPA-sponsored course or third-party course approved by Ohio EPA pertaining to the technical implementation of this chapter, and the standards of conduct applicable to a certified professional under this chapter. The course shall be completed within one year prior to any application for certification.

(9) Documents used to support professional development hour units claimed shall be submitted with the renewal application and shall include the following:

(a) A personal log or attendance verification document that shows the date of the activity, type of activity claimed, sponsoring organization, and the actual hours of instruction.

(b) Course summaries or conference agendas with details of the sessions attended.

(10) The director may excuse or modify the continuing education requirements of this rule for any certification period if a certified professional is able to demonstrate to the director's satisfaction that the certified professional is unable to complete the minimum requirements due to the following:

(a) Health reasons, as certified by a medical doctor.

(b) Active service in the armed forces of the United States.

(11) Within fourteen days after receipt, Ohio EPA shall conduct a completeness review of an individual's renewal certification application, as follows:

(a) Ohio EPA shall not consider an incomplete application, and shall notify the individual of any reasons the application is incomplete, and of

any additional information required for further consideration of the application.

(b) The director shall not approve or deny an application until Ohio EPA determines that the application is complete.

(c) Nothing in this rule prevents Ohio EPA from requiring the individual to promptly provide any information necessary to determine whether to approve or deny certification.

(d) If the individual provides the additional information required to complete the application after the expiration date of certification, there shall be a lapse between certification periods. Individuals shall verify that there was no lapse in certification at the time the individual issues any voluntary action opinions.

(12) The certified professional has thirty days after notification of an incomplete application to provide additional documentation, such as completion of professional development hour units within the certification period, and to submit such documentation as an addendum in accordance with paragraphs (C)(1) to (C)(2) of this rule.

(13) If the director determines that the certified professional has not submitted documentation of a completed application, or the certified professional has not complied with a standard of conduct in performance of professional services as described in this rule, the director may deny the renewal certification application. If the director denies renewal of a certification, the director shall provide a letter that describes the reasons for the denial of certification renewal.

(14) The individual may provide professional services and may render voluntary action opinions under this chapter only when in possession of certification that is issued and is unexpired. Certification expires one year after the date of issuance, unless the certification is suspended or revoked prior to expiration. An individual whose certification expired and was not renewed within sixty days after the expiration date of the certificate shall not apply for renewal certification pursuant to paragraph (C)(1) of this rule, but may apply for certification pursuant to paragraphs (A) and (B) of this rule.

(D) Biocriteria certification.

(1) If the qualitative habitat evaluation index, index of biotic integrity, modified index of well-being, and the invertebrate community index are used in support of a

no further action letter, the certified professional or the certified professional's designated representative shall do the following:

(a) Conduct these indices in accordance with the procedures in "Biological Criteria for the Protection of Aquatic Life" (referred to as the "biocriterial manual") only for those indices for which the certified professional or the certified professional's designated representative received approval for under paragraph (D)(1)(b) of this rule.

(b) Receive approval by the director for status under paragraph (B) of rule 3745-4-03 of the Administrative Code to be a qualified data collector for level 3 credible data for any one or a combination of the following:

(i) Stream habitat assessment.

(ii) Fish community biology.

(iii) Benthic macroinvertebrate biology.

(c) Submit with the no further action letter written documentation from Ohio EPA which states that the certified professional or the certified professional's designated representative received approval by the director for status under paragraph (B) of rule 3745-4-03 of the Administrative Code to be a qualified data collector for level 3 credible data.

(2) ~~Qualified~~In accordance with rule 3745-4-03 of the Administrative Code, qualified data collector level 3 status shall be renewed every two years before qualified data collector level 3 status automatically expires. ~~To renew to qualified data collector level 3 status, the certified professional or the certified professional's designated representative shall meet the renewal requirements for status as a level 3 qualified data collector under paragraph (C) of rule 3745-4-03 of the Administrative Code.~~

(E) Standards of conduct. The following standards apply to a certified professional only when the certified professional provides professional services under Chapter 3746. of the Revised Code and this chapter:

(1) Professional competency.

(a) A certified professional shall act with care and diligence, and shall fully apply the certified professional's knowledge and skill at the time professional services are performed.

(b) A certified professional may render a voluntary action opinion only when the certified professional, individually or together with other persons who are qualified by education, training, and experience in other areas outside the certified professional's area of professional practice, has done either of the following:

(i) Managed, supervised, or actually performed the work which is required to render the voluntary action opinion.

(ii) Reviewed the work performed by other qualified persons which is required to render the voluntary action opinion.

(2) Professional responsibility.

(a) A certified professional shall hold paramount public health, safety, welfare, and the environment in the performance of professional services.

(b) If a certified professional identifies an imminent hazard at a property at which the certified professional is providing professional services, the certified professional shall do the following:

(i) Immediately notify the volunteer, or the owner or operator of the property if different from the volunteer, of the imminent hazard.

(ii) Immediately notify the volunteer, or the owner or operator of the property if different from the volunteer, of the need for the volunteer or the owner or operator of the property to notify Ohio EPA of the imminent hazard.

(iii) Notify Ohio EPA of the imminent hazard if the volunteer, or the owner or operator of the property if different from the volunteer, does not submit written confirmation to the certified professional within forty-eight hours after the imminent hazard was identified that the hazard was addressed, or the director was notified.

(c) If a certified professional discovers the occurrence of a release at or from a property that is subject to section 3750.06 of the Revised Code, the certified professional shall do the following:

(i) Immediately advise the volunteer, or the owner or operator of the property if different from the volunteer, of the condition and the need for the volunteer, owner, or operator of the property if different from the volunteer, to notify Ohio EPA within the applicable time frame established in section 3750.06 of the Revised Code.

(ii) Notify Ohio EPA of the condition if the certified professional is not able to notify the volunteer, or the owner or operator of the property if different from the volunteer, within the applicable time frames established in section 3750.06 of the Revised Code.

(d) In the event that a certified professional knows or has reason to know of an action taken by a volunteer, or any person who conducts work in connection with a voluntary action, that significantly deviates from any scope of work, plan, or report developed to comply with this chapter or an order of the director issued under division (B)(3) of section 3746.12 of the Revised Code, the certified professional shall promptly notify the volunteer in writing of such deviation. For purposes of this rule, scope of work or plan includes any operation and maintenance plan and risk mitigation plan that is applicable to the property.

(e) A certified professional shall do the following:

(i) Exercise independent professional judgment, and be objective in any professional report, statement, or testimony.

(ii) Comply with the applicable provisions of this chapter and Chapter 3746. of the Revised Code.

(iii) Make a good faith and diligent effort to obtain all relevant data, reports, and other available information regarding conditions at a property, and identify and obtain such additional data and other information as the certified professional deems necessary to provide professional services.

(iv) Ensure that the data relied upon to render a voluntary action opinion is verified valid, in accordance with "data verification," as defined in rule 3745-300-01 of the Administrative Code, for that use and was provided by a laboratory, as defined in paragraph (L)(1) of rule 3745-300-01 of the Administrative Code.

~~(iv)~~(v) When a voluntary action opinion is rendered, disclose and explain in the voluntary action opinion the relevant facts, data, and other information that support the voluntary action opinion, and all qualifications and limitations of the voluntary action opinion.

(f) If, subsequent to the date a certified professional issued a no further action letter, the certified professional learns that relevant facts, data, or other information existed at the time the no further action letter was issued

which indicates that applicable standards were not met, the certified professional shall do the following:

(i) Promptly notify the volunteer or the owner or operator of the property if different from the volunteer, that the applicable standards were not met, and of the need for the certified professional to notify Ohio EPA.

(ii) Notify Ohio EPA that applicable standards were not met if required. For purposes of this rule, the certified professional is required to notify Ohio EPA if the volunteer, or the owner or operator of the property if different from the volunteer, does not submit written confirmation to the certified professional within thirty days after the certified professional learns of the relevant facts, data, or other information, that the volunteer, owner, or operator notified Ohio EPA.

(g) In the event that a volunteer prevents or attempts to prevent a certified professional from acting in accordance with paragraphs (E)(2)(e)(i) to ~~(E)(2)(e)(iv)~~(E)(2)(e)(v) of this rule, the certified professional shall sever the certified professional's relationship with the volunteer.

(h) A certified professional shall not engage in fraudulent or dishonest business practices or allow the use of the certified professional's name by, or associate in a business venture with, any person or firm which the certified professional knows or should know is engaging in fraudulent or dishonest business practices.

(i) A certified professional shall cooperate fully in the conduct of audits by the director and shall promptly furnish such information as the director deems necessary to perform all audits under this chapter and section 3746.17 of the Revised Code.

(j) A certified professional shall promptly and completely respond to all document requests made by the director under this chapter and Chapter 3746. of the Revised Code.

(3) Conflicts of interest and contingent fees.

(a) A certified professional shall not accept compensation, financial or otherwise, from more than one person for professional services regarding a property, unless the circumstances are fully disclosed in writing to, and

agreed to, by all persons who contract with the certified professional for professional services with regard to that property.

(b) A certified professional shall not render a voluntary action opinion with respect to any property owned, leased, or operated by or in which any of the following persons have an interest:

(i) The certified professional.

(ii) An employer or a person affiliated with an employer of the certified professional.

(iii) A relative or past relative of the certified professional.

(iv) A person, or any affiliated person, with whom the certified professional was employed during the year preceding, or in the year subsequent to, the date at which the certified professional entered into a contract with that person.

(v) Any person whose relationship with the certified professional may impact the certified professional's ability to discharge professional obligations under this chapter.

(c) In the event that a certified professional has, develops, or acquires any business association, direct or indirect financial interest, or other circumstance which could create an impression of influencing the certified professional's judgment in connection with performance of professional services, the certified professional shall fully disclose in writing, to the person who has contracted with the certified professional for professional services, the nature of the business association, financial interest, or other circumstance.

(i) If the person who contracted with the certified professional for professional services objects to such business association, financial interest or circumstance, the certified professional, at the certified professional's discretion, ~~either~~ shall do either of the following:~~terminate~~

(a) Terminate the business association, financial interest, or circumstances~~, or shall terminate the professional services pertaining to the voluntary action~~.

(b) Terminate the professional services pertaining to the voluntary action.

(ii) If a certified professional believes that a business association, financial interest, or other circumstance renders the certified professional incapable of discharging professional obligations under this chapter regarding a voluntary action, the certified professional shall terminate the certified professional's involvement regarding that voluntary action and shall avoid any further involvement regarding such action.

(d) A certified professional shall not solicit or accept financial or other consideration from any person in return for specification of or endorsement of the products or services of such person in connection with a voluntary action.

(e) A certified professional shall not provide professional services under a contingency arrangement whereby the amount of payment of any consideration to the certified professional is dependent upon or related to the attainment or non-attainment of a specified finding or result, or where the payment of any consideration to the certified professional in whole or in part is otherwise dependent upon or related to a specified finding or result of such services.

(f) A certified professional shall not advertise or otherwise promise to any person that the certified professional will issue a no further action letter regarding a property until the certified professional determines that all requirements of Chapter 3746. of the Revised Code and this chapter are satisfied.

(4) Affidavit requirement- voluntary action opinions. Certified professionals shall submit each voluntary action opinion by affidavit pursuant to this paragraph except for no further action letters that are subject to the affidavit provisions of paragraph (Q) of rule 3745-300-13 of the Administrative Code. The certified professional shall submit an affidavit based upon the certified professional's knowledge, information, and belief, which includes the following:

(a) Name of the certified professional.

(b) Name and address of the property that is the subject of the voluntary action.

(c) The purpose for which the voluntary action opinion is submitted.

(d) Identification of the information, data, documents, or reports included with the voluntary action opinion submitted with the affidavit.

(e) Statement attesting that the certified professional has read all of the standards of conduct in paragraph (E) of this rule and is in compliance with the standards of conduct regarding the voluntary action opinion.

(f) Statement attesting that the voluntary action opinion and the associated information, data, documents, or reports submitted by the certified professional are true, accurate, and complete.

(F) Suspension or revocation of certification.

(1) The director ~~shall~~may revoke the certification of a certified professional for a period of time to be determined by the director if the director finds that any information on the certified professional's application for initial certification or application for renewal certification or any information in connection with a voluntary action was falsified.

(2) The director may suspend or revoke the certification of a certified professional for a period of time to be determined by the director if the director finds any of the following:

(a) The certified professional's performance resulted in the issuance of a no further action letter that is not consistent with applicable standards in this chapter or Chapter 3746. of the Revised Code.

(b) The certified professional did not substantially comply with section 3746.31 of the Revised Code or paragraph (I)(2) of this rule.

(3) The director may suspend for a period of not more than five years, or may permanently revoke, a certification if the director finds any of the following:

(a) The certified professional violated or failed to comply with the standards of conduct established in paragraph (E) of this rule.

(b) The certified professional was denied certification for performing environmental work in this state, another state, or under federal programs.

(c) The certified professional's certification to perform environmental work in this state, another state, or under federal programs was revoked or suspended.

(d) The certified professional used the certified professional seal described in paragraph (L) of this rule in an unauthorized manner.

(e) The certified professional committed an act involving dishonesty, fraud, or deceit.

(f) The certified professional's certification was suspended or revoked under this chapter on at least two occasions.

(g) The certified professional failed to make annual fee payments in accordance with paragraph (C)(1) of this rule and paragraph (B)(2) of rule 3745-300-03 of the Administrative Code.

(4) The director may request the certified professional to provide documents, data, or other information to verify the qualifications of the certified professional or to audit the performance of the certified professional. If the certified professional fails to comply with the director's request, the director ~~shall~~may permanently revoke the certification of the certified professional.

(5) A certified professional whose certification was suspended or revoked shall immediately provide notification of the suspension or revocation, by certified mail or other type of mail accompanied by receipt, to all persons who contracted with the certified professional for professional services, or who had a no further action letter prepared by the certified professional. The certified professional shall provide to the director a copy of all notifications required by this paragraph within ten days after the date of the certified mailing.

(6) Unless the director first consults with the director of the department of commerce, the director shall not revoke the certification of a certified professional who conducts voluntary actions only at properties contaminated solely with petroleum.

(7) The director shall provide at least thirty days prior notice to a certified professional of an ensuing suspension or revocation action by the director. The notice shall include a general explanation of the suspension or revocation action.

(G) Recertification after suspension or revocation. An individual whose certification was suspended or revoked may apply for recertification after suspension or revocation. Such application shall comply with paragraphs (A) and (B) of this rule.

(H) If a certified professional no longer intends to retain certification, the certified professional shall return the certificate with a written notice to Ohio EPA indicating intent to withdraw from certification.

(I) Document retention and production.

(1) The certified professional’s document retention requirements are as follows:

(a) A certified professional shall maintain all documents and data prepared or acquired in connection with a voluntary action for a period of at least ten years.

(b) After ten years, if a certified professional does not intend to retain such documents, the certified professional shall notify Ohio EPA by certified mail of such intent and shall provide Ohio EPA the opportunity to obtain all documents.

(c) Documents shall be retained by the certified professional until the notice described in paragraph (I)(1)(d) of this rule is provided and Ohio EPA notifies the certified professional in writing that Ohio EPA does intend to obtain the documents.

(d) If Ohio EPA notifies the certified professional in writing that Ohio EPA does not intend to obtain the documents, the certified professional may discard the documents.

(e) Notification to Ohio EPA is not required pursuant to this rule as long as a certified professional continues to retain all documents.

(f) Upon withdrawal, the certified professional promptly shall provide Ohio EPA the opportunity to obtain all documents maintained under this chapter in the same manner as identified in paragraph (I)(1)(a) of this rule.

(2) Procedures to address requests for documents that are not in Ohio EPA's possession are as follows:

(a) Upon the written request of any person for documents not in the possession of Ohio EPA and described on a list included in a no further action letter submitted to the director, Ohio EPA shall send a written request to the certified professional to submit such documents to Ohio EPA within a reasonable period of time.

(b) Upon receipt of the written request from Ohio EPA, the certified professional shall submit the original documents to Ohio EPA, within the time period specified in the director's request.

(c) Within a reasonable period of time after Ohio EPA receives the requested documents, the Ohio EPA shall provide copies of the documents to the requestor in the same manner as a public record.

(d) Any request for reproduction of documents shall be made through Ohio EPA.

(J) Summary reports. A certified professional shall prepare a voluntary action summary report. This report shall do the following:

(1) Be consistent with the executive summary requirements of rule 3745-300-13 of the Administrative Code.

(2) Detail the certified professional's findings and conclusions regarding the environmental conditions at each property for which the certified professional was requested to prepare a no further action letter.

(3) Be retained by the certified professional.

(K) Appeal of certification determinations. The issuance, denial, suspension, or revocation of certifications are final actions of the director, and are subject to the procedure for appeal provided in Chapter 3745. of the Revised Code.

(L) Certified professional's seal.

(1) To render a voluntary action opinion, each certified professional shall procure and use a device to mark a seal. The separate stamp may be used in addition to the seal device to record the individual's certification dates. The design, arrangement, size, and wording of the seal shall conform with the specifications prescribed by Ohio EPA.

(2) The certified professional's seal shall apply to the certified professional's official use only in connection with voluntary action opinions for which the certified professional is responsible, and shall not transfer.

(3) A certified professional shall use the seal to attest that, in the certified professional's professional judgment, the voluntary action opinion upon which the seal appears complies with this chapter and Chapter 3746. of the Revised Code.

(4) A certified professional shall not allow the official seal to be affixed to any document associated with any project which is not a voluntary action or to any voluntary action opinion not prepared by the certified professional or under the certified professional's personal supervision.

(5) An individual whose certification expired and was not renewed, or was revoked or suspended shall not allow the official seal to be affixed to any document associated with a voluntary action opinion unless and until such individual is recertified as a certified professional in accordance with this rule.

(M) Out-of-state certified professionals.

(1) As a condition of certification under this rule, certified professionals located outside the state of Ohio consent to service of process and to personal jurisdiction of any Ohio court or the Ohio environmental review appeals commission in proceedings that adjudicate any rights or obligations under this chapter and Chapter 3746. of the Revised Code, or in which the cause of action involves, in whole or in part, the certified professional's performance under this chapter or Chapter 3746. of the Revised Code.

(2) Out-of-state certified professionals also consent to Ohio EPA's right of entry for inspection or investigation, and to the service of administrative warrants, inspection warrants, or other appropriate search warrants as a condition of certification under this rule.

Effective: 6/5/2023

Five Year Review (FYR) Dates: 10/17/2024

CERTIFIED ELECTRONICALLY

Certification

05/24/2023

Date

Promulgated Under:	119.03
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3745-300-06 **Phase I property assessments for the voluntary action program.**

[Comment: For dates of non-regulatory government publications, publications of recognized organizations and associations, federal rules, and federal statutory provisions referenced in this rule, see ~~paragraph (B) of~~ rule ~~3745-300-01~~3745-300-15 of the Administrative Code titled "Incorporation by reference - voluntary action program."]

(A) Purpose and scope of a phase I property assessment under the voluntary action program. The purpose of a phase I property assessment ~~under the voluntary action program~~ is to determine whether there is any reason to believe that any releases of hazardous substances or petroleum have or may have occurred on or from a property including any release ~~from~~due to management, handling, treatment, storage, or disposal activities from on or off-property activities. The scope of a phase I property assessment is to characterize a property for the purposes of participation in the voluntary action program, and to determine the necessity for and initial scope of a phase II property assessment.

[Comment: If the voluntary action is part of a property transfer or is to be financed in part or in whole by a lending institution, additional requirements for an environmental investigation at the property may be ~~required~~imposed by the lending institution.]

(B) ~~Upon completion of the phase I property assessment, if~~If the volunteer has information that establishes any reason to believe that any releases of hazardous substances or petroleum~~,~~ have or may have occurred on or from the property, including any release ~~from~~due to management, handling, treatment, storage, or disposal activities from on or off-property activities, upon completion of the phase I property assessment, the volunteer ~~must conduct, at a minimum,~~shall conduct a phase II property assessment that addresses each release in accordance with rule 3745-300-07 of the Administrative Code prior to obtaining a no further action letter from a certified professional, except when paragraph (E)(2) of this rule is applicable.

(C) ~~The~~At a minumum, the volunteer ~~must, at a minimum,~~shall perform a review of the historic and current uses of the property, review the environmental history of the property, and review the history of the property pertaining to the treatment, storage, management, or disposal of hazardous substances or petroleum, and the existence of source areas on the property, and ~~must~~shall conduct a property inspection. Any current owner of a property upon which a voluntary action is ~~being~~ conducted ~~must~~shall provide to the volunteer any information known by that owner which may be relevant to ~~determining~~the determination of the existence of source areas on the property or whether treatment, storage, management, or disposal of hazardous substances or petroleum occurred or may have occurred at the property. Any information that is determined not to be reasonably available~~, as defined in this chapter, must~~ shall be identified, and an explanation ~~must~~shall be provided in the

phase I property assessment report as to why ~~it~~the information was not reasonably available.

(1) Historic and current uses of the property. The objectives of this portion of the phase I property assessment are to establish a continuous history of the uses of the property from the present back to the property's first developed use, or back to 1940, whichever is earlier, and~~,~~ to determine if those uses may have included the treatment, management, handling, storage, or disposal of hazardous substances or petroleum, which have or may have led to any releases of hazardous substances or petroleum on or from the property.

The volunteer ~~must~~shall identify the first industrial or commercial use of the property through and including the present use of the property. To complete the property history portion of the phase I property assessment, a volunteer ~~must~~shall perform the following as necessary to provide a continuous history:

(a) History analysis. A diligent inquiry of reasonably available historical records to establish a continuous history of the use of the property, including significant changes in the use of the property, and to determine ~~what, if any,~~ whether there were any releases of hazardous substances or petroleum ~~are or may be present~~ on or from the property.

(b) ~~Chain of~~Land title and property tax file investigation. A review of the ~~chain of~~recorded land title records and property tax file records for the property to evaluate current and previous ownership and identifiable uses of the property. The investigation ~~must~~shall include a review of documents pertinent to ~~determining~~the determination of whether there is any reason to believe that any releases of hazardous substances or petroleum have or may have occurred on or from the property. The documents include but are not limited to~~:~~ deeds, mortgages, easements of record and similar documents that are reasonably available to the volunteer~~; and~~.

(c) Interviews. Reasonable attempts to locate and conduct interviews with persons who reside or have resided~~,~~ or who are or were employed at or within the areas surrounding or adjoining the property regarding the current and past uses of the property to determine if there is any reason to believe that a release of hazardous substances or petroleum has or may have occurred on or from the property.

(2) Environmental history review. The objective of this portion of the phase I property assessment is to provide a continuous environmental history to determine whether any management, handling, treatment, storage, or disposal activities

at the property have occurred~~;~~ which have or may have led to any release of hazardous substances or petroleum ~~at~~on or from the property.

(a) To the extent that ~~they are~~such information is reasonably available, or available through diligent inquiry, a volunteer ~~must~~shall review any previous environmental assessments or studies, property assessments, or geologic studies for the property.

(b) A volunteer shall conduct a diligent ~~inquiry must be conducted~~investigation of the environmental compliance history of the property and all persons who owned or operated the property. This investigation ~~must~~shall relate to releases of hazardous substances or petroleum and to factors which may affect the eligibility of the property to participate in the voluntary action program and ~~must~~, at a minimum, shall include a review of reasonably available information from ~~the~~ U.S. EPA, ~~the~~ Ohio EPA, the Ohio department of natural resources, and the Ohio bureau of underground storage tank regulations.

(c) ~~Review of~~A volunteer shall review records for the property and surrounding properties within a minimum of one half-mile from the property boundary, except as indicated in paragraphs (C)(2)(c)(i) to (C)(2)(c)(ix) of this rule. ~~A~~Such review ~~of~~shall include the ~~following~~ records ~~of information~~, as ~~they~~the records relate to the property and all areas located within a minimum of one half-mile of the property boundary, except as indicated in paragraphs (C)(2)(c)(i) to (C)(2)(c)(ix) of this rule, to the extent necessary to determine if hazardous substances or petroleum may have been released from surrounding properties and could potentially impact the subject property. The records that shall be reviewed include the following:

(i) Federal national priorities sites list of sites within one mile of the subject property boundary.

(ii) Federal ~~comprehensive environmental response, compensation and liability~~Comprehensive Environmental Response, Compensation, and Liability Act information system list.

(iii) Federal Resource Conservation and Recovery Act corrective action facilities list of facilities within one mile of the subject property boundary.

~~(iii)~~(iv) Federal Resource Conservation and Recovery Act treatment, storage, and disposal facility list.

~~(iv)~~(v) Federal emergency release notification system list.

~~(v)~~(vi) Federal Resource Conservation and Recovery Act information ~~data base~~database.

~~(vi)~~(vii) Ohio EPA, division of ~~emergency and remedial~~environmental response ~~files~~ and revitalization database.

~~(vii)~~(viii) Ohio bureau of underground storage tank regulations leaking underground storage tank list.

~~(viii)~~(ix) Ohio EPA spill ~~data base~~database.

(d) ~~Review of~~A volunteer shall review records for the property and adjoining properties. ~~A~~This shall include a review of the ~~following~~ records ~~of information~~, as ~~they~~such records relate to the property and all adjoining properties, to the extent necessary to determine if hazardous substances or petroleum may have been released onto the property or are emanating onto the property from adjoining properties. The records that shall be reviewed include the following:

(i) Federal Resource and Conservation Recovery Act generators list.

(ii) Ohio bureau of underground storage tank regulations registered underground storage tank list.

(e) ~~Review of~~A volunteer shall review records for the property only. ~~A~~This shall include a review of the ~~following~~ records ~~of information~~ as ~~they~~such records relate to the potential release of hazardous substances or petroleum on or from the property. The records that shall be reviewed include the following:

(i) Community right-to-know inventory report records of the state emergency response commission and the local emergency planning committee.

(ii) Local fire department records.

(iii) Local health department records.

(f) ~~Review of~~A volunteer shall review records for the property and surrounding properties. A review of other appropriate federal, state and local agency records, and other ~~data bases~~databases, such as those referenced in ASTM E1527, paragraph 8.2, when a volunteer has reason to believe that relevant

information may be obtained from such records~~ of information~~. For example, reviews may include Ohio department of natural resources well log information, historical society records, library records, or historical newspaper search engines.

(3) Interviews. Interviews with reasonably available key property personnel, residents, or former property personnel who have knowledge relevant to historical uses, operations, and environmental conditions at the property or surrounding properties. A sufficient number and quality of interviews ~~must~~shall be conducted so that those persons with relevant knowledge have the opportunity to provide as much meaningful and relevant information about the property or surrounding properties as is reasonably possible. All interview information, including interview questions and relevant responses obtained during the interviews, ~~must~~shall be documented in the phase I property assessment report, as provided in paragraph (G) of this rule.

(4) Property inspection. The objective of this portion of the phase I property assessment is to obtain information from a physical inspection of the property to determine whether any releases of hazardous substances or petroleum have or may have occurred on or from the property. The volunteer ~~must~~shall conduct a physical inspection of all areas of the property, including an inspection of the interior and exterior of all buildings and structures on the property, and an inspection of all other areas of the property. ~~When conducting~~At a minimum, to conduct the property inspection, the volunteer ~~must, at a minimum,~~shall identify and document the following:

~~(a) Areas containing hazardous substances or petroleum or areas where hazardous substances or petroleum were located, including, but not limited to: underground storage tanks, above-ground storage tanks, wells (including oil and gas wells and underground injection control wells), cans, boxes and other containers, pipes, drains, storm or sanitary sewers, electrical equipment, cables, fuel tanks, oil pans, lagoons, stacks, cooling systems, inventory, pits, piles, landfills, waste or process water treatment systems, equipment and associated structures that contain or previously contained any hazardous substances or petroleum, and areas used for the treatment, storage, management or disposal of any hazardous substances or petroleum. If any of the above sources are identified in the property inspection, the volunteer must determine the condition of the sources.~~

(a) Areas that contain hazardous substances or petroleum, or areas where hazardous substances or petroleum were located. These areas include, but are not limited to, the following:

(i) Underground storage tanks.

(ii) Above-ground storage tanks.

(iii) Wells (including oil and gas wells and underground injection control wells).

(iv) Cans.

(v) Boxes and other containers.

(vi) Pipes.

(vii) Drains.

(viii) Storm sewers or sanitary sewers.

(ix) Electrical equipment.

(x) Cables.

(xi) Fuel tanks.

(xii) Oil pans.

(xiii) Lagoons.

(xiv) Stacks.

(xv) Cooling systems.

(xvi) Inventory.

(xvii) Pits.

(xviii) Piles.

(xix) Landfills.

(xx) Waste or process water treatment systems.

(xxi) Equipment.

(xxii) Structures associated with the areas listed under paragraph (C)(4)(a) of this rule that contain or previously contained any hazardous substances or petroleum.

(xxiii) Areas used for the treatment, storage, management, or disposal of any hazardous substances or petroleum.

(b) If any of the sources identified under paragraph (C)(4)(a) of this rule are identified in the property inspection, the volunteer shall determine the condition of the sources.

~~(b)~~(c) Evidence that a release of hazardous substances or petroleum occurred or may have occurred on or from the property. This evidence may include, but is not limited to, the following:

(i) Spilled materials.

(ii) Stressed vegetation.

(iii) Discolored soils.

~~(c)~~(d) Any other available evidence of the current and past uses of the property or evidence of practices regarding the management, handling, treatment, storage, or disposal of any hazardous substances or petroleum.

~~(d)~~(e) The general topographic conditions of the property and area surrounding the property.

~~(e)~~(f) Evidence of current and past uses of adjoining properties which may be observed from the property or which are accessible from public rights of way.

~~(f)~~(g) Identifiable migration conduits for hazardous substances or petroleum including but not limited to basements, drains, tiles, wells, and utility lines.

~~(g)~~(h) Any physical obstructions which limit the visibility of conditions on the property, including but not limited to buildings, snow or leaf cover, rain, fill, asphalt, or pavement.

(5) Property hazardous substance or petroleum release history. Based on information obtained from paragraphs (C)(1) to (C)(4) of this rule, areas where hazardous substances or petroleum were or are located on or off property ~~must~~shall be evaluated to determine which areas have known or suspected releases of hazardous substances or petroleum. The volunteer ~~must~~shall identify for each release, to the extent known or suspected, the following:

(a) The contaminant type.

(b) The quantity.

(c) The date of release.

(d) The areas of the property impacted by the release.

(e) The environmental media impacted by the release, i.e. soil, soil gas, ground water, surface water, and sediments. Releases to dirt floors inside buildings are considered releases to environmental media.

(f) Any measures taken to address the release, including the result of those measures.

(D) ~~Any phase I property assessment performed as part of a voluntary action after December 16, 1996, must meet the requirements of this rule. Any phase I property assessment performed as part of a voluntary action after September 28, 1994 and completed prior to December 16, 1996, must have been performed in accordance with ASTM E1527 and Chapter 3746. of the Revised Code. Any phase I property assessment performed prior to December 16, 1996, and not conducted for purposes of a voluntary action, may be used by the volunteer in support of a no further action letter or to assist in a phase II property assessment under rule 3745-300-07 of the Administrative Code, to the extent the previous phase I property assessment satisfies the requirements of this rule.~~ Requirements to supplement ASTM phase I property assessment.To the extent ~~the~~that a previous ASTM phase I property assessment does not ~~satisfy~~comply with the requirements of this rule it ~~must~~shall be supplemented to meet all requirements of this rule.

[Comment: For example, if a phase I property assessment was completed December 1, 1990 and ~~met all of the requirements of~~was in compliance with this rule except the requirement to provide a property history, including the uses of the property and all adjoining properties and any surrounding areas, the 1990 phase I property assessment ~~must~~shall be supplemented to include a continuous property history in accordance with paragraph (C)(1) of this rule, and a new phase I property assessment in accordance with this rule ~~must~~shall be performed for the period between December 2, 1990 up to the date of the issuance of the no further action letter or the performance of a phase II property assessment, whichever is applicable to the particular voluntary action.]

(E) ~~Designating~~Designation of identified areas.

(1) The volunteer ~~must~~shall identify each area at the property where a release of hazardous substances or petroleum has or may have occurred to environmental

media. Each identified area ~~must~~shall be detailed in the written phase I property assessment report as ~~provided~~required in paragraph (G) of this rule.

(a) Each identified area may be ~~redelineated~~re-delineated or eliminated if data obtained during a phase II property assessment conducted in accordance with rule 3745-300-07 of the Administrative Code supports ~~a redelineation~~re-delineation or elimination of the identified area.

(b) If the volunteer has reason to believe a release has or may have occurred, but cannot visually observe or otherwise define the portion of the property that may have been affected by hazardous substances or petroleum, the volunteer shall designate the portion of the property as an identified area~~,~~ that is suspected to be affected by the hazardous substances or petroleum.

(c) If the volunteer has knowledge that a release of hazardous substances or petroleum occurred on the property but has no information on the location of the release, the volunteer may designate the whole property as one identified area.

(2) Exceptions to ~~designating~~the designation of identified areas.

(a) De minimis areas. ~~Areas~~As determined in this rule, areas with releases that are de minimis~~, as determined in accordance with this rule,~~ are not identified areas. De minimis areas are those areas where the following criteria ~~have been~~are demonstrated and documented in the phase I report. The logic and reasoning used ~~when evaluating~~to evaluate the information for the de minimis demonstration ~~must~~shall consider the following:

(i) Whether the release of hazardous substances or petroleum is confined to surficial soils on the property and that no hazardous substances or petroleum ~~have been~~were released from the de minimis area into surface water, sediments, or ground water on or from the property.

(ii) That the release of hazardous substances or petroleum was a small quantity confined to a limited area of shallow depth of the soil surface that generally would not present a threat to human health, safety, and the environment.

(iii) That the release of hazardous substances or petroleum was not part of a pattern of disposal or mismanagement.

(iv) There are no more than three de minimis areas per acre at the property.

(b) Areas previously addressed under regulatory programs. ~~Areas~~As determined in this rule, areas previously addressed under a regulatory program~~, as determined in accordance with this rule,~~ are not identified areas. Areas where a release of hazardous substances or petroleum was previously investigated or remediated to the most stringent standards~~,~~ without the need for institutional or engineering controls are not identified areas if both of the following apply:

(i) ~~Documentation~~The volunteer has evaluated documents from the regulatory program ~~is evaluated,~~ and ~~it is~~ determined that the release meets current unrestricted residential standards, or the equivalent. The regulatory program process ~~must have addressed~~shall address all potential constituents of the release identified under this phase I property assessment, or the additional constituents ~~must~~shall be considered an identified area. The size of the area, the environmental media, and the pathways investigated under the regulatory program ~~must~~shall be consistent with what would have been investigated under this chapter, or the release ~~must~~shall be considered an identified area.

(ii) The release was addressed under one or more of the following regulatory jurisdictions, as appropriate:

(a) Closure of an underground storage tank system or corrective action of petroleum releases that are subject to the jurisdiction of the Ohio bureau of underground storage tank regulations of the state fire marshal's office.

(b) Closure, corrective action, or other remedial activities that are ~~suject~~subject to the jurisdiction of a program administered by ~~the~~ Ohio ~~environmental protection agency~~EPA.

(c) Closure, corrective action, or other remedial activities that are subject to the jurisdiction of ~~of~~ a program administered by ~~the United States environmental protection agency~~U.S. EPA.

(F) Eligibility evaluation. The volunteer ~~must~~shall do the following:

(1) Evaluate the property based on each exception to voluntary action eligibility ~~given by~~provided in rule 3745-300-02 of the Administrative Code.

(2) Document the completion, resolution, or non-applicability of the exception as needed to support a demonstration to ~~the agency~~Ohio EPA pursuant to the rule that the property is eligible for the voluntary action program.

(3) Identify any activities that remain to be completed or statements from regulatory agencies that remain necessary to confirm the eligibility of the property as required by that rule.

(G) The volunteer ~~must~~shall complete a written phase I property assessment report which, at a minimum, includes the following:

(1) An introduction ~~identifying:~~that identifies the property~~;~~, the date that the phase I property assessment and the written report were completed~~;~~, the name and job title of each person ~~conducting~~who conducts the investigation~~;~~, and a summary of the current use of the property.

(2) A summary of the areas where hazardous substances or petroleum were or are located on or off property and the areas of known or suspected releases of hazardous substances or petroleum. The summary ~~must~~shall include all identified areas at the property of known or suspected releases, and include, as applicable, the de minimis areas and the previously addressed areas ~~that have been~~ determined not to be identified areas pursuant to paragraph (E) of this rule. For each designated identified area, the report ~~must~~shall include the location and the approximate boundaries of the identified area and the contaminant type known or suspected to be present for evaluation during a phase II property assessment. Any of the identified areas designated in the phase I property assessment report may be ~~redelineated~~re-delineated or eliminated as a result of data collected and assessed in accordance with paragraph (E) of rule 3745-300-07 of the Administrative Code.

(3) The results of the eligibility evaluation conducted pursuant to paragraph (F) of this rule.

(4) Asbestos.

(a) A summary of the ~~asbestos in~~asbestos-containing building material at the property, as identified and documented in accordance with paragraph (C)(4)(a) of this rule. An asbestos survey may be included in an appendix of the report completed under this rule to document the presence of asbestos. The completion of an asbestos survey is not a requirement of a phase I property assessment conducted pursuant to this rule.

(b) Documentation of compliance with the standards for asbestos emission control during demolition and renovation activities, as applicable, in accordance with Chapter 3745-20 of the Administrative Code, which may document the absence of an asbestos release under this rule. The standards are ~~also~~ referred to also as national emission standards for hazardous air pollutants ~~or "~~(NESHAPs)~~."~~

(5) Maps.

(a) A property location map using the most currently available 7.5 minute U.S. geological survey topographic map, which includes the property boundary and the surrounding significant features such as roads and other rights of way, surface water bodies, and adjacent properties.

(b) A property map which identifies significant structures and features, including but not limited to property improvements, including all roads, railroads, and above ground and below ground structures and appurtenances, the property's boundaries, and identifies the property which is the subject of the voluntary action.

(c) Identified areas and other areas. A property map which identifies the location and type of all known or suspected releases of hazardous substances or petroleum on the property including areas determined under this rule to be de minimis areas and previously addressed areas in accordance with paragraph (E) of this rule.

(d) A map which identifies all sites within one half-mile surrounding the property which were identified in paragraph (C)(5) of this rule.

(e) All maps required by this rule shall include the following:

(i) A citation that indicates accuracy, including the author and date of current source.

(ii) Scale. The scale shall maintain readability even if the map is reproduced without color.

(6) An explanation of all procedures used during the phase I property assessment.

(7) A summary of all relevant information used to meet the objectives ~~contained~~ in paragraph (C) of this rule~~, including: historic and current uses of the property, adjoining properties, and areas surrounding the property; the environmental history; any interviews and property inspections conducted; and the release history on or adjoining the property~~.

(8) A statement of any limitations, ~~or~~ qualifications, or data gaps which impact the phase I property assessment~~, including~~. This statement shall include an identification and explanation of any records ~~of information~~ which were not reviewed because ~~they~~either the records were determined not to be reasonably available or the records could not be obtained despite good-faith efforts.

(9) A recommendation ~~stating~~ that states either ~~a no further action letter can be issued or that a phase II property assessment would be required in order to obtain a no further action letter for the property.~~of the following:

(a) A no further action letter can be issued.

(b) A phase II property assessment is required in order to obtain a no further action letter for the property.

(10) ~~A~~To the extent available, a bibliography of references which identifies~~, to the extent available,~~ a description, date, source, and location of any document reviewed as part of the phase I property assessment and include the name, address, and telephone number of any persons interviewed in the phase I property assessment.

(11) Sufficient color photograph documentation of the property's current condition. The volunteer ~~must~~shall identify the dates that the photographs of the property were taken.

(12) Appendices for all appropriate supporting documentation.

~~(H) If more than one hundred eighty days has elapsed since the completion of a phase I property assessment, the phase I property assessment must be amended in accordance with paragraph (E)(1)(c) of rule 3745-300-07 and paragraph (D)(1) of rule 3745-300-13 of the Administrative Code.~~

(H) Phase I assessment update. If more than one hundred eighty days has elapsed since the completion of the requirements in paragraphs (C) and (E) of this rule, the phase I property assessment shall be updated as follows:

(1) In accordance with paragraph (E)(1)(c) of rule 3745-300-07 of the Administrative Code, before the phase II property assessment begins.

(2) In accordance with paragraph (D)(1) of rule 3745-300-13 of the Administrative Code, prior to issuance of a no further action letter.

Effective:	10/17/2019
Five Year Review (FYR) Dates:	7/31/2019 and 10/17/2024

CERTIFIED ELECTRONICALLY

Certification

10/07/2019

Date

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3745-300-07 **Phase II property assessments for the voluntary action program.**

[Comment: For dates of non-regulatory government publications, publications of recognized organizations and associations, federal rules, and federal statutory provisions referenced in this rule, see rule 3745-300-15 of the Administrative Code titled "Incorporation by reference - voluntary action program."]

(A) Applicability.

(1) A phase II property assessment shall be conducted in accordance with this rule if a phase I property assessment conducted in accordance with rule 3745-300-06 of the Administrative Code reveals any information that establishes any reason to believe that a release of hazardous substances or petroleum has or may have occurred on or from the property, or there is reason to believe that a release from an off-property source area is impacting the property. This rule does not apply when a release is in an area that is demonstrated to be de minimis in accordance with paragraph (E)(2)(a) of rule 3745-300-06 of the Administrative Code.

(2) Factors affecting eligibility of a property. The volunteer shall utilize information from phase I or phase II property assessments to determine that a property is eligible for the voluntary action program in accordance with rule 3745-300-02 of the Administrative Code at the time of the no further action letter issuance.

(B) Purpose of a phase II property assessment.

(1) The purpose of a phase II property assessment is to conduct an investigation sufficient to determine whether all applicable standards are met or to determine that remedial activities conducted in accordance with rule 3745-300-11 of the Administrative Code demonstrate or result in compliance with applicable standards.

(2) A volunteer may elect to conduct remedial activities at any point during a phase II property assessment without first deriving standards, provided that the remedial activities comply with rule 3745-300-11 of the Administrative Code, and provided that the volunteer completes the activities in paragraph (E) of this rule.

(C) Data quality objectives for phase II property assessments. The volunteer shall develop and implement data quality objectives consistent with U.S. EPA's "Guidance on Systematic Planning Using the Data Quality Objectives Process" according to the limitations and intended uses of those objectives. To achieve the purpose in paragraph (B) of this rule, the volunteer, at a minimum, shall complete one iteration of the following steps:

(1) Identify the goals of the phase II property assessment, including the applicable standards that need to be achieved to demonstrate compliance with this chapter.

(2) Identify the data and information necessary to support the objectives of the phase II property assessment. Evaluate historical information from the phase I property assessment and determine if data gaps are present that should be addressed.

(3) Define the boundaries of the phase II property assessment, including spatial and temporal limits.

(4) Determine the identified areas that need to be investigated or addressed, factoring in current and reasonably anticipated future use of the property.

(5) Develop an approach to identify chemicals of concern (COCs), complete exposure pathways, and current and reasonably anticipated future receptors.

(6) Specify how the data and information collected in the phase II property assessment shall be used in the decision-making process to assess identified areas. Clarify performance and acceptance or rejection criteria for the data.

(7) Identify whether additional data or information are necessary to evaluate exposure pathways if using exposure units in a property-specific risk assessment conducted in accordance with rule 3745-300-09 of the Administrative Code.

(8) Develop a sampling and analysis plan to obtain the data.

(9) Develop a conceptual site model that illustrates the relationships between contaminants, transport media, and receptors during various phases of the voluntary action as needed. The conceptual site ~~modelshall~~model shall describe the exposure scenarios that identify the environmental media, COCs, current and reasonably anticipated future land use and receptor populations, and a determination of exposure pathway completeness.

(10) The final conceptual site model, which represents conditions at the time of the no further action letter issuance, shall be included in the phase II property assessment report that is completed in accordance with paragraph (J) of this rule.

(D) Sampling and sample analysis. The volunteer shall identify the samples and analytes that the ~~certified~~ laboratory shall analyze, and the volunteer shall ensure the following:

(1) The sampling procedures employed at the property are consistent with the sample quality requirements of the certified laboratory.

(2) Data from the ~~certified~~ laboratory are adequate for use in the voluntary action. At a minimum, the volunteer shall do the following:

(a) Notify the ~~certified~~ laboratory when samples are to be used for a voluntary action and when ~~certified~~ laboratory data are required.

(b) Ensure that the ~~certified~~ laboratory is certified or accredited for and capable of performing the analyses that are required for the property, including those necessary to form the basis of the no further action letter.

(c) Communicate to the ~~certified~~ laboratory the applicable standards required for the property and ensure that the certified laboratory is capable of detecting the COCs in environmental media at or below the applicable standards for the property. Cumulative adjustments for multiple chemicals and pathways shall be evaluated to determine the applicable standards that shall be achieved to evaluate compliance with applicable standards.

(d) Use appropriate detection limit to represent any applicable standard where the ~~certified~~ laboratory is not capable of detecting the COCs at or below the applicable standard until such time that a lower detection is achieved.

(e) Perform data verification.

(3) Acceptable quality assurance and quality control procedures are established and employed when field data are collected during the phase II property assessment. The field quality assurance and quality control procedures shall serve to minimize sources of error, minimize the potential for cross contamination, and maximize the representativeness of the data collected. At a minimum, the field quality assurance and quality control procedures shall include the following:

(a) Review of the laboratory's quality assurance program plan and standard operating procedures for consistency with field quality assurance and quality control procedures.

(b) Develop field quality assurance and quality control procedures including but not limited to the following items:

(i) Equipment decontamination.

(ii) Trip blanks, equipment blanks, field blanks, and duplicates.

(iii) Calibration of field instruments, which includes procedures for instrument correction and re-calibration when necessary.

(iv) Documentation and record maintenance.

(v) Sample handling, preservation, and holding times.

(vi) Chain-of-custody.

(E) Phase II property assessment data collection activities. The sampling activities conducted under this paragraph shall be performed in accordance with the sampling procedures in paragraph (D) of this rule. Data collection and data evaluation may be conducted iteratively in accordance with the conceptual site model as required by paragraph (C)(9) of this rule. The volunteer shall collect sufficient data to make the determinations in paragraph (F) of this rule, in accordance with the following:

(1) Use of existing information from phase I assessments and data from laboratories not accredited or certified under this chapter.

(a) Phase I property assessment and other existing information. The person who conducts a phase II property assessment shall utilize all information from a phase I property assessment conducted in accordance with rule 3745-300-06 of the Administrative Code and any other information known to the owner, or the volunteer if different from the owner, which is relevant to the proper characterization of environmental conditions on, underlying, or emanating from the property.

(b) Use of data from prior phase I environmental site assessments. Prior phase I environmental site assessments and studies not conducted in accordance with rule 3745-300-06 of the Administrative Code may be relied upon, provided that all of the following are met:

(i) The information gathered and the method used to collect and evaluate the data are consistent with paragraph (A) of rule 3745-300-06 of the Administrative Code.

(ii) The prior phase I environmental site assessment is amended in such a way as to comply with rule 3745-300-06 of the Administrative Code.

(iii) The prior phase I environmental site assessment is amended to comply with paragraph (E)(1)(c) of this rule, if more than one hundred eighty days has elapsed after completion of the phase I environmental site assessment.

(c) Amending phase I property assessments. The volunteer shall ensure that all requirements in paragraphs (C) and (E) of rule 3745-300-06 of the Administrative Code are performed within one hundred eighty days before the phase II property assessment begins, or that no change in environmental conditions at the property occurred after the actions required by paragraphs (C) and (E) of rule 3745-300-06 of the Administrative Code were conducted. A change in environmental conditions means new information about known or suspected releases to environmental media that result in additional identified areas at the property that are subject to phase II property assessment, or previous identified areas that need further phase II property assessment due to new information.

(i) During a determination of whether to re-evaluate requirements in paragraphs (C) and (E) of rule 3745-300-06 of the Administrative Code, best professional judgment shall be used to decide which requirements in paragraphs (C) and (E) of rule 3745-300-06 of the Administrative Code shall be re-evaluated to determine whether additional phase II property assessment is required.

(ii) If any provisions in paragraphs (C) and (E) of rule 3745-300-06 of the Administrative Code require re-evaluation, documentation of the additional information gathered to comply with this paragraph shall be included in an updated phase I property assessment report.

~~(d) Use of non-certified laboratory data. Data generated by laboratories not certified under this chapter, non-certified data, and studies not conducted in accordance with this rule may be used to partially comply with this rule, provided that all of the following are met:~~

~~(i) The information gathered is consistent with the purposes of this rule, and the methods used to collect and evaluate the data are consistent with the purposes of this rule.~~

~~(ii) The data are evaluated to ensure quality and consistency with the requirements for data collected in a phase II property assessment conducted in accordance with this rule.~~

~~(iii) The data are confirmed by samples analyzed by a laboratory with a current certification under this chapter for the analysis. The confirmatory samples shall be collected as follows:~~

~~*(a)* For ground water, surface water, and air, provided that the samples are collected from the same sampling points that were used in the previous study, a minimum of ten per cent of the sample population of each data set in the previous study shall be confirmed.~~

~~*(b)* For all environmental media not addressed in paragraph (E)(1)(d)(iii)(a) of this rule, or if the sampling points used in the previous study cannot be used, or are not used, the volunteer shall do the following:~~

~~*(i)* Collect a minimum of ten per cent of the sample population, or at least eight samples, whichever is greater as confirmation samples, for each data set in the previous study.~~

~~*(ii)* Qualitatively compare the non-certified laboratory data set and the certified laboratory data set and demonstrate that the two are not significantly different. To make this demonstration, the volunteer shall utilize any method that is accepted as an academic or industry standard.~~

~~(iv) The data or information used in support of a no further action letter are consistent with existing property conditions.~~

~~(v) If the requirements of paragraphs (E)(1)(d)(i) to (E)(1)(d)(iv) of this rule cannot be met, the volunteer shall determine the concentrations of COCs in identified areas or exposure units in accordance with paragraph (F)(6) of this rule.~~

(2) A review and evaluation of existing regional and property-specific geologic, hydrogeologic, and physical characteristics of the property and the surrounding area by an evaluation of characteristics in paragraphs (E)(2)(a) to (E)(2)(o) of this rule. The volunteer shall review reasonably available information from previous on-property investigations or other sources of information. Property-specific data shall be collected as needed. The collection of additional data or information shall be by methods consistent with this rule. The evaluation of information and collection of additional data shall be consistent with the data quality objectives developed in accordance with paragraph (C) of this rule. The review and evaluation shall address and include the following, as necessary:

(a) The characteristics of major stratigraphic units and the associated depositional environments. A description of the continuous profile of

the stratigraphic units beneath the property, including the thickness and lateral extent of each unit and the depth to bedrock.

(b) Property-specific physical characteristics of saturated or unsaturated soils or bedrock including but not limited to the following:

(i) Porosity.

(ii) Effective porosity.

(iii) Bulk density.

(iv) Moisture content.

(v) Grain size analysis.

(vi) Soil pH.

(vii) The vertical and horizontal hydraulic conductivity of saturated and unsaturated zones.

(viii) The contaminant attenuation capacity and mechanisms of attenuation of soil or bedrock including but not limited to the following:

(a) Ion exchange capacity.

(b) Organic carbon content.

(c) Mineral content.

(d) Soil sorptive capacity.

(c) Identification of regional aquifers and ground water zones beneath the property, and a determination of the productivity of such aquifers.

(d) Identification of confining units that may separate ground water zones and the ability of the confining units to transmit or retard the movement of ground water, including an evaluation of the hydraulic interconnectedness of such zones in the subsurface.

(e) Identification and characterization of ground water recharge and discharge areas, and the amount of recharge and discharge.

(f) Estimates of infiltration rates or evapotranspiration rates.

(g) A description, and the potential orientation, of geomorphology and structural geologic features that may influence the ground water flow system or unsaturated flow conditions, including but not limited to topographical features, geologic stratification, faults, joints, or fractures.

(h) The occurrence, flow direction, and gradient of surface water or ground water.

(i) The absence or presence of commingled COCs from multiple source areas.

(j) The natural quality of ground water and surface water.

(k) Any anthropogenic influences that may affect or alter the natural geology and hydrogeology underlying the property or may provide preferential migration pathways, including but not limited to, utilities, fill material, pavement, buildings and building foundations, or grading activities.

(l) Identification of ground water use, availability or special designations such as drinking water source protection areas for a public water system using ground water or sole source aquifer designations.

(m) Identification of the presence of legally-enforceable restrictions on the use of ground water including, without limitation, local rules and ordinances.

(n) Identification of regional availability of surface water or ground water and reasonable alternative sources of drinking water.

(o) Any other characteristics or information that may be useful to meet the data quality objectives of the phase II property assessment or to determine compliance with applicable standards or the need for remedial activities.

(3) The volunteer shall identify the COCs in the identified areas by an evaluation of the following:

(a) Hazardous substances or petroleum identified in a phase I property assessment conducted in accordance with this rule or rule 3745-300-06 of the Administrative Code.

(b) Hazardous substances or petroleum that are or were commonly used in industrial or commercial activities similar to the activities conducted at the property.

(c) Hazardous substances or petroleum that, based on reasonably available information, may be typical constituents, components, additives,

impurities, and degradation products of hazardous substances or petroleum identified in paragraphs (E)(3)(a) and (E)(3)(b) of this rule.

(d) Constituents of hazardous substances for which a method or technology of analysis is not available to measure the concentration of the hazardous substance. The volunteer shall obtain analytical data from an accredited or certified ~~data~~laboratory for each constituent or set of constituents which are representative of a hazardous substance even if the constituents are not listed as a hazardous substance.

(e) Naturally occurring hazardous substances or petroleum that occur in one environmental medium are considered potential COCs if current or past activities involving the treatment, storage, or disposal of hazardous substances or petroleum are suspected to have caused the transfer of these naturally occurring hazardous substances or petroleum to other environmental media. Examples include the following:

(i) An acid spill that results in the leaching of metals naturally found in soil to the underlying ground water.

(ii) The mobilization to ground water of metals naturally found in soil when the mobilization is the result of anaerobic ground water associated with the biodegradation of an organic solvent ground water plume.

(4) Evaluate identified areas.

(a) The volunteer shall evaluate all identified areas and determine within each identified area the following:

(i) All source areas that are present.

(ii) All affected media that are present.

(b) The volunteer shall consider information from a phase II property assessment to determine if the existence, location, and dimensions of each identified area designated pursuant to a phase I property assessment require adjustment. If the existence, location, or dimensions of the identified areas require adjustment or redesignation to reflect the phase II property assessment information, the volunteer shall make the appropriate adjustments to the identified areas and shall redesignate the identified areas in the phase II property assessment.

(5) Sampling environmental media.

(a) The volunteer shall collect samples from environmental media affected by a release in accordance with the data quality objectives and sampling procedures developed under paragraphs (C) and (D) of this rule. Sampling objectives shall be reliable and representative for the environmental media sampled, as necessary to make the determinations in paragraphs (F)(1) to (F)(10) of this rule.

(b) During the determination of how to conduct sampling under paragraph (E)(5)(a) of this rule, the volunteer shall ensure that the data collected are sufficient to make the determinations in paragraphs (F)(1) to (F)(10) of this rulefor all points of compliance an receptors, and meet the stated data quality objectives. The volunteer shall ensure that the data are representative and shall consider the following:

(i) The vertical and horizontal spatial distribution of sampling locations.

(ii) Temporal variations in the media or in the concentrations of COCs contained in the media.

(6) Identification of current and reasonably anticipated property use and receptor ~~populations.The~~populations. The volunteer shall identify the current and reasonably anticipated uses of the property using the data quality objectives as provided in paragraph (C) of this rule. The volunteer shall also identify all receptor populations reasonably anticipated to be exposed to COCs on the property, and all off-property receptor populations reasonably anticipated to be exposed to COCs from the property. Receptor populations that shall be identified for the purpose of making the determinations contained in paragraph (F)(1) of this rule include, at a minimum, the following:

(a) The volunteer shall identify the current and reasonably anticipated uses of the property using the data quality objectives provided in paragraph (C) of this rule.

(b) The volunteer shall identify all receptor populations reasonably anticipated to be exposed to COCs on the property, and all off-property receptor populations reasonably anticipated to be exposed to COCs from the property. Receptor populations that shall be identified in order to make the determinations in paragraph (F)(1) of this rule include, at a minimum, the following:

(i) Populations that live on the property.

(ii) Populations that work on the property.

(iii) Populations on the property as visitors, commercial consumers or recreational participants.

(iv) Populations on or off the property that may be exposed to COCs in environmental media as a result of construction activities.

(v) Populations on or off the property that are reasonably anticipated to be exposed to COCs from the property through ground water migration, surface water migration, dust emissions, volatilization, and other mechanisms which transport COCs off the property.

(vi) Important ecological resources that, considering the land use and the quality and extent of habitat on the property and adjoining properties, reasonably would have been associated with the property or adjacent properties were it not for the presence of COCs from the property.

(7) The volunteer may need to conduct data collection activities necessary to determine background levels in accordance with paragraph (H) of this rule.

(F) Determinations under the voluntary action program.

(1) Pathway completeness determination.

(a) The volunteer shall evaluate the current and reasonably anticipated exposure pathways and shall identify the following.

(i) All source areas or affected media contributing to the pathway.

(ii) The receptors identified under paragraph (E)(6) of this rule and any applicable points of compliance.

(iii) The transport mechanisms for the pathway.

(b) The volunteer shall determine which current and reasonably anticipated pathways are complete. Exposure pathways shall be based on property-specific data collected in accordance with the procedures described in this chapter and shall be evaluated in accordance with the procedures described in this chapter. A pathway is considered to be complete if all three of the pathway components described in paragraphs (F)(1)(a)(i) to (F)(1)(a)(iii) of this rule are present. All exposure pathways determined to be complete under this paragraph shall be identified in the phase II property assessment report.

(c) If the volunteer determines that any of the exposure pathways on or adjoining the property are not reasonably anticipated to be complete for the COCs, the phase II property assessment report shall include a written justification for the elimination of those exposure pathways from further consideration.

(2) Determination of ground water zones and confining units.

(a) The volunteer shall determine ground water zones and confining units beneath the property, as necessary, for the purposes of ground water protection or classification. The information listed in paragraph (E)(2) of this rule shall be used, as necessary, to determine the extent to which saturated zones in the subsurface should be divided or grouped into ground water zones. The volunteer shall determine whether any confining units are present, and, if present, how such confining units separate the ground water zones.

(b) During the evaluation of whether the uppermost saturated zone is a ground water zone, the volunteer may assume that the saturated zone contains ground water, or may provide a demonstration that the saturated zone does not contain ground water. If the volunteer chooses to make a demonstration that the uppermost saturated zone does not contain ground water, the volunteer shall bias the following determinations to the area of highest expected outcome of the testing:

(i) Determine the ground water yield in accordance with paragraph (F)(8) of this rule, using a sufficient number of properly developed wells that are constructed to the minimum standards of a two-inch diameter, five-foot long manufactured screen placed in the saturated zone in a six-inch diameter borehole.

(ii) Determine the in situ hydraulic conductivity of the saturated zone using appropriate field test methods. Sampling points shall be sufficient in number to represent the hydraulic conductivity of the saturated zone underlying the property.

(3) Determination of whether the provisions for protection of ground water that meets unrestricted potable use standards apply, or whether ground water classification is required. If a ground water zone is determined to meet unrestricted potable use standards, the provisions in paragraph (F)(4) of this rule and paragraph (D) of rule 3745-300-10 of the Administrative Code apply to the ground water zone underlying the property. If a ground water zone is determined to exceed unrestricted potable use standards, the classification of the ground water zone

shall be determined in accordance with paragraph (B) of rule 3745-300-10 of the Administrative Code. Either generic or property-specific unrestricted potable use standards may be used to make this demonstration. For each ground water zone underlying the property, the volunteer shall demonstrate whether the ground water in the zone meets or exceeds unrestricted potable use standards by use of one of the following methods:

(a) Sample the ground water within the zone to determine whether the ground water in that zone meets or exceeds unrestricted potable use standards. The volunteer shall collect one or more ground water samples to determine the concentration of COCs in the ground water.

(i) Ground water samples shall be collected in accordance with paragraph (F)(6)(d) of this rule from one or more ground water monitoring wells located immediately down-gradient of the source area or down-gradient and as close as possible to the source area. The samples shall be analyzed by a ~~certified~~ laboratory for the concentrations of the COCs at the property. If more than one ground water sample is collected from a well, the second sample shall be collected within forty-eight hours to ninety days after collection of the first ground water sample.

(ii) To evaluate whether more than one ground water sample is warranted to determine if the ground water meets or exceeds the unrestricted potable use standards, the volunteer shall consider all temporal variations that could impact the determination of whether the provisions apply to the ground water zone. If additional ground water sampling events are warranted due to temporal variations, then a sufficient number of additional ground water samples shall be collected over an appropriate time period to adequately characterize a representative concentration of the COC in ground water. Temporal variations include, but are not limited to, the following:

(a) Seasonal variations that result in either increased or decreased recharge and thus fluctuations in the water table elevation.

(b) Other variations that result from the impact of geologic heterogeneity (permeability, fractures, etc.), contaminant source heterogeneity, or the transient nature of contaminant transport.

(iii) A minimum of two ground water samples are needed to determine that the ground water in a zone exceeds the unrestricted potable use standards, unless one or both of the following conditions apply:

(a) The concentrations of the first sampling event exceed unrestricted potable use standards by at least one order of magnitude.

(b) The concentrations of the first sampling event exceed unrestricted potable use standards and historical ground water data at the property indicates that releases from source areas have impacted the ground water zone underlying the property in excess of unrestricted potable use standards.

(iv) During a demonstration of whether ground water meets or exceeds unrestricted potable use standards, a cumulative adjustment for multiple chemicals shall be conducted in accordance with paragraph (A)(2)(b) of rule 3745-300-08 of the Administrative Code. The cumulative adjustment for multiple chemicals is required for both generic and property-specific risk-derived unrestricted potable use standards. However, the generic unrestricted potable use standards based on maximum contaminant levels or other regulatory established criteria under paragraph (E)(3) of rule 3745-300-08 of the Administrative Code shall not be included in the cumulative adjustment for multiple chemicals in the ground water zone. The risk for potable use of ground water shall not be summed with the risk from exposure pathways other than potable use of ground water.

(v) Ground water with free product exceeds applicable standards for unrestricted potable use of ground water.

(b) The volunteer may justify that sampling of a ground water zone underlying the property is not necessary to determine that the ground water in the zone does not contain concentrations of any COCs that exceed unrestricted potable use standards. Based on this justification, the volunteer may apply the provisions to protect ground water that meets potable use standards in paragraph (F)(4) of this rule and paragraph (D) of rule 3745-300-10 of the Administrative Code. As part of this justification, the volunteer shall document that it is reasonable to assume ground water does not exceed the unrestricted potable use standards based on a weight-of-evidence approach using relevant property-specific information, including the following, as necessary:

(i) The nature, type, concentration, and mass of the COCs released, and the time of release.

(ii) The type, concentration, and mass of COCs present in the the following:

(a) Subsurface soil or bedrock above the ground ~~waster~~water zone that requires protection.

(b) Subsurface soil or bedrock between ~~grond~~ground water zones.

(iii) The physical and chemical characteristics of the soil or bedrock beneath the property including, but not limited to, the secondary features, soil or bedrock type, heterogeneity of the subsurface soil or bedrock, or the integrity of any confining units that separate ground water zones.

(iv) The separation distance between the source area and the ground water zone, or the separation distance between ground water zones.

(v) The results of modeling conducted in accordance with paragraph (G) of this rule, as applicable.

(vi) The presence or absence of off-property source areas that may have impacted ground water on, underlying, or emanating from the property. The impact of off-property source areas shall be determined in accordance with paragraph (F)(9) of this rule.

(vii) Any other lines of evidence the volunteer believes support the determination that the ground water in a zone underlying the property does not contain concentrations of any COCs above unrestricted potable use standards.

(4) Demonstration of continuing compliance with the provisions to protect ground water meeting unrestricted potable use standards.

(a) When the provisions for protecting ground water apply to a ground water zone in accordance with paragraph (D) of rule 3745-300-10, the volunteer shall demonstrate that COCs shall not migrate to the ground water zone at concentrations that exceed unrestricted potable use standards. To demonstrate this, the volunteer shall do either of the following:

(i) Demonstrate that the COCs in the subsurface do not exceed values that would result in unrestricted potable use standards being exceeded in the ground water zone.

(ii) Demonstrate that the provisions to protect ground water that meets potable use standards shall not be violated, using a weight-of-evidence approach. As part of this weight-of-evidence approach, the volunteer shall document that it is reasonable to assume the ground water zone will not exceed unrestricted potable use standards in the future using relevant property-specific information, including the following, as necessary:

(a) The nature, type, concentration, and mass of the COCs released, and the time of release.

(b) The type, concentration, and mass of COCs present in the subsurface soil or bedrock above the ground water zone that requires protection or between ground water zones.

(c) The physical and chemical characteristics of the soil or bedrock beneath the property including, but not limited to, the secondary features, soil or bedrock type, heterogeneity of the subsurface soil or bedrock, or the integrity of any confining units that separate ground water zones.

(d) The separation distance between the source area and ground water, or the separation distance between ground water zones.

(e) The results of modeling conducted in accordance with paragraph (G) of this rule, as applicable.

(f) The presence of man-made structures on the property that reduce or prevent infiltration and leaching of any COCs to the ground water zone. Man-made structures which inhibit infiltration are considered engineering controls and shall be maintained under an operation and maintenance plan in accordance with rule 3745-300-11 of the Administrative Code.

(g) Any other lines of evidence the volunteer believes support the determination that the ground water in a zone underlying the property shall not exceed concentrations of any COCs above unrestricted potable use standards.

(b) If it cannot be demonstrated in accordance with paragraph (F)(4) of this rule that COCs shall not leach or otherwise migrate into the ground water zone underlying the property, the volunteer shall implement a remedy in accordance with rule 3745-300-11 of the Administrative Code that prevents the ground water zone underlying the property from exceeding unrestricted potable use standards.

(5) Determination of applicable standards. Applicable standards shall be determined for all COCs with respect to all exposure pathways determined to be complete under paragraph (F)(1) of this rule for which the volunteer intends to demonstrate compliance with applicable standards in accordance with paragraph (I) of this rule. The volunteer shall determine and derive the applicable standards for each complete exposure pathway in accordance with this chapter.

(a) The volunteer shall determine the applicability of generic numerical standards at the property in accordance with paragraph (A)(1)(a) of rule 3745-300-08 of the Administrative Code. If generic direct-contact soil standards for restricted land uses are used to meet applicable standards, institutional controls shall be used to limit the property's land use as described in paragraphs (B)(2)(d) and (C)(2)(c) of rule 3745-300-08 of the Administrative Code. The institutional controls shall be implemented in accordance with rule 3745-300-11 of the Administrative Code.

(b) When a property-specific risk assessment is performed at the property, the volunteer shall determine the applicability of standards derived through a property-specific risk assessment conducted in accordance with paragraph (A) of rule 3745-300-09 of the Administrative Code.

(c) The volunteer shall determine the applicability of any other standards in this rule or in rule 3745-300-08, 3745-300-09, 3745-300-10, or 3745-300-11 of the Administrative Code.

(d) The volunteer shall consider the performance of a remedy employed at the property when the remedy's use is intended to meet or maintain applicable standards. The remedy shall be implemented in accordance with rule 3745-300-11 of the Administrative Code.

(e) The volunteer does not need to determine applicable standards in accordance with rule 3745-300-08 or 3745-300-09 of the Administrative Code for COCs when the concentrations of the COCs from the property are at or below background levels determined in accordance with paragraph (H) of this rule.

(f) The volunteer does not need to determine applicable standards for COCs, if any of the following apply:

(i) The COCs were the result of a release in a de minimus area or a previously addressed area as determined in accordance with paragraph (E)(2)(a) of rule 3745-300-06 of the Administrative Code.

(ii) The volunteer makes the determination that infrequent detections of COCs are a product of artifacts in the data and may not be related to the site operations or disposal practices. The determination shall be based on a demonstration of sufficient weight of evidence. Examples of evidence for consideration include the following:

(a) Historical information reported in the phase I property assessment report and other historical data from the property.

(b) The concentrations at which the detections are reported, provided that detection limits are not elevated due to matrix interferences.

(c) The detections do not indicate the presence of previously unknown areas of high concentration.

(d) The COC is not detected in any other sampled environmental media.

(e) The likelihood that the detected constituents are degradation or by-products of COCs on the property.

(iii) The COCs are demonstrated by the ~~certified~~ laboratory to be tentatively identified compounds without an indication of historical use on the property or evidence that the COCs might be degradation compounds or by-products of one or more other COCs used at the property.

(iv) The COCs are demonstrated through appropriate quality assurance and quality control data to be the result of contamination due to field sampling activities or laboratory processes.

(v) The COCs are essential human nutrients that are present due to the release or potential release of a hazardous substance or petroleum, and may be toxic only at very high concentrations. These chemicals include iron, magnesium, calcium, potassium, and sodium.

(vi) The COCs are determined to contribute to less than one per cent of the estimated risk or hazard attributed to a pathway-receptor combination in accordance with the procedures in U.S. EPA's "Risk Assessment Guidance for Superfund, Volume I: Human Health Evaluation Manual (Part A)" following a procedure analogous to section 5.9.5 of the document.

(6) Determination of the concentrations of chemicals of concern (COCs) in identified areas or in exposure units. The volunteer shall determine the concentrations of the COCs in accordance with paragraphs (F)(6)(a) to (F)(6)(e) of this rule as necessary to make the determinations in paragraph (F) of this rule. Exposure unit determinations shall consider current and future land use exposure scenarios in accordance with paragraph (D)(3)(b) of rule 3745-300-09 of the Administrative Code, and sampling shall be appropriate for the exposure scenario. All samples collected in accordance with this paragraph shall be analyzed by ~~a~~an accredited or certified laboratory~~, and certified data provided,~~ in order to support the determinations.

(a) To determine the concentrations of the COCs in surface water, the volunteer shall follow a sampling and analysis plan developed in accordance with the following:

(i) Ohio EPA's "Biological Criteria For the Protection of Aquatic Life: Volume II: User's Manual For Biological Field Assessment Of Ohio Surface Waters."

(ii) Ohio EPA's "Manual of Ohio EPA Surveillance Methods and Quality Assurance Practices."

(b) To determine the concentrations of the COCs in sediments to compare the concentrations to the applicable standards identified in paragraphs (G) and (H) of rule 3745-300-08 of the Administrative Code, the volunteer shall sample the sediments in the identified areas in accordance with the procedures in Ohio EPA's "Sediment Sampling Guide and Methodologies." The data collected shall be analyzed by ~~a~~an accredited or certified laboratory to determine the representative concentration or maximum concentration in the identified area. To determine representative or maximum concentrations in identified areas, the volunteer shall derive the concentrations in accordance with paragraph (F)(6)(c) of this rule.

(c) To determine the concentrations of the COCs in soil to demonstrate compliance with applicable standards, the samples collected shall be

analyzed by ~~a~~an accredited or certified laboratory~~, and certified data provided,~~ to determine the representative concentrations or maximum concentrations of the COCs in the identified area or exposure unit. To determine representative or maximum concentrations of the COCs in identified areas or exposure units, the volunteer shall do one of the following:

(i) Derive the representative concentration by calculating the ninety-five per cent upper confidence limit of the arithmetic mean. The ninety-five per cent upper confidence limit of the arithmetic mean shall be calculated for each data set. Data sets shall be comprised of a sufficient number and quality of samples as to derive a normal, log-normal, or other applicable frequency distribution. In addition to compliance with paragraph (D) of this rule, the volunteer shall use techniques for sampling normal or log-normal distributions based on appropriate equations in U.S. EPA's "Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites," or by other peer-reviewed statistical methodology for normal or log-normal distributions. Calculating the representative soil concentration using the ninety-five per cent upper confidence limit is inappropriate for vapor intrusion demonstrations.

(ii) Derive the maximum concentration within the identified area. The volunteer may use the maximum concentration in the data set to represent the identified area concentration, provided that the volunteer can reliably bias sampling activities both vertically and laterally within the identified area to the point of highest concentration. A sufficient number of samples shall be collected in order to evaluate all source areas and exposures for each receptor determined in accordance with paragraph (F)(1) of this rule, provided that a minimum of three or more samples are collected from each identified area and are analyzed by ~~a~~an accredited or certified laboratory~~, and certified data are provided~~.

(iii) Derive the representative concentration using the incremental sampling technique based on guidance provided in Mason's "Preparation of Soil Sampling Protocols: Sampling Techniques and Strategies," Gerlach and Nocerino's "Guidance for Obtaining Representative Laboratory Analytical Subsamples from Particulate Laboratory Samples" and the interstate technology regulatory council's "Incremental Sampling Methodology." The volunteer may use the representative concentration from incremental sampling conducted in the identified area or exposure unit,

provided that the samples are analyzed by ~~a~~an accredited or certified laboratory.

(d) To determine the concentrations of the COCs in ground water to demonstrate compliance with applicable standards, the volunteer shall perform sampling activities in compliance with the following criteria:

(i) The method of sample collection shall be capable of producing ground water quality appropriate to evaluate the pathway of concern.

(ii) The volunteer shall collect a sufficient number of samples to adequately characterize a representative concentration of the COCs in ground water. To determine the number and timing of samples collected, the volunteer shall consider temporal variations that could result in an exceedance of applicable standards. Temporal variations include, but are not limited to the following:

(a) Seasonal variations that result in either increased or decreased recharge and thus fluctuations in the water table elevation.

(b) Other variations that result from the impact of geologic heterogeneity (permeability, fractures, etc.), contaminant source heterogeneity, or the transient nature of contaminant transport.

(iii) Sample locations shall be appropriately located to evaluate all reasonably anticipated pathways to ensure applicable standards shall not be exceeded at the points of compliance or receptors based upon the following:

(a) The direction of ground water flow.

(b) The size of the plume.

(c) The date of the release.

(d) Field screening techniques and methods.

(e) Other methods or information, as appropriate.

(iv) One or more sampling locations shall be biased toward the location that is, or would be anticipated to be, the area of highest concentration of COCs. If sample locations cannot be reliably biased towards the area of highest concentration, the volunteer

shall take samples from a number of additional sample locations sufficient to determine the area of highest concentration.

(v) All samples collected in accordance with this paragraph shall be analyzed by ~~a~~an accredited or certified laboratory.

(vi) To determine compliance with applicable standards, the volunteer shall evaluate the data from each location separately.

(vii) If it is necessary to take a ground water sample directly beneath a source area, the volunteer shall use methods for monitoring well installation, construction, sampling, and maintenance that shall not cause cross-contamination between ground water zones.

(viii) Methods and procedures shall be followed, according to the limitations and intended uses of the methods and procedures, and based on either of the following:

(a) Documents that provide techniques for data collection, field testing, and sampling which conform to the following:

(i) Are field-validated.

(ii) Are documented and peer-reviewed.

(iii) Ensure the representativeness of samples taken following the technique.

(iv) Are proven capable of achieving the data quality objectives identified in paragraph (C) of this rule.

(b) Ohio EPA's "Technical Guidance Manual for Hydrogeologic Investigations and Ground Water Monitoring." If any portion of the "Technical Guidance Manual for Hydrogeologic Investigations and Ground Water Monitoring" document would be inconsistent with the purpose of the phase II property assessment and this chapter, that portion should not be used.

(e) To determine the concentrations of the COCs in either soil gas or indoor air, for a demonstration of compliance with applicable standards, the volunteer shall conduct sampling activities in compliance with the following criteria:

(i) The method of sample collection shall be capable of producing results appropriate to evaluate the pathway of concern.

(ii) The volunteer shall collect a sufficient number of samples to adequately characterize a representative concentration of the COCs in either soil gas or indoor air. To determine the number and timing of samples to collect, the volunteer shall consider temporal variations including, but not limited to, the following:

(a) Temporal variations in the water table elevation, or concentrations of hazardous substances or petroleum in ground water.

(b) Temporal variations that result from interior building pressure changes as a result of the use or non-use of heating, ventilation, and air conditioning (HVAC) systems during different heating and cooling seasons.

(iii) Sample locations shall be appropriate to evaluate all current and reasonably anticipated exposure pathways. The volunteer shall reasonably bias sampling activities in the identified area to the location that is, or is reasonably anticipated to be, the area of highest concentration of COCs. The selection of sample locations shall take under consideration the following:

(a) Distribution of COCs.

(b) Building occupancy, including locations and receptors.

(c) Building partitions and the layout of HVAC systems.

(d) Preferential pathways, which may include, but are not limited to, utility conduits, sumps, wall joints, and floor openings.

(e) Other variations that result from the impact of geologic heterogeneity, such as permeability and fractures.

(f) Other information, as appropriate.

(iv) All samples collected in accordance with this paragraph shall be analyzed by ~~a~~an accredited or certified laboratory.

(v) Methods and procedures shall be followed, according to the limitations and intended uses of such methods and procedures, and shall be based on either of the following:

(a) Documents containing data collection, field testing, and sampling techniques which conform to the following:

(i) The data collection, field testing, and sampling techniques are field-validated.

(ii) The data collection, field testing, and sampling techniques are documented and peer-reviewed.

(iii) The data collection, field testing, and sampling techniques ensure the representativeness of samples taken when the techniques are followed.

(iv) The data collection, field testing, and sampling techniques are proven capable of achieving the data quality objectives identified in paragraph (C) of this rule.

(b) Ohio EPA's guidance document regarding sample collection and evaluation of vapor intrusion to indoor air.

(f) Non-intrusive or indirect field testing may be used to assist in the selection of sampling locations, but these techniques shall not be used to demonstrate that concentrations of concern meet or exceed applicable standards.

(7) Classify the ground water. To classify ground water zones in accordance with paragraphs (A) and (B) of rule 3745-300-10 of the Administrative Code, the volunteer shall conduct the following data collection activities:

(a) The volunteer shall determine if the ground water zone is being used. To make the determination, the volunteer, at a minimum, shall do the following:

(i) Identify any visual evidence of ground water use in areas where ground water has or is reasonably anticipated to have concentrations of COCs in excess of unrestricted potable use standards.

(ii) Review Ohio department of natural resources water well log information for the properties on which ground water contains or is

reasonably anticipated to contain concentrations of COCs in excess of unrestricted potable use standards.

(b) To determine that the yield of a ground water zone falls below the criterion for critical resource ground water as described in paragraph (B)(1) of rule 3745-300-10 of the Administrative Code, the yield of the ground water zone shall be based on one or more of the following sources of information or methods:

(i) The ground water resource maps published by the Ohio department of natural resources or other published and verified data for the ground water zone being classified.

(ii) Determined from a sufficient number of properly developed wells constructed to the minimum standards of an eight-inch diameter manufactured screen in a twelve-inch diameter borehole, in accordance with paragraph (F)(8) of this rule. The well screen shall extend through at least eighty per cent of the thickness of the ground water zone, or the volunteer shall otherwise demonstrate that shorter screen lengths would not produce yield that results in a different classification of the ground water.

(c) To determine that the yield of a ground water zone falls below the criteria for class A ground water in paragraph (B)(2) of rule 3745-300-10 of the Administrative Code, the yield of the ground water zone being classified shall be determined in accordance with paragraph (F)(8) of this rule and shall conform to the following:

(i) For an unconsolidated ground water zone, a determination of yield based on a sufficient number of properly developed wells, that are constructed to the minimum standards of a four-inch diameter manufactured screen in an eight-inch diameter borehole or a two-inch diameter manufactured screen in a six-inch diameter borehole. When wells with dimensions of a two-inch diameter manufactured screen in a six-inch diameter borehole are used to determine yield, the yield shall be multiplied by a factor of 1.15 for purposes of this paragraph. The well screen shall extend through at least eighty per cent of the thickness of the ground water zone, or the volunteer shall otherwise demonstrate that shorter intake lengths would not produce yield that results in a different classification of the ground water.

(ii) For a consolidated ground water zone that is monitored using wells with screens, a determination of yield based on a sufficient number of properly developed wells, that are constructed to the minimum of a four-inch diameter manufactured screen in an eight-inch diameter borehole or a two-inch diameter manufactured screen in a six-inch diameter borehole. When wells with dimensions of a two-inch diameter manufactured screen in a six-inch diameter borehole are used to determine yield, the yield shall be multiplied by a factor of 1.15 for purposes of this paragraph. The well screen shall extend through at least eighty per cent of the thickness of the saturated portion of the ground water zone, or the volunteer shall otherwise demonstrate that shorter intake lengths would not produce yield that results in a different classification of the ground water.

(iii) For a consolidated ground water zone that is monitored using wells with open hole intakes, a determination of yield based on a sufficient number of wells that are properly constructed and developed to appropriate minimum standards of an eight-inch diameter borehole or a six-inch diameter borehole. When wells with a six-inch diameter borehole are used to determine yield, the yield shall be multiplied by a factor of 1.15 for purposes of this paragraph. The open hole intakes shall extend through at least eighty per cent of the thickness of the ground water zone, or the volunteer shall otherwise demonstrate that shorter intake lengths would not produce yield that results in a different classification of the ground water.

(d) To compare the yield of the ground water zone being classified to another ground water zone present below the property in accordance with paragraph (B)(2)(c) of rule 3745-300-10 of the Administrative Code, the yield of the other ground water zone, which is the likely source of water used for potable purposes within one mile of the property, shall be determined based on the lowest yield of any wells within one mile of the property. If no wells used for potable purposes exist within one mile of the property, the ground water resources maps published by the Ohio department of natural resources may be used to determine the yield of another ground water zone present under the property, which would likely be the source of water used for potable purposes within one mile of the property should a well be developed.

(8) Determination of ground water yield. When testing is conducted to determine the yield of a ground water zone underlying a property, the volunteer shall conduct sufficient testing to determine the representative yield available from

the ground water zone for potable purposes. The determination shall be made in accordance with the following:

(a) Temporal considerations. The volunteer shall demonstrate either of the following:

(i) The statistical average yield for the ground water zone over a twelve-month period.

(ii) The maximum yield for the ground water zone, provided that yield tests are biased towards the period of the highest yield.

(b) Spatial considerations. The volunteer shall bias the yield testing locations to the area of highest yield.

(9) Determination of ground water source areas. To determine whether ground water contamination is attributable to source areas located on the property, source areas located off the property, or a combination of the two, the volunteer shall conduct ground water sampling sufficient to determine the following:

(a) The releases from source areas located on the property that contribute or contributed to the COCs in excess of unrestricted potable use standards in ground water.

(b) The extent to which releases from on-property source areas have affected the ground water.

(c) If releases from off-property source areas may have affected the ground water.

(d) The extent to which releases from off-property source areas have affected the ground water.

(e) Compliance with rule 3745-300-10 of the Administrative Code.

(10) Determination of contaminant pass-through provision. When a release from an off-property source area has affected the property, the volunteer is not responsible for compliance of applicable standards at or beyond the property boundary due to the excess contribution of COCs caused by the off-property release, except when any of the following apply:

(a) The owner of the voluntary action property was an owner or operator of any property, other than the voluntary action property, where any source area was located during the owner's ownership of or operation on any such

property, and hazardous substances or petroleum have emanated from the off-property source area onto the voluntary action property.

(b) The volunteer, or owner if different from the volunteer, caused or contributed to the source areas or the off-property release.

(c) The volunteer, or owner if different from the volunteer, has entered into an agreement with any person with the purpose or effect of creating a less stringent applicable standard than would otherwise be applicable in this rule.

(d) The volunteer is a parent, subsidiary, or other commonly owned entity of any party identified in paragraphs (F)(10)(a) to (F)(10)(c) of this rule.

(G) Use of modeling.

(1) The volunteer shall identify all models relied upon as part of the phase II property assessment activities to determine a property's compliance with applicable standards or used to evaluate remedial activities conducted in accordance with rule 3745-300-11 of the Administrative Code. The modeling shall be conducted in accordance with this rule.

(2) The model shall conform to the following:

(a) The model shall be either of the following:

(i) Generally accepted within the scientific community and peer reviewed.

(ii) Scientifically valid for the processes being modeled and code-verified. To be code-verified, the model shall be shown to produce reliable and mathematically accurate results for all functions of the model.

(b) The model shall be used with assumptions and limitations reasonably consistent with conditions throughout the modeled area. The assumptions and limitations of the computer code, mathematical solution, technology utilized and computer code structure shall be consistent with the conditions throughout the modeled area and the application of the model.

(c) The model shall be used in a manner consistent with the model's documentation and intended use.

(d) The model shall be appropriate for the environmental media and application being modeled.

(3) Uses and limitations of modeling:

(a) A model may be used as a predictive tool to support a demonstration of ongoing compliance with applicable standards, or to evaluate whether an exposure pathway is reasonably anticipated to be complete, subject to appropriate calibration and field verification.

(b) A model may not be used in lieu of conducting sufficient sampling of environmental media in accordance with paragraph (E)(5) of this rule to document existing environmental conditions.

(4) The modeling shall adequately address the intended purpose of the modeling evaluation, such as to show compliance with applicable standards or to evaluate remedial activities conducted in accordance with rule 3745-300-11 of the Administrative Code. Depending on the intended purpose of the modeling evaluation or type of model, the model may need to be calibrated to the geologic, hydrogeologic, or physical conditions throughout the modeled area. The model may need to be field-verified to determine if favorable comparisons exist between the modeled conditions and observed field conditions for the area being modeled. In some cases, field verification may require monitoring and evaluation under an operation and maintenance plan.

(5) The modeling shall be evaluated to determine the sensitivity of the model to the input parameters or other components of the model (for example, boundary conditions). The volunteer shall consider the sensitivity of the input parameters when a model is utilized to determine whether a property meets the applicable standards, or when remedial activities conducted in accordance with rule 3745-300-11 of the Administrative Code are evaluated. Input parameters or other components of the model determined to be sensitive to the modeling results shall be either of the following:

(a) Based on scientifically-valid conservative assumptions. The inputs shall be based on property-specific data, or information from peer-reviewed literature and best professional judgment.

(b) Accounted for through an uncertainty analysis to quantitatively determine compliance with applicable standards or to evaluate remedial activities conducted in accordance with rule 3745-300-11 of the Administrative Code. The inputs for the uncertainty analysis shall be based on the following:

(i) Property-specific data collected in accordance with this rule.

(ii) Scientifically-valid and appropriate assumptions using either best professional judgment or information from peer-reviewed scientific literature or publications.

(6) The modeling evaluation and the results shall be documented within the phase II property assessment report or within a separate modeling report that addresses paragraphs (G)(1) to (G)(5) of this rule. If a separate modeling report is written, the separate modeling report shall be attached to the phase II property assessment report.

(H) Determination of background levels. Background levels may be used as the applicable standard after a demonstration is made that the COCs are not the result of current or past activities that involve the treatment, storage, or disposal of a hazardous substance or petroleum. The volunteer shall provide a demonstration as part of paragraph (J)(8) of this rule that COCs for which a background determination is being made comply with this paragraph. Background levels that are determined in accordance with this paragraph are considered applicable standards under this rule.

(1) Background levels in soil. If the background levels, as determined in accordance with this rule, for a COC do not meet the applicable standard derived for the property in accordance with rule 3745-300-08 or 3745-300-09 of the Administrative Code, the volunteer can select, as the applicable standard, a comparison that demonstrates that the concentration of any such COC on the property is at or below background levels.

(a) To determine background levels in soils, the samples shall be taken in soil media native to the property and may not be taken in areas identified in paragraph (H)(1)(b) of this rule. Native fill may be used to determine background levels when the native fill was not moved from or is not currently in an area described in paragraph (H)(1)(b) of this rule. If no areas on a property are appropriate under this rule to sample for background, to determine background levels, the volunteer may collect samples from a nearby, representative off-property location which would comply with this paragraph or refer to an appropriate Ohio EPA "Evaluation of Background Metal Soil Concentrations" summary report.

(b) The following areas are inappropriate to sample to determine background levels:

(i) The following types of fill areas:

(a) Engineered fill.

(b) Structural fill.

(c) Industrial fill.

(ii) Areas in which management, treatment, handling, storage, or disposal activities of any of the following are known or suspected to have occurred:

(a) Hazardous substances or petroleum.

(b) Solid or hazardous wastes.

(c) Waste waters.

(d) Material handling areas.

(iii) Areas within three feet of a roadway. This restriction applies only when the a COC is one that normally would be associated with the activities conducted on the roadway.

(iv) Parking lots and areas surrounding parking lots or other paved areas. This restriction applies only when the COC is one that normally would be associated with the activities conducted in the parking lots.

(v) Railroad tracks or railway areas or other areas affected by runoff from railroad tracks or railway areas. This restriction applies only when the COCs are those that normally would be associated with the activities conducted on or around the railroad tracks.

(vi) Areas of concentrated air pollutant depositions or areas affected by runoff from the areas of concentrated air pollution depositions.

(vii) Storm drains or ditches that presently receive or historically received industrial or urban runoff.

(viii) Spill areas.

(c) Background levels shall be representative of the zones or depth intervals to which the background levels may be applied.

(d) The following method shall be followed to determine a representative numerical value for background levels in soils at a property:

(i) Collection of background level samples. At a minimum, eight soil sampling points shall be used to calculate a background level within each zone, or soil horizon which shall be compared to samples taken to determine the concentrations of COCs in identified areas.

(ii) Determination of the numerical value for background concentrations for COCs at the property. The volunteer may use any statistically valid methodology to determine a background concentration whereby the statistical means of the distribution of background and the impacted area data sets are compared. The volunteer may refer to U.S. EPA's "Guidance for Comparing Background and Chemical Concentrations in Soil for CERCLA sites" and U.S. EPA's "Statistical Methods for Evaluating the Attainment of Cleanup Standards" for guidance. Alternatively, a statistical method that may be applied to establish background concentrations is as follows:

(a) The background mean, referred to as

$$\bar{X}_b$$

shall be calculated by dividing the sum of the total background readings by the total number of background readings:

$$\bar{X}_b = \frac{X_1 + X_2 + X_n}{n_b}$$

(b) The background standard deviation, referred to as S_b shall be calculated by taking the square root of the sum of the squares of each reading minus the mean, divided by the degrees of freedom, which is the total number of background samples minus one (n_b- 1):

$$S_b = \sqrt{\frac{(X_1 - X_b)^2 + (X_1 - X_b)^2 + (X_n - X_b)^2}{n_b - 1}}$$

(c) The coefficient of variation, referred to as C_v shall be calculated by dividing the background standard deviation by the background mean:

$C_v = S_b / X_b$

The coefficient of variation is used as a means to evaluate the data distribution. Normally distributed background data should generally have C_v less than 0.5 for granular soils, and less than 0.75 for cohesive soils, or an explanation accounting for higher C_v values. If the C_v exceeds 1.0 and the volunteer determines that the data are not distributed normally, the data may be normalized by an appropriate transformation and a maximum allowable limit may be calculated for the transformed data in accordance with paragraph (H)(1)(d)(ii)(d) of this rule. If C_v exceeds 1.0, the volunteer shall conduct a thorough evaluation to account for this variability. If the C_v exceeds 1.0 and the volunteer determines that a data point does not accurately represent background conditions or if a quality assurance and quality control problem exists which has invalidated the data point, the invalidated and inaccurate data points may be dropped, or additional samples shall be collected and analyzed to ensure a sufficient representative data population is maintained.

(d) For normally distributed data apply:

$$\overline{X}_b + 2 * S_b$$

of background data as the maximum allowable limit or upper limit, where 2 x ~~S~~represents~~S~~S_b represents two times the standard deviation and

$\bar{X}_b$

represents the background mean.

Each sample point from the background data set shall be compared to the calculated maximum allowable limit or upper limit analyzed from background data. If a value from the background data set is found to be an outlier which is not representative of background conditions, this outlier shall be replaced by another sample that is not an outlier to maintain at least eight samples for the background determination for soils.

(2) Determination of soil background levels from off-property investigations. Upon demonstration that it is not possible to find sampling locations in accordance with paragraph (H)(1) of this rule, the volunteer may use information from off-property investigations in accordance with this paragraph to determine the background concentrations of COCs at the property. To evaluate the applicability of the data collected as part of the off-property investigation, the criteria in paragraphs (H)(1)(b) and (H)(1)(c) of this rule shall be satisfied to consider the data as potentially applicable to determine background levels in soils for the purposes of this rule. If the information is not representative of conditions at the property, the volunteer may not use this method to demonstrate background levels in soil. Appropriate off-property investigations that may be used for the purposes of this paragraph include investigations that user data demonstrated to be reliable and representative of background levels for the property. At a minimum, to be reliable and representative, the investigations shall do the following:

(a) Investigations shall be conducted on soil that is representative of the soil type at the property for which the background level is being determined and are located within the state of Ohio.

(b) Investigations shall employ data demonstrated to be reliable and representative that, at a minimum, meet the following criteria:

(i) Employ data quality objectives consistent with paragraph (C) of this rule.

(ii) Employ quality assurance and quality control procedures that serve to minimize sources of error and the potential for cross contamination of field samples, and that maximize the representativeness of the data collected.

(iii) Employ data collection and sampling techniques that are consistent with the criteria listed in paragraphs (D)(1) to (D)(3) of this rule.

(c) Employ methods to calculate background levels consistent with the methods described in paragraph (H)(1)(d) of this rule or otherwise use methods that are demonstrated to be statistically verifiable.

(3) Ground water background levels.

(a) Property-specific determination of ground water background levels. If the background levels, as determined in accordance with this rule, for a COC do not meet the applicable standard derived for the property in accordance with rule 3745-300-08 or 3745-300-09 of the Administrative Code, the volunteer can select, as the applicable standard, a comparison that demonstrates that the concentration of any such COC on the property is at or below background levels. To determine background levels in ground water, samples shall be taken up-gradient at appropriate locations and depths which are unaffected by contamination from activities involving treatment, storage or disposal of hazardous substances or petroleum. Background sampling points may include points not hydraulically up-gradient of the identified areas where either of the following occurs:

(i) Hydrogeologic conditions do not allow the volunteer to determine which direction is hydraulically up-gradient.

(ii) Sampling at other points provides an indication of background ground water quality that is representative or more representative than that provided by the up-gradient points.

(b) The number and kind of samples collected to establish background in ground water shall meet the following criteria:

(i) Be appropriate for the method used to determine whether concentrations of COCs exceed background, following generally accepted principles.

(ii) As large as necessary to ensure with reasonable confidence that a contaminant release to the ground water from a property shall be detected.

(c) The method chosen shall be applied separately for each COC and shall comply with the following performance standards:

(i) Capable of accounting for data below the limit of detection using the lowest practical quantitation limit that can be reliably achieved within specified limits of precision and accuracy during routine laboratory operating conditions that are available to the volunteer. The practical quantitation limit shall be below the potable ground water standard.

(ii) Provide procedures to control or correct for seasonal and spatial variability as well as temporal correlation in the data.

(iii) If a statistical method is chosen, the method shall be appropriate for the distribution of chemical parameters or hazardous constituents. If the distribution is shown to be inappropriate for a normal theory test, then the data shall be transformed or a distribution-free theory test shall be used. If the distributions for the COCs differ, more than one statistical method may be needed.

(iv) Complies with the performance standards provided in U.S EPA's "Statistical Analysis of Ground Water Monitoring Data at RCRA Facilities: Unified Guidance."

(4) Determination of ground water background levels from off-property investigations. Upon a demonstration that it is not possible to find sampling locations in accordance with paragraph (H)(3) of this rule, the volunteer may use information from off-property investigations in accordance with this paragraph to determine the background concentrations of COCs at the property. To evaluate the applicability of the data collected as part of the off-property investigation, the criteria in paragraphs (H)(3)(b) and (H)(3)(c) of this rule shall be satisfied in order to consider the data as potentially applicable to determine background levels in ground water for the purposes of this rule. If the information is not representative of conditions at the property, the volunteer shall not use this method to demonstrate background levels in ground water. Appropriate off-property investigations that may be used for the purposes of this paragraph include investigations that use data demonstrated to be reliable and representative of background levels for the property. At a minimum, to be reliable and representative, the investigations shall meet the following criteria:

(a) Be conducted on soils and ground waters representative of the soil type, ground water conditions, and ground water zone at the property for which the background level is being determined and are located within or immediately adjacent to the state of Ohio.

(b) Employ data demonstrated to be reliable and representative and at a minimum meet the following criteria:

(i) Employ data quality objectives consistent with paragraph (C) of this rule.

(ii) Employ quality assurance and quality control procedures that serve to minimize sources of error and the potential for cross contamination of field samples, and maximize the representativeness of the data collected.

(iii) Employ data collection and sampling techniques that are consistent with the criteria listed in paragraphs (D)(1) to (D)(3) of this rule.

(c) Employ methods to calculate background levels that are demonstrated to be statistically verifiable.

(5) If background levels in soil or ground water cannot be determined using paragraphs (H)(1) to (H)(4) of this rule, background levels may not be used as the applicable standards for either the soil or ground water.

(I) Demonstration of compliance with applicable standards.

(1) Data collection. The data collected in accordance with this rule shall be sufficient to determine whether applicable standards are met, or to determine that remedial activities conducted in accordance with rule 3745-300-11 of the Administrative Code result in compliance with applicable standards. Data shall be sufficient to assess existing exposure pathways and reasonably anticipated exposure pathways determined to be complete in accordance with paragraph (F)(1) of this rule and all points of compliance for soil, ground water, and other environmental media, including the following:

(a) Points of compliance for soil.

(i) Applicable standards based on direct-contact with soils. A volunteer shall meet and maintain compliance with the direct-contact soil standards to the following minimum soil depths:

(a) For properties that have unrestricted land use or unrestricted residential land use, the point of compliance for applicable standards is from the ground surface to a minimum depth of ten feet. The volunteer shall comply with applicable standards at depths below ten feet when soil may be made available for direct-contact through circumstances other than those specified in paragraph (I)(1)(a)(i)(c) of this rule. In these scenarios, the applicable point of compliance extends from the ground surface to the maximum depth of reasonably anticipated activities.

(b) For properties that have institutional controls that limit a property's land use, and where the institutional controls are implemented in accordance with rule 3745-300-11 of the Administrative Code, the point of compliance for applicable standards is from the ground surface to a minimum depth of two feet. The volunteer shall comply with applicable standards at depths below two feet when soil may be made available for direct-contact through circumstances other than those specified in paragraph (I)(1)(a)(i)(c) of this rule. The volunteer shall comply with applicable standards at depths greater than two feet when soil may be made available for chronic, direct-contact exposure through excavation, grading, utilities maintenance, or other similar circumstances such as when soil below two feet is brought to the surface and left on the surface or otherwise incorporated into the soil that remains within the two-foot point of compliance.

(c) For properties where excavation, grading, or other construction activities may occur on the property, the volunteer shall comply with applicable soil standards for such construction activities. The point of compliance for applicable standards is from the ground surface to a minimum depth equal to the maximum depth of construction activities at the property.

(ii) Applicable soil standards based on leaching of COCs from soils to ground water. The point of compliance for applicable soil standards based on leaching of chemicals of concern from soils to ground water, when such leaching shall be prevented in accordance with paragraph (D) of rule 3745-300-10 of the Administrative Code, is the depth from the ground surface to the top of the ground water zone that requires protection in accordance with paragraphs (F)(3) and (F)(4) of this rule.

(iii) Applicable soil standards based on other identified complete exposure pathways. The point of compliance for applicable soil standards developed pursuant to rule 3745-300-08 or 3745-300-09 of the Administrative Code for complete exposure pathways identified in paragraph (F)(1) of this rule, other than those identified in paragraphs (I)(1)(a)(i) and (I)(1)(a)(ii) of this rule, shall be determined so that the exposure to receptors is appropriately addressed.

(b) Points of compliance for ground water. The points of compliance for each ground water zone on, underlying, or emanating from a property shall be determined for nonpotable exposure pathways determined in accordance with paragraph (F)(1) of this rule, and in accordance with paragraphs (D) and (E) of rule 3745-300-10 of the Administrative Code.

(c) Points of compliance for other environmental media. The points of compliance for each complete exposure pathway identified in paragraph (F)(1) of this rule for each environmental medium other than those identified in paragraphs (I)(1)(a) and (I)(1)(b) of this rule shall be determined in accordance with rule 3745-300-08 or 3745-300-09 of the Administrative Code.

(2) Data analysis. The volunteer shall verify the assumptions and applicability of models, statistical methods, or any other data analysis methods used to determine compliance with applicable standards, to determine the concentration of COCs, to derive applicable standards, or to demonstrate the effectiveness of a remedial activity. At a minimum, the following shall be demonstrated:

(a) Models were used in accordance with paragraph (G) of this rule.

(b) Statistical methods used are appropriate and valid for the intended use of the statistical methods.

(c) Adjustment of applicable standards for multiple COCs was conducted in accordance with rules 3745-300-08 and 3745-300-09 of the Administrative Code, if applicable. All final cumulative human health carcinogenic risk and non-carcinogenic hazard levels are based on one significant figure.

~~(d) If non-certified laboratory data or studies not conducted in accordance with this rule are used to partially comply with this rule, the data shall be confirmed in accordance with paragraphs (E)(1)(d)(iii) of this rule. The~~

~~volunteer shall demonstrate in the phase II property assessment report how the non-certified laboratory data was confirmed using certified data.~~

~~(e)~~(d) If applicable standards were not determined for COCs on the property because the COCs meet the criteria of paragraph (F)(5) of this rule, the volunteer shall demonstrate in the phase II property assessment report how the criteria are met.

(3) Compliance with applicable standards.

(a) The volunteer shall verify compliance with applicable standards for all current exposure pathways and reasonably anticipated exposure pathways determined to be complete in accordance with the procedures described in paragraph (F)(1) of this rule, or the volunteer shall implement a remedy pursuant to paragraph (I)(4)(b) of this rule. The volunteer may make a determination of compliance with applicable standards at any time during the voluntary action including and through assessment and remedial activity implementation.

(b) To verify compliance with applicable standards, the volunteer shall compare the concentration of each COC determined in accordance with paragraph (F)(6) of this rule to the applicable standard identified in paragraph (D)(2)(d) or (F)(5) of this rule. Compliance with an applicable standard is verified if the concentration of each COC does not exceed the applicable standard. All final cumulative human health carcinogenic risk and non-carcinogenic hazard levels are based on one significant figure.

(c) Applicable standards may include but are not limited to standards derived from generic numerical standards, background levels determined in accordance with paragraph (H) of this rule, a property-specific risk assessment, or a combination of these standards. If generic direct-contact soil standards for a restricted land use are used to meet applicable standards, institutional controls shall be used to limit the property's land use as described in paragraph (I) of this rule and paragraph (C)(2)(c) of rule 3745-300-08 of the Administrative Code. The institutional controls shall be implemented in accordance with rule 3745-300-11 of the Administrative Code.

(4) Implementation of remedial activities.

(a) If concentrations of COCs exceed applicable standards for any existing exposure pathway or reasonably anticipated exposure pathway determined to be complete in accordance with paragraph (F)(1) of this

rule, the volunteer shall implement a remedy in accordance with rule 3745-300-11 of the Administrative Code. If the applicable points of compliance for environmental media at the property cannot be met or maintained, the volunteer shall implement a remedy in accordance with rule 3745-300-11 of the Administrative Code.

(b) If compliance with applicable standards cannot be determined or is not determined for an existing exposure pathway or reasonably anticipated exposure pathway determined to be complete in accordance with paragraph (F)(1) of this rule, the volunteer shall implement a remedy in accordance with rule 3745-300-11 of the Administrative Code. The volunteer shall demonstrate that the remedy renders the pathway incomplete as to all potential receptors and that all points of compliance specified in paragraph (I)(1) of this rule are addressed.

(5) In cases where applicable standards were not derived, the applicable standards consist of the standards for each complete exposure pathway identified based on paragraph (F)(1) of this rule and allowable land uses at the points of compliance identified in accordance with paragraph (I)(1) of this rule that met the requirements of rule 3745-300-08 or 3745-300-09 of the Administrative Code at the time of issuance of the no further action letter.

(J) A volunteer shall complete a phase II property assessment written report in a format that is acceptable to Ohio EPA. At a minimum, the report shall include the following:

(1) An introduction that identifies the property, including the legal description of the property, the dates over which the phase I property assessment and the phase II property assessment were conducted and the date that the written report for each was finalized, and the name and job title of each person who conducted the phase II property assessment.

(2) A summary of any amendment to the phase I property assessment required by paragraph (E)(1) of this rule.

(3) A statement of the limitations or qualifications, if any, which impact the phase II property assessment.

(4) A graphic or written representation of the conceptual site model that describes the relationships between contaminants, transport media, and receptors at the time of the no further action letter issuance, consistent with paragraph (C) of this rule.

(5) A summary of the sampling procedures employed in accordance with paragraph (D) of this rule and the rationale for the sampling and testing activities conducted in accordance with this rule.

(6) A summary of the data collection activities conducted under paragraph (E) of this rule, the data collected as a result of these activities, and a determination of the data usability based on the quality control information. The summary shall include a discussion that notes whether the data meet the data quality objectives required by paragraph (C) of this rule.

(7) A summary of the determinations made under paragraphs (F)(1) to (F)(10) of this rule, and a summary of the rationale for the determinations made under paragraphs (F)(1) to (F)(10) of this rule.

(8) A summary of the background determination activities, if any, conducted under paragraph (H) of this rule.

(9) A summary of any models used in accordance with paragraph (G) of this rule and inclusion of the documentation required by paragraph (G)(6) of this rule.

(10) If an urban setting designation is relied upon in part to address potable use pathways, a summary of the activities conducted in accordance with paragraph (C)(3) of rule 3745-300-10 of the Administrative Code.

(11) If a property-specific risk assessment was conducted to derive applicable standards, a copy of the written risk assessment report shall be attached to or included in a section of the phase II property assessment report.

(12) A summary of any remedial activities implemented prior to the issuance of the no further action letter required by paragraph (I)(4) of this rule.

(13) A discussion of whether the property complies with applicable standards for each exposure pathway, and whether remedial activities were or are implemented to meet or maintain applicable standards in accordance with rule 3745-300-11 of the Administrative Code, and a summary of the applicable standards demonstration conducted in accordance with paragraph (I) of this rule.

(14) The following property maps and cross-sections, as applicable:

(a) Maps that indicate the locations of all borings, monitoring wells, or other sampling locations.

(b) Maps that depict the existing topography with a contour interval of no greater than five feet and delineates on or adjacent to the property any existing streams, swamps, lakes, springs, or other surface water features.

(c) Geologic cross-sections that represent the subsurface geologic and hydrogeologic conditions underlying the property, including all ground water zones evaluated during the phase II property assessment.

(d) Property maps that indicate the locations of the identified areas and exposure units at the property, and the concentration and physical distribution of the COCs identified in environmental media.

(e) Maps that indicate the portions of the property where remedial activities were implemented pursuant to rule 3745-300-11 of the Administrative Code, including the institutional controls, risk mitigation measures, and engineering controls. If a remedial activity does not apply to the entire property, include a plat that shows the boundary survey of the portion of the property to which the remedial activity applies. The survey plat shall be completed (signed and sealed) by a professional surveyor under Ohio law. The survey plat may be included in the operation and maintenance plan, risk mitigation plan, or environmental covenant, as applicable, written pursuant to rule 3745-300-11 of the Administrative Code, instead of in the phase II property assessment report.

(15) A bibliography of references which identifies, to the extent available, the description, date, source, and location of the documents reviewed as part of the phase II property assessment, and the identification of all laboratories that performed analyses as part of the phase II property assessment.

(16) Appendices for appropriate supporting documentation <u>including attachment of data verification checklists and any data validation reports</u>.

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3745-300-08 **Generic numerical standards.**

[Comment: For dates of non-regulatory government publications, publications of recognized organizations and associations, federal rules, and federal statutory provisions referenced in this rule, see rule 3745-300-15 of the Administrative Code titled "Incorporation by reference - voluntary action program."]

(A) Generic numerical standards.

(1) Applicability.

(a) Generic numerical standards listed in this rule for hazardous substances and petroleum may be used to demonstrate compliance with applicable standards provided the exposure scenario for the property comports with land use and activity patterns used to derive the generic numerical standard. Generic numerical standards are provided for complete exposure pathways to petroleum releases [paragraph (B) of this rule], direct contact with hazardous substances in soil [paragraph (C) of this rule], indoor air exposure due to vapor intrusion from environmental media to human receptors [paragraph (D) of this rule], unrestricted potable use for hazardous substances in ground water [paragraph (E) of this rule], and complete exposure pathways to human and ecological receptors from surface water and sediment [paragraphs (G), (H), and (I) of this rule]. The appendices to this rule provide the generic numerical standards.

(b) If complete exposure pathways exist on a property that are not considered in the development of a generic numerical standard listed in this rule, or if a generic numerical standard is not listed for chemicals of concern (COCs) on a property, applicable standards shall be derived in accordance with rule 3745-300-09 of the Administrative Code. Demonstration of compliance with applicable standards at a property may be made with a combination of generic numerical standards in accordance with this rule and standards developed through a property-specific risk assessment in accordance with rule 3745-300-09 of the Administrative Code or any other applicable standards.

(c) If radioactive materials are identified at a property, the property may be subject to the Atomic Energy Act and regulations adopted thereunder and Chapters 3701. and 3747. of the Revised Code and rules adopted thereunder. If radionuclides or radioactive materials are present at a property, the volunteer shall contact the Ohio department of health's bureau of environmental health and radiation protection regarding the cleanup of the radionuclides or radioactive material. Remedy approval

by the Ohio department of health shall be considered sufficient to meet applicable standards for radionuclides or radioactive materials for the voluntary action and may be considered a generic numerical standard.

(2) Assumptions. The following assumptions apply for all generic numerical standards except for the generic direct contact soil standards for petroleum described in paragraph (B) of this rule, direct contact soil standards for lead described in paragraph (C)(3)(e) of this rule, the generic unrestricted potable use standards based on maximum contaminant levels or other regulatory established criteria described in paragraph (E) of this rule, and potable use standards for petroleum described in paragraph (E)(3) of this rule:

(a) Single chemical. The generic numerical standards assume a single COC is present within an identified area.

(i) The single chemical generic standards in this rule are based on the following risk and hazard levels:

(a) For hazardous substances that have carcinogenic effects, the chemical-specific carcinogenic risk shall not exceed one excess cancer in a population of one hundred thousand (1×10^{-5}).

(b) For hazardous substances that have non-carcinogenic effects, the chemical-specific risk shall not exceed a hazard index of one.

(ii) As determined in accordance with paragraph (F)(6) of rule 3745-300-07 of the Administrative Code, the concentration of a COC shall not exceed the single chemical generic standard for that chemical.

(b) Cumulative adjustment for multiple chemicals.

(i) When more than one COC is present in each media within an identified area and an applicable generic standard for each of the COCs is in this rule, the standard for each COC shall be adjusted for the presence of multiple chemicals to meet the risk and hazard levels described in paragraph (A)(2)(a) of this rule.

(ii) A cumulative adjustment for multiple chemicals within each media shall be made when using a combination of generic standards and applicable standards determined by a property-

specific risk assessment in accordance with rule 3745-300-09 of the Administrative Code.

(iii) In accordance with paragraph (A)(2)(c) of this rule, the incremental risk and hazard shall be added to the incremental risk and hazard from other complete exposure pathways to the same receptor population.

(iv) All final cumulative human health carcinogenic risk and non-carcinogenic hazard levels are based on one significant figure.

(c) Summation of risk and hazard across complete exposure pathways.

(i) If more than one complete exposure pathway exists to each receptor population, the incremental cancer risk and hazard indices determined for each exposure pathway shall be summed to calculate a cumulative cancer risk and hazard index to each receptor population.

(ii) All final cumulative human health carcinogenic risk and non-carcinogenic hazard levels are based on one significant figure.

(d) If the generic numerical standards of this rule are applied to one or more identified areas of the property and applicable standards, as determined in accordance with rule 3745-300-09 of the Administrative Code, are applied to one or more exposure units or other areas of the property, then the volunteer shall ensure that the risk and hazard levels for each receptor on the property do not exceed the following:

(i) One excess cancer in a population of one hundred thousand (1×10^{-5}).

(ii) A hazard index of one.

(iii) All final cumulative human health carcinogenic risk and non-carcinogenic hazard levels are based on one significant figure.

(e) Points of compliance. In accordance with paragraph (I) of rule 3745-300-07 of the Administrative Code, the volunteer shall comply with the applicable standards at all points of compliance at the property, for each environmental media and complete exposure pathway.

(3) A property-specific risk assessment shall be conducted in accordance with rule 3745-300-09 of the Administrative Code to determine applicable standards

instead of, or in addition to, using the generic numerical standards from this rule, if any of the following apply to the property:

(a) The complete exposure pathways as identified in accordance with paragraph (F)(1) of rule 3745-300-07 of the Administrative Code, include exposure pathways that are not considered in the development of standards listed in this rule.

(b) The exposure factors for the receptors identified in paragraph (E)(6) of rule 3745-300-07 of the Administrative Code are not considered in the development of standards listed in this rule, or the volunteer evaluates compliance with applicable standards for exposure units instead of identified areas in accordance with rule 3745-300-09 of the Administrative Code.

(c) The COCs on the property consist of hazardous substances or petroleum that do not have generic numerical standards listed in this rule.

(i) If only some of the COCs identified have a generic numerical standard listed in this rule, a volunteer may use the applicable generic numerical standards for the COCs that have listed standards and conduct a property-specific risk assessment in accordance with rule 3745-300-09 of the Administrative Code.

(ii) If a combination of generic numerical standards and applicable standards determined by a property-specific risk assessment conducted in accordance with rule 3745-300-09 of the Administrative Code is used, the volunteer shall adjust the concentrations of the applicable standards to meet the human health risk and hazard levels described in paragraph (A)(2)(d) of this rule.

(d) Concentrations of COCs in surface water or sediment exceed applicable standards determined in accordance with this rule.

(e) Complete exposure pathways to important ecological resources other than sediment or surface water exist.

(B) Generic numerical standards for petroleum.

(1) Applicability.

(a) The generic numerical standards referenced in paragraph (B)(3) of this rule apply to all petroleum releases regardless of the source or how the petroleum was released. After eligibility requirements in accordance

with rule 3745-300-02 of the Administrative Code are met, applicable standards for all petroleum releases on the property shall be achieved in accordance with this chapter.

(b) The generic numerical standards referenced in paragraph (B)(3) of this rule apply to the exposure pathways for which rules adopted under division (B) of section 3737.882 of the Revised Code have numerical clean-up standards. If an exposure pathway is not addressed by a generic numerical standard under division (B) of section 3737.882 of the Revised Code, then the exposure pathway shall be evaluated in accordance with rule 3745-300-09 of the Administrative Code.

(2) Assumptions.

(a) The points of compliance for generic petroleum standards are identified in paragraph (I) of rule 3745-300-07 of the Administrative Code. For example, exposure pathways that are encompassed within the generic direct-contact soil standard shall use the points of compliance indicated in paragraph (I)(1)(a)(i) of rule 3745-300-07 of the Administrative Code. In accordance with paragraph (I) of rule 3745-300-07 of the Administrative Code, the volunteer shall comply with the applicable standards at all points of compliance at the property for each environmental medium and complete exposure pathway.

(b) Cumulative adjustment for multiple chemicals and summation of risk across complete exposure pathways that are required for COCs on the property to comply with paragraphs (A)(2) and (F) of this rule may not necessarily apply for generic petroleum standards referenced in paragraph (B)(3) of this rule. Cumulative adjustment for multiple chemicals and summation of risk across complete exposure pathways to meet generic petroleum standards are required only when required by rules adopted under division (B) of section 3737.882 of the Revised Code.

(c) When ground water exceeds unrestricted potable use standards, ground water response requirements in accordance with rule 3745-300-10 of the Administrative Code shall be met. Properties with free product exceed applicable standards for unrestricted potable use of ground water.

(d) Restricted residential, commercial with high frequency child exposure, commercial, and industrial land use categories [as determined in accordance with paragraph (C)(2) of this rule] require implementation of institutional controls in accordance with paragraph (C)(2) of rule 3745-300-11 of the Administrative Code.

(3) Generic numerical standards for petroleum. The generic numerical standards for petroleum at residential, commercial, or industrial properties are the standards established in rules adopted under division (B) of section 3737.882 of the Revised Code, as provided in division (B)(1) of section 3746.04 of the Revised Code. The state fire marshal's bureau of underground storage tank regulations administers the rules adopted under division (B) of section 3737.882 of the Revised Code. Property-specific standards for petroleum may be developed in accordance with rule 3745-300-09 of the Administrative Code.

(C) Generic numerical standards for hazardous substances; direct-contact with soils and vapor intrusion to indoor air.

(1) Applicability.

(a) When generic direct-contact soil standards are applied, a volunteer shall select the land use or activity category which is consistent with the land use definitions in rule 3745-300-01 of the Administrative Code. The land use or activity category shall be determined based on the property use, receptor populations, and pathways identified in accordance with paragraphs (E)(6) and (F)(1) of rule 3745-300-07 of the Administrative Code. The exposure factors used in the development of generic numerical standards are in Ohio EPA's "Support Document For the Development of Generic Numerical Standards and Risk Assessment Procedures." Generic direct-contact soil standards for commercial and industrial land uses are equal unless paragraph (C)(2)(b) of this rule or paragraph (B)(1)(b) of rule 3745-300-09 of the Administrative Code applies.

(b) A property-specific risk assessment shall be conducted in accordance with rule 3745-300-09 of the Administrative Code, to determine applicable standards instead of, or in addition to, the generic direct-contact soil standards, if any conditions of paragraph (A)(3) of this rule apply.

(c) Generic numerical standards for petroleum releases are identified in paragraph (B)(3) of this rule. The standards identified in paragraphs (C)(3) and (D) of this rule and provided in appendix A to this rule apply to releases of hazardous substances.

(2) Land use and activity categories. The generic direct-contact soil standards and vapor intrusion to indoor standards established in this rule are based upon the intended use of the property after the completion of a voluntary action. Standards applied to restricted residential, commercial with high frequency child exposure, commercial, and industrial land use categories require implementation of institutional controls in accordance with rule

3745-300-11 of the Administrative Code. Land use and activity categories shall be determined as follows, as the terms are defined in rule 3745-300-01 of the Administrative Code:

(a) Residential land use category.

(i) Unrestricted residential land use category.

(ii) Restricted residential land use category.

(b) Commercial land use with high frequency child exposure category.

(c) Commercial or industrial land use category.

(d) Construction activities.

(3) Generic numerical direct-contact soil standards.

(a) The generic direct-contact soil standards for carcinogenic and non-carcinogenic COCs are derived considering exposures that include ingestion of soil, dermal contact with soil, inhalation of volatile compounds in outdoor air, and the inhalation and ingestion of particulate emissions. All applicable exposures not considered within the generic direct-contact soil standards shall be addressed in accordance with rule 3745-300-09 of the Administrative Code.

(i) The generic direct-contact soil standards for carcinogenic and non-carcinogenic COCs for residential land use categories are in table I of appendix A to this rule.

(ii) The generic direct-contact soil standards for carcinogenic and non-carcinogenic COCs for commercial land use with high frequency child exposure are in table II of appendix A to this rule.

(iii) The generic direct-contact soil standards for carcinogenic and non-carcinogenic COCs for commercial and industrial land use categories are in table III of appendix A to this rule.

(iv) The generic direct-contact soil standards for carcinogenic and non-carcinogenic COCs for the construction activities category are in table IV of appendix A to this rule.

(v) The lead standards in tables I, II, III, and IV of appendix A to this rule account for other factors and assumptions in addition to

the carcinogenic or non-carcinogenic risk of lead. Therefore, the cumulative risk considerations in paragraph (A)(2) of this rule are not appropriate and need not be performed for lead.

(b) The soil saturation concentrations are calculated using the U.S. EPA recommended soil saturation equation in paragraph (H)(5) of rule 3745-300-09 of the Administrative Code. This equation is not recommended for compounds that are at solid phase at ambient soil temperatures. Therefore, no generic soil saturation values are calculated for those chemicals for which the melting point is greater than seventeen degrees Celsius. Further, soil saturation values are determined only for those chemicals for which physicochemical parameters used to derive the soil saturation concentrations could be verified. The volunteer may either use the soil saturation levels as listed in appendix A to this rule, or may calculate a property-specific soil saturation concentration in place of the generic soil saturation in accordance with paragraph (H)(5) of 3745-300-09 of the Administrative Code.

(4) Generic numerical standards for indoor air due to vapor intrusion from environmental media are derived considering the exposure scenario and the chemical specific inhalation toxicity. Standards apply to indoor air only for chemicals that have volatilized from environmental media to indoor air. Concentrations of COCs in ground water or soil gas may be used to approximate indoor air concentrations through modeling conducted in accordance with rule 3745-300-07 of the Administrative Code.

(a) The standards for indoor air exposure due to vapor intrusion from environmental media for the residential land use category are in table V of appendix A to this rule.

(b) The standards for indoor air exposure due to vapor intrusion from environmental media for the commercial land use with high frequency child exposure category are in table VI of appendix A to this rule.

(c) The standards for indoor air exposure due to vapor intrusion from environmental media for the commercial or industrial land use categories are in table VII of appendix A to this rule.

(D) Generic unrestricted potable use standards for hazardous substances in ground water.

(1) Applicability.

(a) The generic unrestricted potable use standards in paragraph (E)(3) of this rule apply as determined in accordance with rule 3745-300-10 of the Administrative Code.

(b) A property-specific risk assessment shall be conducted in accordance with rule 3745-300-09 of the Administrative Code to determine applicable standards in place of, or in addition to, using the generic unrestricted potable use standards if any of paragraphs (A)(3)(a) to (A)(3)(c) of this rule apply to the property, and those exposures are required to be evaluated under rule 3745-300-07 of the Administrative Code.

(c) The standards in paragraph (E)(3) of this rule apply to releases of hazardous substances. Generic numerical standards for petroleum releases are identified in paragraph (B)(3) of this rule.

(2) Assumptions. The generic unrestricted potable use standards in tables VIII and IX of appendix A to this rule are determined using the assumption that the ground water on or from the property shall be used as a source of water for drinking, cooking, showering, and bathing.

(3) Generic unrestricted potable use standards for ground water.

(a) The generic unrestricted potable use standards for petroleum at commercial, industrial, and residential properties are the standards established in rules adopted under division (B) of section 3737.882 of the Revised Code, as provided by division (B)(1) of section 3746.04 of the Revised Code.

(b) The generic unrestricted potable use standards based on maximum contaminant levels or other regulatory established criteria are in table VIII of appendix A to this rule. COCs in table VIII of appendix A to this rule need not be included in the cumulative adjustment for multiple chemicals.

(c) The generic risk-derived unrestricted potable use standards are in table IX of appendix A to this rule. COCs in table IX of appendix A to this rule shall be included in the cumulative adjustment for multiple chemicals.

(E) Procedures for cumulative adjustment for multiple chemicals. The following procedures may be used to meet the risk and hazard levels described in paragraph (A)(2)(d) of this rule when more than one COC is present in environmental media within an identified area:

(1) Several procedures may be used to adjust for the presence of multiple carcinogenic COCs in an identified area to comply with paragraph (A)(2)(b) of this rule. One

method is to divide the exposure point concentration ($chem_a$) for each COC in the affected media by the "Single Chemical Carcinogenic Standard" ($SCCS_a$) in appendix A to this rule. The resultant ratios are summed as an expression of estimated risk (see equation 1). When the summed ratios result in a value less than or equal to one, at one significant figure in accordance with paragraph (A)(2)(b)(iv) of this rule, carcinogenic risk levels are met on the property for exposure to that media. When the summed ratios result in a value greater than one the carcinogenic risk levels are not met and remedial action is required.

Equation 1 - cumulative cancer risk ratio for affected media

$[(chem_a/SCCS_a) + (chem_b/SCCS_b) + ...] =$ cumulative cancer risk ratio

(2) Several procedures may be used to adjust for the presence of multiple non-carcinogenic COCs in an identified area to comply with paragraph (A)(2)(b) of this rule. One method is to divide the exposure point concentration ($chem_a$) for each COC in the affected media by the "Single Chemical Noncarcinogenic Standard" ($SCNS_a$) in appendix A to this rule. The resultant ratios are summed as an expression of estimated hazard index (see equation 2). When the summed ratios result in a value less than or equal to one at one significant figure in accordance with paragraph (A)(2)(b)(iv) of this rule, non-carcinogenic risk levels are met on the property. When the summed ratios result in a value greater than one the non-carcinogenic risk levels are not met and remedial action is required.

Equation 2 - cumulative noncancer risk ratio for affected media

$[(chem_a/SCNS_a) + (chem_b/SCNS_b) + ...] =$ cumulative noncancer risk ratio

Non-cancer risk ratios for non-carcinogenic COCs which do not exhibit the same toxic endpoint may be excluded from the calculation of the cumulative non-cancer risk ratio described above if a written justification for such exclusion is submitted. The consideration of all major toxic endpoints and mechanisms of action shall include, at a minimum, those identified with the critical effect upon which the reference dose or reference concentration for each non-carcinogenic COC is based. The source for each reference dose and reference concentration for each non-carcinogenic chemical for which generic direct-contact soil standards are derived, are cited in Ohio EPA's "Support Document for the Development of Generic Numerical Standards and Risk Assessment Procedures." It may be necessary to calculate more than one cumulative non-cancer risk ratio for a property that results from the segregation of non-carcinogenic COCs based on toxic endpoints or mechanisms of action.

(3) For situations where a COC poses both carcinogenic and non-carcinogenic risks and a value for the COC is listed in both the "Standard for a Single Chemical Carcinogens" column and the "Standard for a Single Chemical Non-Carcinogens" column in the tables in appendix A to this rule, or an applicable single chemical carcinogen and non-carcinogen standard is determined in accordance with rule 3745-300-09 of the Administrative Code, the COC shall be included in the multiple carcinogenic chemical adjustment calculation under paragraph (F)(1) of this rule and the adjustment calculation for multiple non-carcinogenic chemicals under paragraph (F)(2) of this rule. The applicable standard for the COC is the lowest of the values determined using the equations in this paragraph or, if appropriate, the soil saturation concentration.

(F) Generic numerical standards for surface water.

(1) Applicability.

(a) The generic numerical standards for surface water in paragraph (G)(2) of this rule apply to a property in accordance with paragraph (F) of rule 3745-300-07 of the Administrative Code.

(b) For all releases of petroleum to surface water of the state, the generic petroleum standards are in paragraph (B) of this rule.

(2) Generic surface water standards.

(a) For all releases or source areas of hazardous substances on or from the property to surface waters of the state, surface water chemical concentrations shall be compared to the chemical criteria pursuant to Chapter 3745-1 of the Administrative Code. The outside mixing zone average criteria for human health and aquatic life and wildlife should be compared against ambient samples averaged over a thirty-day period. Single ambient samples shall not exceed the outside the mixing zone maximum or the outside the mixing zone average, if a thirty-day average is not obtained. If all chemical constituents are below the chemical criteria, then the surface water may be eliminated as an exposure medium. If chemical constituents exceed the chemical criteria, then the surface water shall be further assessed in accordance with rule 3745-300-09 of the Administrative Code. For the purposes of this rule, the generic numerical standards for surface water apply regardless of whether the release or source area of hazardous substances is a point source or nonpoint source.

(b) All regulated point source discharges of pollutants to surface waters of the state and any other regulated discharges that occur from or on the

property shall comply with all permit and other applicable requirements of the Water Pollution Control Act, Chapter 6111. of the Revised Code, and the regulations adopted thereunder. The permit and other applicable requirements of point source discharges include, but are not limited to, the following:

(i) The national pollutant discharge elimination system permit issued pursuant to Chapter 3745-33 of the Administrative Code (also referred to as Ohio NPDES permits).

(ii) The water quality certification issued pursuant to Chapter 3745-32 of the Administrative Code.

(iii) A volunteer may obtain a consolidated standards permit for activities conducted in connection with a voluntary action which require permits from the director.

(c) Storm water associated with industrial activity that is discharged to surface waters of the state or is discharged through a separate municipal storm sewer system shall comply with the applicable requirements in 40 CFR 122.26.

(G) Generic numerical standards for human exposure to sediments.

(1) Applicability.

(a) For purposes of this rule and rule 3745-300-07 of the Administrative Code, human health exposure pathways to sediments are considered complete when the surface water which contains the sediments meets either of the following criteria:

(i) Produces or can produce a consistent supply of edible-sized fish and the COCs in the sediment are persistent, bioaccumulative, and toxic.

(ii) Is reasonably anticipated to support recreational activities such as wading, swimming, or boating.

(b) For all releases of petroleum on or from the property to surface waters of the state which contain sediments, the generic petroleum standards are in paragraph (B) of this rule.

(c) If the concentrations of COCs in sediment exceed the generic numerical standards for human exposure to sediment, the volunteer shall

conduct a human health property-specific risk assessment following the methodology described in paragraph (D) of rule 3745-300-09 of the Administrative Code or shall conduct a remedy in accordance with 3745-300-11 of the Administrative Code.

(2) Generic numerical standards for human exposure to sediment.

(a) Generic direct-contact standards for sediments are the generic direct-contact soil standards for residential land use specified in table I of appendix A to this rule. Cumulative adjustment for multiple chemicals shall be evaluated in accordance with paragraph (A)(2)(b) of this rule.

(b) If COCs in sediment are persistent, bioaccumulative, and toxic, and the surface water that contains the sediments produces or can produce a consistent supply of edible-sized fish, the volunteer shall conduct a human health property-specific risk assessment in accordance with rule 3745-300-09 of the Administrative Code to evaluate fish consumption.

(H) Generic numerical standards for exposure of important ecological resources to sediments.

(1) Applicability. The volunteer shall do either of the following:

(a) Sample sediments directly and apply the applicable standards in accordance with paragraph (H)(2) of this rule.

(b) Demonstrate compliance with applicable standards in accordance with paragraph (F)(5) of rule 3745-300-09 of the Administrative Code.

(2) Generic numerical standards for exposure of important ecological resources to sediments. To apply applicable standards to sediments in accordance with paragraph (H)(1)(a) of this rule, the volunteer shall compare the concentration of COCs to one of the following ecological reference values:

(a) Ohio-specific sediment reference values by ecoregion in table I of appendix B to this rule.

(b) Consensus-based threshold effects concentration values from MacDonald, Ingersoll and Berger's "Development and Evaluation of Consensus-based Sediment Quality Guidelines for Freshwater Ecosystems" in table II of appendix B to this rule.

(3) If concentrations of COCs do not exceed the generic numerical standards identified pursuant to paragraph (H)(2) of this rule, then the applicable standards are met.

(4) The volunteer shall evaluate the sediments in accordance with paragraph (F) of rule 3745-300-09 of the Administrative Code, or shall conduct a remedy in accordance with rule 3745-300-11 of the Administrative Code if any of the following criteria apply:

(a) The sediments exceed applicable standards in accordance with this rule.

(b) The sediment samples were not compared to the sediment values in accordance with paragraph (H)(2) of this rule.

(I) Development of soil standards for leaching of COCs from soil to ground water.

(1) Applicability.

(a) Soil standards for leaching may be developed when one or more ground water zones are determined to meet unrestricted potable use standards and the potential for leaching of COCs from soil to ground water is determined to be a complete exposure pathway.

(b) Soil standards for leaching may be developed when one or more ground water zones are determined to exceed unrestricted potable use standards and the potential for leaching of COCs from soil to ground water is a complete exposure pathway that shall be evaluated in accordance with either of the following:

(i) Applicable ground water response requirements in paragraph (E) of rule 3745-300-10 of the Administrative Code.

(ii) A pathway completeness determination in paragraph (F)(1) of rule 3745-300-07 of the Administrative Code.

(2) Soil standards for leaching.

(a) Soil standards for leaching when the underlying ground water zone meets unrestricted potable use standards. Soil standards for leaching are the soil concentrations determined to be protective of the applicable ground water zone and shall not cause unrestricted potable use standards to be exceeded in the ground water zone as demonstrated in accordance with paragraph (F)(4)(a) of rule 3745-300-07 of the Administrative Code.

(b) Soil standards for leaching when the underlying ground water zone exceeds unrestricted potable use standards.

(i) Soil standards for leaching are the soil concentrations determined to be protective of the applicable ground water response requirements for the ground water zone as determined by rule 3745-300-10 of the Administrative Code.

(ii) Soil standards for leaching are the soil concentrations determined to be protective of any other applicable standard in ground water that shall be met in accordance with a pathway completeness determination and the demonstration of compliance with applicable standards.

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Appendix A to rule 3745-300-08 of the Administrative Code

In this appendix, mg/kg means milligrams per kilogram, NA means not applicable, $\mu g/m^3$ means micrograms per cubic meter, and µg/L means micrograms per liter.

Table I: Generic numerical direct-contact soil standards (residential land use category)

Table I Chemical of Concern	Chemical Abstract Service Number (CAS #)	Standard for a Single Chemical Non-Carcinogen (mg/kg)	Standard for a Single Chemical Carcinogen (mg/kg)	Soil Saturation (mg/kg)	Generic Direct-Contact Soil Standard for a Single Chemical (mg/kg)
Acenaphthene	83-32-9	7,200	NA	NA	7,200
Acetaldehyde	75-07-0	210	280	110,000	210
Acetone	67-64-1	120,000	NA	110,000	110,000
Acetonitrile	75-05-8	2,000	NA	130,000	2,000
Acetophenone	98-86-2	16,000	NA	2,500	2,500
Acetylaminofluorene, 2-	53-96-3	NA	2.9	NA	2.9
Acrolein	107-02-8	0.36	NA	23,000	0.36
Acrylamide	79-06-1	250	4.9	NA	4.9
Acrylic acid	79-10-7	250	NA	110,000	250
Acrylonitrile	107-13-1	40	6.1	11,000	6.1
Alachlor	15972-60-8	1,300	190	NA	190
Aldicarb	116-06-3	130	NA	NA	130
Aldicarb Sulfone	1646-88-4	130	NA	NA	130
Aldrin	309-00-2	3.8	0.62	NA	0.62
Allyl Alcohol	107-18-6	630	NA	110,000	630
Allyl Chloride	107-05-1	4.1	18	1,400	4.1
Aluminum Phosphide	20859-73-8	63	NA	NA	63
Aminobiphenyl, 4-	92-67-1	NA	0.52	NA	0.52

Table I Chemical of Concern	Chemical Abstract Service Number (CAS #)	Standard for a Single Chemical Non-Carcinogen (mg/kg)	Standard for a Single Chemical Carcinogen (mg/kg)	Soil Saturation (mg/kg)	Generic Direct-Contact Soil Standard for a Single Chemical (mg/kg)
Ammonium Sulfamate	7773-06-0	31,000	NA	NA	31,000
Aniline	62-53-3	880	1,900	NA	880
Anthracene	120-12-7	36,000	NA	NA	36,000
Antimony (metallic)	7440-36-0	63	NA	NA	63
Antimony Trioxide	1309-64-4	130,000	NA	NA	130,000
Aroclor 1016	12674-11-2	8.2	130	NA	8.2
Aroclor 1221	11104-28-2	NA	3.9	NA	3.9
Aroclor 1232	11141-16-5	NA	3.4	NA	3.4
Aroclor 1242	53469-21-9	NA	4.6	NA	4.6
Aroclor 1248	12672-29-6	NA	4.5	NA	4.5
Aroclor 1254	11097-69-1	2.3	4.7	NA	2.3
Aroclor 1260	11096-82-5	NA	4.8	NA	4.8
Arsenic, Inorganic	7440-38-2	70	14	NA	14
Atrazine	1912-24-9	4,400	47	NA	47
Auramine	492-80-8	NA	12	NA	12
Barium	7440-39-3	30,000	NA	NA	30,000
Baygon	114-26-1	510	NA	NA	510
Benomyl	17804-35-2	6,300	NA	NA	6,300
Benz[a]anthracene	56-55-3	NA	23	NA	23
Benzene	71-43-2	190	28	1,800	28
Benzenethiol	108-98-5	160	NA	1,300	160
Benzidine	92-87-5	380	0.047	NA	0.047
Benzo[a]pyrene	50-32-8	36	2.3	NA	2.3

Table I Chemical of Concern	Chemical Abstract Service Number (CAS #)	Standard for a Single Chemical Non-Carcinogen (mg/kg)	Standard for a Single Chemical Carcinogen (mg/kg)	Soil Saturation (mg/kg)	Generic Direct-Contact Soil Standard for a Single Chemical (mg/kg)
Benzo[b]fluoranthene	205-99-2	NA	23	NA	23
Benzo[k]fluoranthene	207-08-9	NA	230	NA	230
Benzoic Acid	65-85-0	510,000	NA	NA	510,000
Benzotrichloride	98-07-7	NA	1.1	320	1.1
Benzyl Chloride	100-44-7	55	25	1,500	25
Beryllium and compounds	7440-41-7	310	22,000	NA	310
Biphenyl, 1,1'-	92-52-4	78,000	1,700	NA	1,700
Bis(2-chloro-1-methylethyl) ether	108-60-1	6,300	NA	1,000	1,000
Bis(2-chloroethoxy)methane	111-91-1	380	NA	NA	380
Bis(2-chloroethyl)ether	111-44-4	NA	5.3	5,000	5.3
Bis(2-ethylhexyl)phthalate	117-81-7	2,500	780	NA	780
Bis(chloromethyl)ether	542-88-1	NA	0.0021	4,200	0.0021
Bromodichloromethane	75-27-4	3,100	7.3	930	7.3
Bromoform	75-25-2	3,100	460	910	460
Bromomethane	74-83-9	17	NA	3,600	17
Butadiene, 1,3-	106-99-0	4.5	1.4	670	1.4
Butanol, N-	71-36-3	13,000	NA	7,600	7,600
Butyl Benzyl Phthalate	85-68-7	25,000	5,700	NA	5,700
Cacodylic Acid	75-60-5	2,500	NA	NA	2,500
Cadmium	7440-43-9	140	30,000	NA	140
Calcium Cyanide	592-01-8	160	NA	NA	160
Captan	133-06-2	16,000	4,700	NA	4,700
Carbaryl	63-25-2	13,000	NA	NA	13,000

Table I Chemical of Concern	Chemical Abstract Service Number (CAS #)	Standard for a Single Chemical Non-Carcinogen (mg/kg)	Standard for a Single Chemical Carcinogen (mg/kg)	Soil Saturation (mg/kg)	Generic Direct-Contact Soil Standard for a Single Chemical (mg/kg)
Carbofuran	1563-66-2	630	NA	NA	630
Carbon Disulfide	75-15-0	1,900	NA	740	740
Carbon Tetrachloride	56-23-5	240	16	460	16
Carbonyl Sulfide	463-58-1	1,000,000	NA	5,900	5,900
Carbosulfan	55285-14-8	1,300	NA	NA	1,300
Chloramben	133-90-4	1,900	NA	NA	1,900
Chlordane	57-74-9	68	34	NA	34
Chlordecone (Kepone)	143-50-0	38	1.1	NA	1.1
Chlorine	7782-50-5	15,000	NA	2,800	2,800
Chloro-1,3-butadiene, 2-	126-99-8	55	0.25	790	0.25
Chloro-2-methylaniline HCl, 4-	3165-93-3	NA	24	NA	24
Chloroacetophenone, 2-	532-27-4	7,400	NA	NA	7,400
Chloroaniline, p-	106-47-8	510	54	NA	54
Chlorobenzene	108-90-7	660	NA	760	660
Chlorobenzilate	510-15-6	2,500	99	NA	99
Chloroform	67-66-3	470	7.9	2,500	7.9
Chloromethane	74-87-3	280	NA	1,300	280
Chloromethyl Methyl Ether	107-30-2	NA	0.5	9,300	0.5
Chloronaphthalene, Beta-	91-58-7	13,000	NA	NA	13,000
Chlorophenol, 2-	95-57-8	780	NA	27,000	780
Chlorpyrifos	2921-88-2	130	NA	NA	130
Chromium(III), Insoluble Salts	16065-83-1	230,000	NA	NA	230,000
Chromium(VI)	18540-29-9	470	27	NA	27

Table I Chemical of Concern	Chemical Abstract Service Number (CAS #)	Standard for a Single Chemical Non-Carcinogen (mg/kg)	Standard for a Single Chemical Carcinogen (mg/kg)	Soil Saturation (mg/kg)	Generic Direct-Contact Soil Standard for a Single Chemical (mg/kg)
Chromium, Total	7440-47-3	NA	NA	NA	NA
Chrysene	218-01-9	NA	2,300	NA	2,300
Cobalt Compounds	7440-48-4	47	5,900	NA	47
Copper	7440-50-8	6,300	NA	NA	6,300
Copper Cyanide	544-92-3	780	NA	NA	780
Cresol, m-	108-39-4	6,300	NA	NA	6,300
Cresol, o-	95-48-7	6,300	NA	NA	6,300
Cresol, p-	106-44-5	13,000	NA	NA	13,000
Cresol, p-chloro-m	59-50-7	13,000	NA	NA	13,000
Cresols	1319-77-3	13,000	NA	NA	13,000
Crotonaldehyde, trans-	123-73-9	160	7.3	17,000	7.3
Cumene	98-82-8	4,600	NA	270	270
Cyanide (CN-)	57-12-5	51	NA	1,000,000	51
Cyanogen	460-19-5	160	NA	NA	160
Cyanogen Bromide	506-68-3	14,000	NA	NA	14,000
Cyanogen Chloride	506-77-4	7,800	NA	NA	7,800
Cyclohexane	110-82-7	16,000	NA	120	120
Cyclohexanone	108-94-1	68,000	NA	5,100	5,100
Dalapon	75-99-0	3,800	NA	NA	3,800
DDD	72-54-8	NA	45	NA	45
DDE, p,p'-	72-55-9	NA	31	NA	31
DDT	50-29-3	73	38	NA	38
Diallate	2303-16-4	NA	180	NA	180

Table I Chemical of Concern	Chemical Abstract Service Number (CAS #)	Standard for a Single Chemical Non-Carcinogen (mg/kg)	Standard for a Single Chemical Carcinogen (mg/kg)	Soil Saturation (mg/kg)	Generic Direct-Contact Soil Standard for a Single Chemical (mg/kg)
Diazinon	333-41-5	88	NA	NA	88
Dibenz[a,h]anthracene	53-70-3	NA	2.3	NA	2.3
Dibromo-3-chloropropane, 1,2-	96-12-8	11	0.37	980	0.37
Dibromochloromethane	124-48-1	2,500	130	800	130
Dibromoethane, 1,2-	106-93-4	69	0.89	1,300	0.89
Dibutyl Phthalate	84-74-2	13,000	NA	NA	13,000
Dicamba	1918-00-9	3,800	NA	NA	3,800
Dichloro-2-butene, 1,4-	764-41-0	NA	0.05	550	0.05
Dichlorobenzene, 1,2-	95-50-1	4,300	NA	380	380
Dichlorobenzene, 1,4-	106-46-7	7,300	65	NA	65
Dichlorobenzidine, 3,3'-	91-94-1	NA	24	NA	24
Dichlorodifluoromethane	75-71-8	31,000	NA	850	850
Dichloroethane, 1,1-	75-34-3	31,000	89	1,700	89
Dichloroethane, 1,2-	107-06-2	84	11	3,000	11
Dichloroethylene, 1,1-	75-35-4	360	NA	1,200	360
Dichloroethylene, 1,2-cis-	156-59-2	310	NA	2,400	310
Dichloroethylene, 1,2-trans-	156-60-5	3,100	NA	1,900	1,900
Dichlorophenol, 2,4-	120-83-2	380	NA	NA	380
Dichlorophenoxy Acetic Acid, 2,4-	94-75-7	1,400	NA	NA	1,400
Dichloropropane, 1,2-	78-87-5	39	61	1,400	39
Dichloropropane, 1,3-	142-28-9	3,100	NA	1,500	1,500
Dichloropropene, 1,3-	542-75-6	180	43	1,600	43
Dichlorvos	62-73-7	63	37	NA	37

Table I Chemical of Concern	Chemical Abstract Service Number (CAS #)	Standard for a Single Chemical Non-Carcinogen (mg/kg)	Standard for a Single Chemical Carcinogen (mg/kg)	Soil Saturation (mg/kg)	Generic Direct-Contact Soil Standard for a Single Chemical (mg/kg)
Dieldrin	60-57-1	6.3	0.68	NA	0.68
Diethanolamine	111-42-2	250	NA	NA	250
Diethyl Phthalate	84-66-2	100,000	NA	NA	100,000
Diethylstilbestrol	56-53-1	NA	0.031	NA	0.031
Dihydrosafrole	94-58-6	NA	170	NA	170
Dimethoate	60-51-5	280	NA	NA	280
Dimethoxybenzidine, 3,3'-	119-90-4	NA	6.78	NA	6.78
Dimethylamino azobenzene [p-]	60-11-7	NA	2.4	NA	2.4
Dimethylaniline, N,N-	121-69-7	310	NA	830	310
Dimethylbenz(a)anthracene, 7,12-	57-97-6	NA	0.041	NA	0.041
Dimethylbenzidine, 3,3'-	119-93-7	NA	0.99	NA	0.99
Dimethylformamide	68-12-2	5,600	NA	110,000	5,600
Dimethylhydrazine, 1,2-	540-73-8	NA	0.016	190,000	0.016
Dimethylphenol, 2,4-	105-67-9	2,500	NA	NA	2,500
Dinitrobenzene, 1,2-	528-29-0	13	NA	NA	13
Dinitrobenzene, 1,3-	99-65-0	13	NA	NA	13
Dinitrobenzene, 1,4-	100-25-4	13	NA	NA	13
Dinitro-o-phenol-cyclohexyl Phenol, 4,6-	131-89-5	250	NA	NA	250
Dinitrophenol, 2,4-	51-28-5	250	NA	NA	250
Dinitrotoluene Mixture, 2,4/2,6-	25321-14-6	NA	16	NA	16
Dinitrotoluene, 2,4-	121-14-2	250	35	NA	35
Dinitrotoluene, 2,6-	606-20-2	NA	7.3	NA	7.3
Dinoseb	88-85-7	130	NA	NA	130

Table I Chemical of Concern	Chemical Abstract Service Number (CAS #)	Standard for a Single Chemical Non-Carcinogen (mg/kg)	Standard for a Single Chemical Carcinogen (mg/kg)	Soil Saturation (mg/kg)	Generic Direct-Contact Soil Standard for a Single Chemical (mg/kg)
Dioxane, 1,4-	123-91-1	1,900	110	120,000	110
Diphenylhydrazine, 1,2-	122-66-7	NA	14	NA	14
Diquat	85-00-7	280	NA	NA	280
Disodium phosphate	7558-79-4	1,000,000	NA	NA	1,000,000
Disulfoton	298-04-4	5.1	NA	NA	5.1
Diuron	330-54-1	250	NA	NA	250
Endosulfan	115-29-7	760	NA	NA	760
Endothall	145-73-3	2,500	NA	NA	2,500
Endrin	72-20-8	38	NA	NA	38
Epichlorohydrin	106-89-8	47	620	11,000	47
Epoxybutane, 1,2-	106-88-7	400	NA	15,000	400
Ethion	563-12-2	63	NA	NA	63
Ethoxyethanol, 2-	110-80-5	9,300	NA	110,000	9,300
Ethyl Acetate	141-78-6	1,600	NA	11,000	1,600
Ethyl Acrylate	140-88-5	110	NA	2,500	110
Ethyl Chloride (Chloroethane)	75-00-3	19,000	NA	2,100	2,100
Ethyl Ether	60-29-7	31,000	NA	10,000	10,000
Ethyl Methacrylate	97-63-2	4,500	NA	1,100	1,100
Ethylbenzene	100-41-4	7,600	140	480	140
Ethylene Diamine	107-15-3	11,000	NA	190,000	11,000
Ethylene Glycol	107-21-1	250,000	NA	NA	250,000
Ethylene Oxide	75-21-8	480	0.1	120,000	0.1
Ethylene Thiourea	96-45-7	10	240	NA	10.0

Table I Chemical of Concern	Chemical Abstract Service Number (CAS #)	Standard for a Single Chemical Non-Carcinogen (mg/kg)	Standard for a Single Chemical Carcinogen (mg/kg)	Soil Saturation (mg/kg)	Generic Direct-Contact Soil Standard for a Single Chemical (mg/kg)
Ethyleneimine	151-56-4	NA	0.058	150,000	0.058
Fluoranthene	206-44-0	4,800	NA	NA	4,800
Fluorene	86-73-7	4,800	NA	NA	4,800
Fluorine (Soluble Fluoride)	7782-41-4	9,400	NA	NA	9,400
Formaldehyde	50-00-0	1,900	1,000,000	42,000	1,900
Formic Acid	64-18-6	110,000	NA	110,000	110,000
Furan	110-00-9	160	NA	6,200	160
Furfural	98-01-1	360	NA	10,000	360
Glycidyl	765-34-4	41	NA	110,000	41
Glyphosate	1071-83-6	13,000	NA	NA	13,000
Guthion	86-50-0	380	NA	NA	380
Heptachlor	76-44-8	63	2.2	NA	2.2
Heptachlor Epoxide	1024-57-3	1.6	1.1	NA	1.1
Hexachlorobenzene	118-74-1	16	4.1	NA	4.1
Hexachlorobutadiene	87-68-3	160	29	17	17
Hexachlorocyclohexane, Alpha-	319-84-6	1,000	1.7	NA	1.7
Hexachlorocyclohexane, Beta-	319-85-7	NA	6	NA	6
Hexachlorocyclohexane, Gamma-(Lindane)	58-89-9	43	11	NA	11
Hexachlorocyclohexane, Technical	608-73-1	NA	6	NA	6
Hexachlorocyclopentadiene	77-47-4	4.4	NA	16	4.4
Hexachloroethane	67-72-1	93	45	NA	45
Hexachlorophene	70-30-4	38	NA	NA	38

Table I Chemical of Concern	Chemical Abstract Service Number (CAS #)	Standard for a Single Chemical Non-Carcinogen (mg/kg)	Standard for a Single Chemical Carcinogen (mg/kg)	Soil Saturation (mg/kg)	Generic Direct-Contact Soil Standard for a Single Chemical (mg/kg)
Hexamethylene Diisocyanate, 1,6-	822-06-0	7.9	NA	3,400	7.9
Hexamethylphosphoramide	680-31-9	51	NA	NA	51
Hexane, N-	110-54-3	1,500	NA	140	140
Hexanedioic Acid	124-04-9	250,000	NA	NA	250,000
Hydrazine	302-01-2	22,000	4.6	NA	4.6
Hydrogen Chloride	7647-01-0	1,000,000	NA	NA	1,000,000
Hydrogen Cyanide	74-90-8	51	NA	1,000,000	51
Hydrogen Fluoride	7664-39-3	6,300	NA	NA	6,300
Hydrogen Sulfide	7783-06-4	1,000,000	NA	NA	1,000,000
Hydroquinone	123-31-9	5,100	180	NA	180
Indeno[1,2,3-cd]pyrene	193-39-5	NA	23	NA	23
Isobutyl Alcohol	78-83-1	38,000	NA	10,000	10,000
Isophorone	78-59-1	25,000	11,000	NA	11,000
Kerb	23950-58-5	9,500	NA	NA	9,500
Lead Acetate	301-04-2	NA	1,300	NA	1,300
Lead and Compounds *	7439-92-1	NA	NA	NA	400
Lead Phosphate	7446-27-7	NA	1,600	NA	1,600
Lead Subacetate	1335-32-6	NA	1,300	NA	1,300
Malathion	121-75-5	2,500	NA	NA	2,500
Maleic Anhydride	108-31-6	13,000	NA	NA	13,000
Maleic Hydrazide	123-33-1	63,000	NA	NA	63,000
Malononitrile	109-77-3	13	NA	NA	13
Manganese Compounds	7439-96-5	3,600	NA	NA	3,600

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Mercury and Compounds	7439-97-6	9.9	NA	3.1	3.1
Methacrylonitrile	126-98-7	15	NA	4,600	15
Methanol	67-56-1	260,000	NA	110,000	110,000
Methomyl	16752-77-5	3,200	NA	NA	3,200
Methoxychlor	72-43-5	630	NA	NA	630
Methyl Ethyl Ketone (2-Butanone)	78-93-3	48,000	NA	28,000	28,000
Methyl Hydrazine	60-34-4	160	NA	180,000	160
Methyl Isobutyl Ketone (4-methyl-2-pentanone)	108-10-1	83,000	NA	3,400	3,400
Methyl Isocyanate	624-83-9	12	NA	10,000	12
Methyl Methacrylate	80-62-6	11,000	NA	2,400	2,400
Methyl Parathion	298-00-0	32	NA	NA	32
Methyl tert-Butyl Ether (MTBE)	1634-04-4	39,000	1,100	8,900	1,100
Methylaniline Hydrochloride, 2-	636-21-5	NA	83	NA	83
Methylcholanthrene, 3-	56-49-5	NA	0.49	NA	0.49
Methylene Chloride	75-09-2	740	1,200	3,300	740
Methylene-bis(2-chloroaniline), 4,4'-	101-14-4	250	110	NA	110
Methylenebisbenzenamine, 4,4'-	101-77-9	1,000,000	6.8	NA	6.8
Methylenediphenyl Diisocyanate	101-68-8	4,900	NA	NA	4,900
Methylnaphthalene, 1-	90-12-0	8,400	350	390	350
Methylnaphthalene, 2-	91-57-6	480	NA	NA	480
Methyl-N-nitro-N-nitrosoguanidine, N-	70-25-7	NA	1.3	NA	1.3
Naled	300-76-5	250	NA	NA	250

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Naphthalene	91-20-3	320	96	NA	96
Naphthylamine, 2-	91-59-8	NA	6	NA	6
Nickel Carbonyl	13463-39-3	1,600	NA	NA	1,600
Nickel Soluble Salts	7440-02-0	3,100	210,000	NA	3,100
Nitroaniline, 4-	100-01-6	510	540	NA	510
Nitrobenzene	98-95-3	260	130	3,000	130
Nitroglycerin	55-63-0	13	640	NA	13
Nitropropane, 2-	79-46-9	690	0.34	4,900	0.34
Nitrosodiethanolamine, N-	1116-54-7	NA	3.9	NA	3.9
Nitrosodiethylamine, N-	55-18-5	NA	0.072	NA	0.072
Nitrosodimethylamine, N-	62-75-9	1.3	0.164	240,000	0.164
Nitroso-di-N-butylamine, N-	924-16-3	NA	2	NA	2
Nitroso-di-N-propylamine, N-	621-64-7	NA	1.6	NA	1.6
Nitrosodiphenylamine, N-	86-30-6	NA	2,200	NA	2,200
Nitrosomorpholine, N-	59-89-2	NA	1.6	NA	1.6
Nitroso-N-ethylurea, N-	759-73-9	NA	0.402	NA	0.402
Nitroso-N-methylurea, N-	684-93-5	NA	0.09	NA	0.09
Nitrosopiperidine, N-	100-75-4	NA	1.2	NA	1.2
Nitrosopyrrolidine, N-	930-55-2	NA	5.2	NA	5.2
Nitrotoluene, o-	88-72-2	140	63	1,500	63
Nitrotoluene, p-	99-99-0	510	680	NA	510
Octamethylpyrophosphoramide	152-16-9	250	NA	NA	250
Octyl Phthalate, di-N-	117-84-0	1,300	NA	NA	1,300

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Oxamyl	23135-22-0	3,200	NA	NA	3,200
Parathion	56-38-2	760	NA	NA	760
Pentachlorobenzene	608-93-5	100	NA	NA	100
Pentachloroethane	76-01-7	NA	120	460	120
Pentachloronitrobenzene	82-68-8	380	42	NA	42
Pentachlorophenol	87-86-5	490	20	NA	20
Phenacetin	62-44-2	NA	4,900	NA	4,900
Phenol	108-95-2	38,000	NA	NA	38,000
Phenylmercuric Acetate	62-38-4	10	NA	NA	10
Phorate	298-02-2	25	NA	NA	25
Phosgene	75-44-5	0.77	NA	1,600	0.77
Phosphine	7803-51-2	47	NA	NA	47
Phosphoric Acid	7664-38-2	1,000,000	NA	NA	1,000,000
Phthalic Anhydride	85-44-9	250,000	NA	NA	250,000
Picloram	1918-02-1	8,800	NA	NA	8,800
Polychlorinated Biphenyls, total	1336-36-3	NA	5	NA	5
Potassium Cyanide	151-50-8	310	NA	NA	310
Potassium Silver Cyanide	506-61-6	780	NA	NA	780
Propargite	2312-35-8	5,100	57	NA	57
Propargyl Alcohol	107-19-7	250	NA	110,000	250
Propham	122-42-9	2,500	NA	NA	2,500
Propionaldehyde	123-38-6	190	NA	33,000	190
Propylene Oxide	75-56-9	810	45	78,000	45

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Pyrene	129-00-0	3,600	NA	NA	3,600
Pyridine	110-86-1	160	NA	530,000	160
Quinoline	91-22-5	NA	3.6	NA	3.6
Safrole	94-59-7	NA	49	NA	49
Selenious Acid	7783-00-8	780	NA	NA	780
Selenium	7782-49-2	780	NA	NA	780
Silver	7440-22-4	780	NA	NA	780
Silver Cyanide	506-64-9	16,000	NA	NA	16,000
Simazine	122-34-9	630	90	NA	90
Sodium Azide	26628-22-8	630	NA	NA	630
Sodium Cyanide	143-33-9	160	NA	NA	160
Sodium Fluoride	7681-49-4	7,800	NA	NA	7,800
Sodium Fluoroacetate	62-74-8	2.5	NA	NA	2.5
Sodium Tripolyphosphate	7758-29-4	1,000,000	NA	NA	1,000,000
Strychnine	57-24-9	38	NA	NA	38
Styrene	100-42-5	14,000	NA	870	870
Sulfuric Acid	7664-93-9	250,000	NA	NA	250,000
TCDD, 2,3,7,8-	1746-01-6	0.0001	0.000096	NA	0.000096
Tetrachlorobenzene, 1,2,4,5-	95-94-3	38	NA	NA	38
Tetrachloroethane, 1,1,1,2-	630-20-6	4,700	49	680	49
Tetrachloroethane, 1,1,2,2-	79-34-5	3,100	15	1,900	15
Tetrachloroethylene	127-18-4	190	580	170	170
Tetrachlorophenol, 2,3,4,6-	58-90-2	3,800	NA	NA	3,800

Table I Chemical of Concern	Chemical Abstract Service Number (CAS #)	Standard for a Single Chemical Non-Carcinogen (mg/kg)	Standard for a Single Chemical Carcinogen (mg/kg)	Soil Saturation (mg/kg)	Generic Direct-Contact Soil Standard for a Single Chemical (mg/kg)
Tetraethyl Dithiopyrophosphate	3689-24-5	63	NA	NA	63
Tetraethyl Lead	78-00-2	0.013	NA	2.4	0.013
Tetrahydrofuran	109-99-9	41,000	NA	170,000	41,000
Thiofanox	39196-18-4	38	NA	NA	38
Thiophanate, Methyl	23564-05-8	3,400	900	NA	900
Thiram	137-26-8	1,900	NA	NA	1,900
Titanium Tetrachloride	7550-45-0	200,000	NA	NA	200,000
Toluene	108-88-3	10,000	NA	820	820
Toluene-2,4-diisocyanate	584-84-9	0.7	200	NA	0.7
Toluene-2,6-diisocyanate	91-08-7	13	4,000	1,700	13
Toluidine, p-	106-49-0	NA	360	NA	360
Toxaphene	8001-35-2	NA	9.9	NA	9.9
Triallate	2303-17-5	3,200	150	NA	150
Trichlorobenzene, 1,2,4-	120-82-1	140	480	400	140
Trichloroethane, 1,1,1-	71-55-6	20,000	NA	640	640
Trichloroethane, 1,1,2-	79-00-5	630	28	2,200	28
Trichloroethylene	79-01-6	10	24	690	10
Trichlorofluoromethane	75-69-4	47,000	NA	1,200	1,200
Trichlorophenol, 2,4,5-	95-95-4	13,000	NA	NA	13,000
Trichlorophenol, 2,4,6-	88-06-2	130	990	NA	130
Trichlorophenoxyacetic Acid, 2,4,5-	93-76-5	1,300	NA	NA	1,300
Trichlorophenoxypropionic acid, 2,4,5-	93-72-1	1,000	NA	NA	1,000
Trichloropropane, 1,2,3-	96-18-4	12	0.1	1,400	0.1

Table I Chemical of Concern	Chemical Abstract Service Number (CAS #)	Standard for a Single Chemical Non-Carcinogen (mg/kg)	Standard for a Single Chemical Carcinogen (mg/kg)	Soil Saturation (mg/kg)	Generic Direct-Contact Soil Standard for a Single Chemical (mg/kg)
Triethylamine	121-44-8	290	NA	28,000	290
Trifluralin	1582-09-8	950	1,400	NA	950
Trimethylbenzene, 1,2,3-	526-73-8	760	NA	290	290
Trimethylbenzene, 1,2,4-	95-63-6	690	NA	220	220
Trimethylbenzene, 1,3,5-	108-67-8	620	NA	180	180
Trinitrobenzene, 1,3,5-	99-35-4	1,100	NA	NA	1,100
Trisodium Phosphate	7601-54-9	1,000,000	NA	NA	1,000,000
Urethane	51-79-6	NA	11	NA	11
Vanadium Compounds	7440-62-2	620	NA	NA	620
Vinyl Acetate	108-05-4	620	NA	2,700	620
Vinyl Bromide	593-60-2	11	3	2,500	3
Vinyl Chloride	75-01-4	160	1.3	3,900	1.3
Warfarin	81-81-2	38	NA	NA	38
Xylenes	1330-20-7	1,300	NA	260	260
Zinc and Compounds	7440-66-6	47,000	NA	NA	47,000
Zinc Cyanide	557-21-1	7,800	NA	NA	7,800
Zinc Phosphide	1314-84-7	47	NA	NA	47

* = See paragraph (C)(3)(e) of rule 3745-300-08 of the Administrative Code.

Table II: Generic numerical direct-contact soil standards (commercial land use with high frequency child exposure)

Table II Chemical of Concern	Chemical Abstract Service Number (CAS #)	Standard for a Single Chemical Non-Carcinogen (mg/kg)	Standard for a Single Chemical Carcinogen (mg/kg)	Soil Saturation (mg/kg)	Generic Direct-Contact Soil Standard for a Single Chemical (mg/kg)
Acenaphthene	83-32-9	16,000	NA	NA	16,000
Acetaldehyde	75-07-0	690	1,200	110,000	690
Acetone	67-64-1	360,000	NA	110,000	110,000
Acetonitrile	75-05-8	6,800	NA	130,000	6,800
Acetophenone	98-86-2	44,000	NA	2,500	2,500
Acetylaminofluorene, 2-	53-96-3	NA	9.1	NA	9.1
Acrolein	107-02-8	1.2	NA	23,000	1.2
Acrylamide	79-06-1	590	13	NA	13
Acrylic acid	79-10-7	840	NA	110,000	840
Acrylonitrile	107-13-1	130	30	11,000	30
Alachlor	15972-60-8	3,000	620	NA	620
Aldicarb	116-06-3	300	NA	NA	300
Aldicarb Sulfone	1646-88-4	300	NA	NA	300
Aldrin	309-00-2	8.9	2	NA	2
Allyl Alcohol	107-18-6	1,500	NA	110,000	1,500
Allyl Chloride	107-05-1	14	80	1,400	14
Aluminum Phosphide	20859-73-8	180	NA	NA	180
Aminobiphenyl, 4-	92-67-1	NA	1.7	NA	1.7
Ammonium Sulfamate	7773-06-0	88,000	NA	NA	88,000
Aniline	62-53-3	2,100	6,100	NA	2,100

Table II Chemical of Concern	Chemical Abstract Service Number (CAS #)	Standard for a Single Chemical Non-Carcinogen (mg/kg)	Standard for a Single Chemical Carcinogen (mg/kg)	Soil Saturation (mg/kg)	Generic Direct-Contact Soil Standard for a Single Chemical (mg/kg)
Anthracene	120-12-7	81,000	NA	NA	81,000
Antimony (metallic)	7440-36-0	180	NA	NA	180
Antimony Trioxide	1309-64-4	1,000,000	NA	NA	1,000,000
Aroclor 1016	12674-11-2	18	430	NA	18
Aroclor 1221	11104-28-2	NA	15	NA	15
Aroclor 1232	11141-16-5	NA	14	NA	14
Aroclor 1242	53469-21-9	NA	15	NA	15
Aroclor 1248	12672-29-6	NA	15	NA	15
Aroclor 1254	11097-69-1	5.3	15	NA	5.3
Aroclor 1260	11096-82-5	NA	15	NA	15
Arsenic, Inorganic	7440-38-2	180	46	NA	46
Atrazine	1912-24-9	10,000	150	NA	150
Auramine	492-80-8	NA	39	NA	39
Barium	7440-39-3	85,000	NA	NA	85,000
Baygon	114-26-1	1,200	NA	NA	1,200
Benomyl	17804-35-2	15,000	NA	NA	15,000
Benz[a]anthracene	56-55-3	NA	59	NA	59
Benzene	71-43-2	610	130	1,800	130
Benzenethiol	108-98-5	440	NA	1,300	440
Benzidine	92-87-5	890	0.15	NA	0.15
Benzo[a]pyrene	50-32-8	81	5.9	NA	5.9
Benzo[b]fluoranthene	205-99-2	NA	59	NA	59
Benzo[k]fluoranthene	207-08-9	NA	590	NA	590

Table II Chemical of Concern	Chemical Abstract Service Number (CAS #)	Standard for a Single Chemical Non-Carcinogen (mg/kg)	Standard for a Single Chemical Carcinogen (mg/kg)	Soil Saturation (mg/kg)	Generic Direct-Contact Soil Standard for a Single Chemical (mg/kg)
Benzoic Acid	65-85-0	1,000,000	NA	NA	1,000,000
Benzotrichloride	98-07-7	NA	3.9	320	3.9
Benzyl Chloride	100-44-7	180	130	1,500	130
Beryllium and compounds	7440-41-7	870	97,000	NA	870
Biphenyl, 1,1'-	92-52-4	220,000	6,400	NA	6,400
Bis(2-chloro-1-methylethyl) ether	108-60-1	18,000	NA	1,000	1,000
Bis(2-chloroethoxy)methane	111-91-1	890	NA	NA	890
Bis(2-chloroethyl)ether	111-44-4	NA	30	5,000	30
Bis(2-ethylhexyl)phthalate	117-81-7	5,900	2,500	NA	2,500
Bis(chloromethyl)ether	542-88-1	NA	0.0092	4,200	0.0092
Bromodichloromethane	75-27-4	8,800	33	930	33
Bromoform	75-25-2	8,800	2,300	910	910
Bromomethane	74-83-9	56	NA	3,600	56
Butadiene, 1,3-	106-99-0	15	7.2	670	7.2
Butanol, N-	71-36-3	30,000	NA	7,600	7,600
Butyl Benzyl Phthalate	85-68-7	59,000	18,000	NA	18,000
Cacodylic Acid	75-60-5	5,900	NA	NA	5,900
Cadmium	7440-43-9	370	130,000	NA	370
Calcium Cyanide	592-01-8	440	NA	NA	440
Captan	133-06-2	39,000	15,000	NA	15,000
Carbaryl	63-25-2	30,000	NA	NA	30,000
Carbofuran	1563-66-2	1,500	NA	NA	1,500
Carbon Disulfide	75-15-0	6,200	NA	740	740

Table II Chemical of Concern	Chemical Abstract Service Number (CAS #)	Standard for a Single Chemical Non-Carcinogen (mg/kg)	Standard for a Single Chemical Carcinogen (mg/kg)	Soil Saturation (mg/kg)	Generic Direct-Contact Soil Standard for a Single Chemical (mg/kg)
Carbon Tetrachloride	56-23-5	750	74	460	74
Carbonyl Sulfide	463-58-1	1,000,000	NA	5,900	5,900
Carbosulfan	55285-14-8	3,000	NA	NA	3,000
Chloramben	133-90-4	4,500	NA	NA	4,500
Chlordane	57-74-9	180	120	NA	120
Chlordecone (Kepone)	143-50-0	89	3.5	NA	3.5
Chlorine	7782-50-5	42,000	NA	2,800	2,800
Chloro-1,3-butadiene, 2-	126-99-8	190	1.1	790	1.1
Chloro-2-methylaniline HCl, 4-	3165-93-3	NA	75	NA	75
Chloroacetophenone, 2-	532-27-4	200,000	NA	NA	200,000
Chloroaniline, p-	106-47-8	1,200	170	NA	170
Chlorobenzene	108-90-7	2,100	NA	760	760
Chlorobenzilate	510-15-6	5,900	320	NA	320
Chloroform	67-66-3	1,500	35	2,500	35
Chloromethane	74-87-3	930	NA	1,300	930
Chloromethyl Methyl Ether	107-30-2	NA	2.3	9,300	2.3
Chloronaphthalene, Beta-	91-58-7	35,000	NA	NA	35,000
Chlorophenol, 2-	95-57-8	2,200	NA	27,000	2,200
Chlorpyrifos	2921-88-2	300	NA	NA	300
Chromium(III), Insoluble Salts	16065-83-1	660,000	NA	NA	660,000
Chromium(VI)	18540-29-9	1,300	100	NA	100
Chromium, Total	7440-47-3	NA	NA	NA	NA
Chrysene	218-01-9	NA	5,900	NA	5,900

Table II Chemical of Concern	Chemical Abstract Service Number (CAS #)	Standard for a Single Chemical Non-Carcinogen (mg/kg)	Standard for a Single Chemical Carcinogen (mg/kg)	Soil Saturation (mg/kg)	Generic Direct-Contact Soil Standard for a Single Chemical (mg/kg)
Cobalt Compounds	7440-48-4	130	26,000	NA	130
Copper	7440-50-8	18,000	NA	NA	18,000
Copper Cyanide	544-92-3	2,200	NA	NA	2,200
Cresol, m-	108-39-4	15,000	NA	NA	15,000
Cresol, o-	95-48-7	15,000	NA	NA	15,000
Cresol, p-	106-44-5	30,000	NA	NA	30,000
Cresol, p-chloro-m	59-50-7	30,000	NA	NA	30,000
Cresols	1319-77-3	30,000	NA	NA	30,000
Crotonaldehyde, trans-	123-73-9	440	27	17,000	27
Cumene	98-82-8	15,000	NA	270	270
Cyanide (CN-)	57-12-5	150	NA	1,000,000	150
Cyanogen	460-19-5	440	NA	NA	440
Cyanogen Bromide	506-68-3	39,000	NA	NA	39,000
Cyanogen Chloride	506-77-4	22,000	NA	NA	22,000
Cyclohexane	110-82-7	55,000	NA	120	120
Cyclohexanone	108-94-1	250,000	NA	5,100	5,100
Dalapon	75-99-0	8,900	NA	NA	8,900
DDD	72-54-8	NA	140	NA	140
DDE, p,p'-	72-55-9	NA	100	NA	100
DDT	50-29-3	190	130	NA	130
Diallate	2303-16-4	NA	570	NA	570
Diazinon	333-41-5	210	NA	NA	210
Dibenz[a,h]anthracene	53-70-3	NA	5.9	NA	5.9

Table II Chemical of Concern	Chemical Abstract Service Number (CAS #)	Standard for a Single Chemical Non-Carcinogen (mg/kg)	Standard for a Single Chemical Carcinogen (mg/kg)	Soil Saturation (mg/kg)	Generic Direct-Contact Soil Standard for a Single Chemical (mg/kg)
Dibromo-3-chloropropane, 1,2-	96-12-8	34	1.6	980	1.6
Dibromochloromethane	124-48-1	5,900	410	800	410
Dibromoethane, 1,2-	106-93-4	580	4.2	1,300	4.2
Dibutyl Phthalate	84-74-2	30,000	NA	NA	30,000
Dicamba	1918-00-9	8,900	NA	NA	8,900
Dichloro-2-butene, 1,4-	764-41-0	NA	0.24	550	0.24
Dichlorobenzene, 1,2-	95-50-1	14,000	NA	380	380
Dichlorobenzene, 1,4-	106-46-7	22,000	290	NA	290
Dichlorobenzidine, 3,3'-	91-94-1	NA	77	NA	77
Dichlorodifluoromethane	75-71-8	88,000	NA	850	850
Dichloroethane, 1,1-	75-34-3	88,000	390	1,700	390
Dichloroethane, 1,2-	107-06-2	280	52	3,000	52
Dichloroethylene, 1,1-	75-35-4	1,900	NA	1,200	1,200
Dichloroethylene, 1,2-cis-	156-59-2	880	NA	2,400	880
Dichloroethylene, 1,2-trans-	156-60-5	8,800	NA	1,900	1,900
Dichlorophenol, 2,4-	120-83-2	890	NA	NA	890
Dichlorophenoxy Acetic Acid, 2,4-	94-75-7	3,500	NA	NA	3,500
Dichloropropane, 1,2-	78-87-5	130	290	1,400	130
Dichloropropane, 1,3-	142-28-9	8,800	NA	1,500	1,500
Dichloropropene, 1,3-	542-75-6	600	230	1,600	230
Dichlorvos	62-73-7	150	120	NA	120
Dieldrin	60-57-1	15	2.2	NA	2.2
Diethanolamine	111-42-2	590	NA	NA	590

Table II Chemical of Concern	Chemical Abstract Service Number (CAS #)	Standard for a Single Chemical Non-Carcinogen (mg/kg)	Standard for a Single Chemical Carcinogen (mg/kg)	Soil Saturation (mg/kg)	Generic Direct-Contact Soil Standard for a Single Chemical (mg/kg)
Diethyl Phthalate	84-66-2	240,000	NA	NA	240,000
Diethylstilbestrol	56-53-1	NA	0.1	NA	0.1
Dihydrosafrole	94-58-6	NA	720	NA	720
Dimethoate	60-51-5	650	NA	NA	650
Dimethoxybenzidine, 3,3'-	119-90-4	NA	22	NA	22
Dimethylamino azobenzene [p-]	60-11-7	NA	7.5	NA	7.5
Dimethylaniline, N,N-	121-69-7	880	NA	830	830
Dimethylbenz(a)anthracene, 7,12-	57-97-6	NA	0.13	NA	0.13
Dimethylbenzidine, 3,3'-	119-93-7	NA	3.2	NA	3.2
Dimethylformamide	68-12-2	16,000	NA	110,000	16,000
Dimethylhydrazine, 1,2-	540-73-8	NA	0.06	190,000	0.06
Dimethylphenol, 2,4-	105-67-9	5,900	NA	NA	5,900
Dinitrobenzene, 1,2-	528-29-0	30	NA	NA	30
Dinitrobenzene, 1,3-	99-65-0	30	NA	NA	30
Dinitrobenzene, 1,4-	100-25-4	30	NA	NA	30
Dinitro-o-phenol-cyclohexyl Phenol, 4,6-	131-89-5	590	NA	NA	590
Dinitrophenol, 2,4-	51-28-5	590	NA	NA	590
Dinitrotoluene Mixture, 2,4/2,6-	25321-14-6	NA	51	NA	51
Dinitrotoluene, 2,4-	121-14-2	590	110	NA	110
Dinitrotoluene, 2,6-	606-20-2	NA	23	NA	23
Dinoseb	88-85-7	300	NA	NA	300
Dioxane, 1,4-	123-91-1	5,800	480	120,000	480
Diphenylhydrazine, 1,2-	122-66-7	NA	43	NA	43

Table II Chemical of Concern	Chemical Abstract Service Number (CAS #)	Standard for a Single Chemical Non-Carcinogen (mg/kg)	Standard for a Single Chemical Carcinogen (mg/kg)	Soil Saturation (mg/kg)	Generic Direct-Contact Soil Standard for a Single Chemical (mg/kg)
Diquat	85-00-7	650	NA	NA	650
Disodium phosphate	7558-79-4	1,000,000	NA	NA	1,000,000
Disulfoton	298-04-4	12	NA	NA	12
Diuron	330-54-1	590	NA	NA	590
Endosulfan	115-29-7	1,800	NA	NA	1,800
Endothall	145-73-3	5,900	NA	NA	5,900
Endrin	72-20-8	89	NA	NA	89
Epichlorohydrin	106-89-8	160	3,500	11,000	160
Epoxybutane, 1,2-	106-88-7	1,300	NA	15,000	1,300
Ethion	563-12-2	150	NA	NA	150
Ethoxyethanol, 2-	110-80-5	23,000	NA	110,000	23,000
Ethyl Acetate	141-78-6	5,200	NA	11,000	5,200
Ethyl Acrylate	140-88-5	370	NA	2,500	370
Ethyl Chloride (Chloroethane)	75-00-3	110,000	NA	2,100	2,100
Ethyl Ether	60-29-7	88,000	NA	10,000	10,000
Ethyl Methacrylate	97-63-2	15,000	NA	1,100	1,100
Ethylbenzene	100-41-4	23,000	660	480	480
Ethylene Diamine	107-15-3	27,000	NA	190,000	27,000
Ethylene Glycol	107-21-1	590,000	NA	NA	590,000
Ethylene Oxide	75-21-8	1,600	0.39	120,000	0.39
Ethylene Thiourea	96-45-7	24	770	NA	24
Ethyleneimine	151-56-4	NA	0.29	150,000	0.29
Fluoranthene	206-44-0	11,000	NA	NA	11,000

Table II Chemical of Concern	Chemical Abstract Service Number (CAS #)	Standard for a Single Chemical Non-Carcinogen (mg/kg)	Standard for a Single Chemical Carcinogen (mg/kg)	Soil Saturation (mg/kg)	Generic Direct-Contact Soil Standard for a Single Chemical (mg/kg)
Fluorene	86-73-7	11,000	NA	NA	11,000
Fluorine (Soluble Fluoride)	7782-41-4	26,000	NA	NA	26,000
Formaldehyde	50-00-0	6,200	1,800	42,000	1,800
Formic Acid	64-18-6	270,000	NA	110,000	110,000
Furan	110-00-9	440	NA	6,200	440
Furfural	98-01-1	860	NA	10,000	860
Glycidyl	765-34-4	100	NA	110,000	100
Glyphosate	1071-83-6	30,000	NA	NA	30,000
Guthion	86-50-0	890	NA	NA	890
Heptachlor	76-44-8	150	7.6	NA	7.9
Heptachlor Epoxide	1024-57-3	3.9	3.8	NA	3.8
Hexachlorobenzene	118-74-1	240	19	NA	19
Hexachlorobutadiene	87-68-3	440	140	17	17
Hexachlorocyclohexane, Alpha-	319-84-6	2,400	5.5	NA	5.5
Hexachlorocyclohexane, Beta-	319-85-7	NA	19	NA	19
Hexachlorocyclohexane, Gamma-(Lindane)	58-89-9	110	39	NA	39
Hexachlorocyclohexane, Technical	608-73-1	NA	19	NA	19
Hexachlorocyclopentadiene	77-47-4	15	NA	16	15
Hexachloroethane	67-72-1	270	210	NA	210
Hexachlorophene	70-30-4	89	NA	NA	89
Hexamethylene Diisocyanate, 1,6-	822-06-0	26	NA	3,400	26
Hexamethylphosphoramide	680-31-9	120	NA	NA	120

Table II Chemical of Concern	Chemical Abstract Service Number (CAS #)	Standard for a Single Chemical Non-Carcinogen (mg/kg)	Standard for a Single Chemical Carcinogen (mg/kg)	Soil Saturation (mg/kg)	Generic Direct-Contact Soil Standard for a Single Chemical (mg/kg)
Hexane, N-	110-54-3	5,100	NA	140	140
Hexanedioic Acid	124-04-9	590,000	NA	NA	590,000
Hydrazine	302-01-2	200,000	17	NA	17
Hydrogen Chloride	7647-01-0	1,000,000	NA	NA	1,000,000
Hydrogen Cyanide	74-90-8	150	NA	1,000,000	150
Hydrogen Fluoride	7664-39-3	18,000	NA	NA	18,000
Hydrogen Sulfide	7783-06-4	1,000,000	NA	NA	1,000,000
Hydroquinone	123-31-9	12,000	580	NA	580
Indeno[1,2,3-cd]pyrene	193-39-5	NA	59	NA	59
Isobutyl Alcohol	78-83-1	89,000	NA	10,000	10,000
Isophorone	78-59-1	59,000	36,000	NA	36,000
Kerb	23950-58-5	22,000	NA	NA	22,000
Lead Acetate	301-04-2	NA	4,100	NA	4,100
Lead and Compounds *	7439-92-1	NA	NA	NA	400
Lead Phosphate	7446-27-7	NA	6,000	NA	6,000
Lead Subacetate	1335-32-6	NA	4,100	NA	4,100
Malathion	121-75-5	5,900	NA	NA	5,900
Maleic Anhydride	108-31-6	30,000	NA	NA	30,000
Maleic Hydrazide	123-33-1	150,000	NA	NA	150,000
Malononitrile	109-77-3	30	NA	NA	30
Manganese Compounds	7439-96-5	10,000	NA	NA	10,000
Mercury and Compounds	7439-97-6	30	NA	3.1	3.1
Methacrylonitrile	126-98-7	43	NA	4,600	43

Table II Chemical of Concern	Chemical Abstract Service Number (CAS #)	Standard for a Single Chemical Non-Carcinogen (mg/kg)	Standard for a Single Chemical Carcinogen (mg/kg)	Soil Saturation (mg/kg)	Generic Direct-Contact Soil Standard for a Single Chemical (mg/kg)
Methanol	67-56-1	750,000	NA	110,000	110,000
Methomyl	16752-77-5	7,400	NA	NA	7,400
Methoxychlor	72-43-5	1,500	NA	NA	1,500
Methyl Ethyl Ketone (2-Butanone)	78-93-3	180,000	NA	28,000	28,000
Methyl Hydrazine	60-34-4	440	NA	180,000	440
Methyl Isobutyl Ketone (4-methyl-2-pentanone)	108-10-1	280,000	NA	3,400	3,400
Methyl Isocyanate	624-83-9	39	NA	10,000	39
Methyl Methacrylate	80-62-6	37,000	NA	2,400	2,400
Methyl Parathion	298-00-0	74	NA	NA	74
Methyl tert-Butyl Ether (MTBE)	1634-04-4	130,000	5,400	8,900	5,400
Methylaniline Hydrochloride, 2-	636-21-5	NA	270	NA	270
Methylcholanthrene, 3-	56-49-5	NA	1.6	NA	1.6
Methylene Chloride	75-09-2	2,100	4,300	3,300	2,100
Methylene-bis(2-chloroaniline), 4,4'-	101-14-4	590	350	NA	350
Methylenebisbenzenamine, 4,4'-	101-77-9	1,000,000	22	NA	22
Methylenediphenyl Diisocyanate	101-68-8	1,000,000	NA	NA	1,000,000
Methylnaphthalene, 1-	90-12-0	19,000	1,100	390	390
Methylnaphthalene, 2-	91-57-6	1,100	NA	NA	1,100
Methyl-N-nitro-N-nitrosoguanidine, N-	70-25-7	NA	4.2	NA	4.2
Naled	300-76-5	590	NA	NA	590
Naphthalene	91-20-3	1,000	420	NA	420
Naphthylamine, 2-	91-59-8	NA	19	NA	19

Table II Chemical of Concern	Chemical Abstract Service Number (CAS #)	Standard for a Single Chemical Non-Carcinogen (mg/kg)	Standard for a Single Chemical Carcinogen (mg/kg)	Soil Saturation (mg/kg)	Generic Direct-Contact Soil Standard for a Single Chemical (mg/kg)
Nickel Carbonyl	13463-39-3	4,600	NA	NA	4,600
Nickel Soluble Salts	7440-02-0	8,600	900,000	NA	8,600
Nitroaniline, 4-	100-01-6	1,200	1,700	NA	1,200
Nitrobenzene	98-95-3	760	560	3,000	560
Nitroglycerin	55-63-0	30	2,000	NA	30
Nitropropane, 2-	79-46-9	2,300	1.5	4,900	1.5
Nitrosodiethanolamine, N-	1116-54-7	NA	12	NA	12
Nitrosodiethylamine, N-	55-18-5	NA	0.23	NA	0.23
Nitrosodimethylamine, N-	62-75-9	3.5	0.86	240,000	0.86
Nitroso-di-N-butylamine, N-	924-16-3	NA	8.8	NA	8.8
Nitroso-di-N-propylamine, N-	621-64-7	NA	5	NA	5
Nitrosodiphenylamine, N-	86-30-6	NA	7,100	NA	7,100
Nitrosomorpholine, N-	59-89-2	NA	5.2	NA	5.2
Nitroso-N-ethylurea, N-	759-73-9	NA	1.3	NA	1.3
Nitroso-N-methylurea, N-	684-93-5	NA	0.29	NA	0.29
Nitrosopiperidine, N-	100-75-4	NA	3.7	NA	3.7
Nitrosopyrrolidine, N-	930-55-2	NA	17	NA	17
Nitrotoluene, o-	88-72-2	390	230	1,500	230
Nitrotoluene, p-	99-99-0	1,200	2,200	NA	1,200
Octamethylpyrophosphoramide	152-16-9	590	NA	NA	590
Octyl Phthalate, di-N-	117-84-0	3,000	NA	NA	3,000
Oxamyl	23135-22-0	7,400	NA	NA	7,400
Parathion	56-38-2	1,800	NA	NA	1,800

Table II Chemical of Concern	Chemical Abstract Service Number (CAS #)	Standard for a Single Chemical Non-Carcinogen (mg/kg)	Standard for a Single Chemical Carcinogen (mg/kg)	Soil Saturation (mg/kg)	Generic Direct-Contact Soil Standard for a Single Chemical (mg/kg)
Pentachlorobenzene	608-93-5	240	NA	NA	240
Pentachloroethane	76-01-7	NA	390	460	390
Pentachloronitrobenzene	82-68-8	890	130	NA	130
Pentachlorophenol	87-86-5	1,000	58	NA	58
Phenacetin	62-44-2	NA	16,000	NA	16,000
Phenol	108-95-2	89,000	NA	NA	89,000
Phenylmercuric Acetate	62-38-4	24	NA	NA	24
Phorate	298-02-2	59	NA	NA	59
Phosgene	75-44-5	2.6	NA	1,600	2.6
Phosphine	7803-51-2	130	NA	NA	130
Phosphoric Acid	7664-38-2	1,000,000	NA	NA	1,000,000
Phthalic Anhydride	85-44-9	590,000	NA	NA	590,000
Picloram	1918-02-1	21,000	NA	NA	21,000
Polychlorinated Biphenyls, total	1336-36-3	NA	15	NA	15
Potassium Cyanide	151-50-8	880	NA	NA	880
Potassium Silver Cyanide	506-61-6	2,200	NA	NA	2,200
Propargite	2312-35-8	12,000	180	NA	180
Propargyl Alcohol	107-19-7	590	NA	110,000	590
Propham	122-42-9	5,900	NA	NA	5,900
Propionaldehyde	123-38-6	630	NA	33,000	630
Propylene Oxide	75-56-9	2,700	200	78,000	200
Pyrene	129-00-0	8,100	NA	NA	8,100
Pyridine	110-86-1	440	NA	530,000	440

Table II Chemical of Concern	Chemical Abstract Service Number (CAS #)	Standard for a Single Chemical Non-Carcinogen (mg/kg)	Standard for a Single Chemical Carcinogen (mg/kg)	Soil Saturation (mg/kg)	Generic Direct-Contact Soil Standard for a Single Chemical (mg/kg)
Quinoline	91-22-5	NA	12	NA	12
Safrole	94-59-7	NA	160	NA	160
Selenious Acid	7783-00-8	2,200	NA	NA	2,200
Selenium	7782-49-2	2,200	NA	NA	2,200
Silver	7440-22-4	2,200	NA	NA	2,200
Silver Cyanide	506-64-9	44,000	NA	NA	44,000
Simazine	122-34-9	1,500	290	NA	290
Sodium Azide	26628-22-8	1,800	NA	NA	1,800
Sodium Cyanide	143-33-9	440	NA	NA	440
Sodium Fluoride	7681-49-4	22,000	NA	NA	22,000
Sodium Fluoroacetate	62-74-8	5.9	NA	NA	5.9
Sodium Tripolyphosphate	7758-29-4	1,000,000	NA	NA	1,000,000
Strychnine	57-24-9	89	NA	NA	89
Styrene	100-42-5	42,000	NA	870	870
Sulfuric Acid	7664-93-9	1,000,000	NA	NA	1,000,000
TCDD, 2,3,7,8-	1746-01-6	0.00027	0.00034	NA	0.00027
Tetrachlorobenzene, 1,2,4,5-	95-94-3	89	NA	NA	89
Tetrachloroethane, 1,1,1,2-	630-20-6	13,000	230	680	230
Tetrachloroethane, 1,1,2,2-	79-34-5	8,800	71	1,900	71
Tetrachloroethylene	127-18-4	630	2,700	170	170
Tetrachlorophenol, 2,3,4,6-	58-90-2	8,900	NA	NA	8,900
Tetraethyl Dithiopyrophosphate	3689-24-5	150	NA	NA	150
Tetraethyl Lead	78-00-2	0.03	NA	2.4	0.03

Table II Chemical of Concern	Chemical Abstract Service Number (CAS #)	Standard for a Single Chemical Non-Carcinogen (mg/kg)	Standard for a Single Chemical Carcinogen (mg/kg)	Soil Saturation (mg/kg)	Generic Direct-Contact Soil Standard for a Single Chemical (mg/kg)
Tetrahydrofuran	109-99-9	120,000	NA	170,000	120,000
Thiofanox	39196-18-4	89	NA	NA	89
Thiophanate, Methyl	23564-05-8	8,000	2,900	NA	2,900
Thiram	137-26-8	4,500	NA	NA	4,500
Titanium Tetrachloride	7550-45-0	670,000	NA	NA	670,000
Toluene	108-88-3	30,000	NA	820	820
Toluene-2,4-diisocyanate	584-84-9	2.2	890	NA	2.2
Toluene-2,6-diisocyanate	91-08-7	44	18,000	1,700	44
Toluidine, p-	106-49-0	NA	1,200	NA	1,200
Toxaphene	8001-35-2	NA	32	NA	32
Triallate	2303-17-5	7,400	480	NA	480
Trichlorobenzene, 1,2,4-	120-82-1	470	1,800	400	400
Trichloroethane, 1,1,1-	71-55-6	67,000	NA	640	640
Trichloroethane, 1,1,2-	79-00-5	1,800	130	2,200	130
Trichloroethylene	79-01-6	33	160	690	33
Trichlorofluoromethane	75-69-4	130,000	NA	1,200	1,200
Trichlorophenol, 2,4,5-	95-95-4	30,000	NA	NA	30,000
Trichlorophenol, 2,4,6-	88-06-2	300	3,200	NA	300
Trichlorophenoxyacetic Acid, 2,4,5-	93-76-5	3,000	NA	NA	3,000
Trichlorophenoxypropionic acid, 2,4,5-	93-72-1	2,400	NA	NA	2,400
Trichloropropane, 1,2,3-	96-18-4	41	0.32	1,400	0.32
Triethylamine	121-44-8	970	NA	28,000	970
Trifluralin	1582-09-8	2,200	4,500	NA	2,200

Table II Chemical of Concern	Chemical Abstract Service Number (CAS #)	Standard for a Single Chemical Non-Carcinogen (mg/kg)	Standard for a Single Chemical Carcinogen (mg/kg)	Soil Saturation (mg/kg)	Generic Direct-Contact Soil Standard for a Single Chemical (mg/kg)
Trimethylbenzene, 1,2,3-	526-73-8	2,300	NA	290	290
Trimethylbenzene, 1,2,4-	95-63-6	2,100	NA	220	220
Trimethylbenzene, 1,3,5-	108-67-8	1,900	NA	180	180
Trinitrobenzene, 1,3,5-	99-35-4	12,000	NA	NA	12,000
Trisodium Phosphate	7601-54-9	1,000,000	NA	NA	1,000,000
Urethane	51-79-6	NA	35	NA	35
Vanadium Compounds	7440-62-2	2,200	NA	NA	2,200
Vinyl Acetate	108-05-4	7,600	NA	2,700	2,700
Vinyl Bromide	593-60-2	36	13	2,500	13
Vinyl Chloride	75-01-4	510	2.3	3,900	2.3
Warfarin	81-81-2	89	NA	NA	89
Xylenes	1330-20-7	4,300	NA	260	260
Zinc and Compounds	7440-66-6	130,000	NA	NA	130,000
Zinc Cyanide	557-21-1	22,000	NA	NA	22,000
Zinc Phosphide	1314-84-7	130	NA	NA	130

* = See paragraph (C)(3)(e) of rule 3745-300-08 of the Administrative Code.

Table III: Generic numerical direct-contact soil standards (commercial or industrial land use category)

Table III Chemical of Concern	Chemical Abstract Service Number (CAS #)	Standard for a Single Chemical Non-Carcinogen (mg/kg)	Standard for a Single Chemical Carcinogen (mg/kg)	Soil Saturation (mg/kg)	Generic Direct-Contact Soil Standard for a Single Chemical (mg/kg)
Acenaphthene	83-32-9	1,000,000	NA	NA	1,000,000
Acetaldehyde	75-07-0	860	1,200	110,000	860
Acetone	67-64-1	1,000,000	NA	110,000	110,000
Acetonitrile	75-05-8	8,600	NA	130,000	8,600
Acetophenone	98-86-2	470,000	NA	2,500	2,500
Acetylaminofluorene, 2-	53-96-3	NA	19	NA	19
Acrolein	107-02-8	1.5	NA	23,000	1.5
Acrylamide	79-06-1	5,100	140	NA	140
Acrylic acid	79-10-7	1,000	NA	110,000	1,000
Acrylonitrile	107-13-1	170	30	11,000	30
Alachlor	15972-60-8	25,000	1,300	NA	1,300
Aldicarb	116-06-3	2,500	NA	NA	2,500
Aldicarb Sulfone	1646-88-4	2,500	NA	NA	2,500
Aldrin	309-00-2	76	4	NA	4
Allyl Alcohol	107-18-6	13,000	NA	110,000	13,000
Allyl Chloride	107-05-1	17	80	1,400	17
Aluminum Phosphide	20859-73-8	1,900	NA	NA	1,900
Aminobiphenyl, 4-	92-67-1	NA	3.4	NA	3.4
Ammonium Sulfamate	7773-06-0	930,000	NA	NA	930,000
Aniline	62-53-3	18,000	12,000	NA	12,000

Table III Chemical of Concern	Chemical Abstract Service Number (CAS #)	Standard for a Single Chemical Non-Carcinogen (mg/kg)	Standard for a Single Chemical Carcinogen (mg/kg)	Soil Saturation (mg/kg)	Generic Direct-Contact Soil Standard for a Single Chemical (mg/kg)
Anthracene	120-12-7	670,000	NA	NA	670,000
Antimony (metallic)	7440-36-0	1,900	NA	NA	1,900
Antimony Trioxide	1309-64-4	1,000,000	NA	NA	1,000,000
Aroclor 1016	12674-11-2	150	760	NA	150
Aroclor 1221	11104-28-2	NA	22	NA	22
Aroclor 1232	11141-16-5	NA	18	NA	18
Aroclor 1242	53469-21-9	NA	27	NA	27
Aroclor 1248	12672-29-6	NA	26	NA	26
Aroclor 1254	11097-69-1	43	28	NA	28
Aroclor 1260	11096-82-5	NA	28	NA	28
Arsenic, Inorganic	7440-38-2	1,600	100	NA	100
Atrazine	1912-24-9	89,000	310	NA	310
Auramine	492-80-8	NA	81	NA	81
Barium	7440-39-3	760,000	NA	NA	760,000
Baygon	114-26-1	10,000	NA	NA	10,000
Benomyl	17804-35-2	130,000	NA	NA	130,000
Benz[a]anthracene	56-55-3	NA	610	NA	610
Benzene	71-43-2	1,100	130	1,800	130
Benzenethiol	108-98-5	4,700	NA	1,300	1,300
Benzidine	92-87-5	7,600	0.31	NA	0.31
Benzo[a]pyrene	50-32-8	640	62	NA	62
Benzo[b]fluoranthene	205-99-2	NA	620	NA	620
Benzo[k]fluoranthene	207-08-9	NA	6200	NA	6200

Table III Chemical of Concern	Chemical Abstract Service Number (CAS #)	Standard for a Single Chemical Non-Carcinogen (mg/kg)	Standard for a Single Chemical Carcinogen (mg/kg)	Soil Saturation (mg/kg)	Generic Direct-Contact Soil Standard for a Single Chemical (mg/kg)
Benzoic Acid	65-85-0	1,000,000	NA	NA	1,000,000
Benzotrichloride	98-07-7	NA	10	320	10
Benzyl Chloride	100-44-7	270	130	1,500	130
Beryllium and compounds	7440-41-7	8,800	97,000	NA	8,800
Biphenyl, 1,1'-	92-52-4	1,000,000	16,000	NA	16,000
Bis(2-chloro-1-methylethyl) ether	108-60-1	190,000	NA	1,000	1,000
Bis(2-chloroethoxy)methane	111-91-1	7,600	NA	NA	7,600
Bis(2-chloroethyl)ether	111-44-4	NA	30	5,000	30
Bis(2-ethylhexyl)phthalate	117-81-7	51,000	5,100	NA	5,100
Bis(chloromethyl)ether	542-88-1	NA	0.0092	4,200	0.0092
Bromodichloromethane	75-27-4	93,000	33	930	33
Bromoform	75-25-2	93,000	2,300	910	910
Bromomethane	74-83-9	76	NA	3,600	76
Butadiene, 1,3-	106-99-0	19	7.2	670	7.2
Butanol, N-	71-36-3	250,000	NA	7,600	7,600
Butyl Benzyl Phthalate	85-68-7	510,000	37,000	NA	37,000
Cacodylic Acid	75-60-5	51,000	NA	NA	51,000
Cadmium	7440-43-9	3,300	130,000	NA	3,300
Calcium Cyanide	592-01-8	4,700	NA	NA	4,700
Captan	133-06-2	330,000	31,000	NA	31,000
Carbaryl	63-25-2	250,000	NA	NA	250,000
Carbofuran	1563-66-2	13,000	NA	NA	13,000
Carbon Disulfide	75-15-0	8,800	NA	740	740

Table III Chemical of Concern	Chemical Abstract Service Number (CAS #)	Standard for a Single Chemical Non-Carcinogen (mg/kg)	Standard for a Single Chemical Carcinogen (mg/kg)	Soil Saturation (mg/kg)	Generic Direct-Contact Soil Standard for a Single Chemical (mg/kg)
Carbon Tetrachloride	56-23-5	1,500	74	460	74
Carbonyl Sulfide	463-58-1	1,000,000	NA	5,900	5,900
Carbosulfan	55285-14-8	25,000	NA	NA	25,000
Chloramben	133-90-4	38,000	NA	NA	38,000
Chlordane	57-74-9	1,400	250	NA	250
Chlordecone (Kepone)	143-50-0	760	7.1	NA	7.1
Chlorine	7782-50-5	340,000	NA	2,800	2,800
Chloro-1,3-butadiene, 2-	126-99-8	240	1.1	790	1.1
Chloro-2-methylaniline HCl, 4-	3165-93-3	NA	150	NA	150
Chloroacetophenone, 2-	532-27-4	250,000	NA	NA	250,000
Chloroaniline, p-	106-47-8	10,000	350	NA	350
Chlorobenzene	108-90-7	3,400	NA	760	760
Chlorobenzilate	510-15-6	51,000	640	NA	640
Chloroform	67-66-3	2,700	35	2,500	35
Chloromethane	74-87-3	1,200	NA	1,300	1,200
Chloromethyl Methyl Ether	107-30-2	NA	2.3	9,300	2.3
Chloronaphthalene, Beta-	91-58-7	370,000	NA	NA	370,000
Chlorophenol, 2-	95-57-8	23,000	NA	27,000	23,000
Chlorpyrifos	2921-88-2	2,500	NA	NA	2,500
Chromium(III), Insoluble Salts	16065-83-1	1,000,000	NA	NA	1,000,000
Chromium(VI)	18540-29-9	14,000	240	NA	240
Chromium, Total	7440-47-3	NA	NA	NA	NA
Chrysene	218-01-9	NA	62,000	NA	62,000

Table III Chemical of Concern	Chemical Abstract Service Number (CAS #)	Standard for a Single Chemical Non-Carcinogen (mg/kg)	Standard for a Single Chemical Carcinogen (mg/kg)	Soil Saturation (mg/kg)	Generic Direct-Contact Soil Standard for a Single Chemical (mg/kg)
Cobalt Compounds	7440-48-4	1,400	26,000	NA	1,400
Copper	7440-50-8	190,000	NA	NA	190,000
Copper Cyanide	544-92-3	23,000	NA	NA	23,000
Cresol, m-	108-39-4	130,000	NA	NA	130,000
Cresol, o-	95-48-7	130,000	NA	NA	130,000
Cresol, p-	106-44-5	250,000	NA	NA	250,000
Cresol, p-chloro-m-	59-50-7	250,000	NA	NA	250,000
Cresols	1319-77-3	250,000	NA	NA	250,000
Crotonaldehyde, trans-	123-73-9	4,700	69	17,000	69
Cumene	98-82-8	26,000	NA	270	270
Cyanide (CN-)	57-12-5	400	NA	1,000,000	400
Cyanogen	460-19-5	4,700	NA	NA	4,700
Cyanogen Bromide	506-68-3	420,000	NA	NA	420,000
Cyanogen Chloride	506-77-4	230,000	NA	NA	230,000
Cyclohexane	110-82-7	69,000	NA	120	120
Cyclohexanone	108-94-1	1,000,000	NA	5,100	5,100
Dalapon	75-99-0	76,000	NA	NA	76,000
DDD	72-54-8	NA	300	NA	300
DDE, p,p'-	72-55-9	NA	200	NA	200
DDT	50-29-3	1,900	310	NA	310
Diallate	2303-16-4	NA	1,200	NA	1,200
Diazinon	333-41-5	1,800	NA	NA	1,800
Dibenz[a,h]anthracene	53-70-3	NA	62	NA	62

Table III Chemical of Concern	Chemical Abstract Service Number (CAS #)	Standard for a Single Chemical Non-Carcinogen (mg/kg)	Standard for a Single Chemical Carcinogen (mg/kg)	Soil Saturation (mg/kg)	Generic Direct-Contact Soil Standard for a Single Chemical (mg/kg)
Dibromo-3-chloropropane, 1,2-	96-12-8	65	1.6	980	1.6
Dibromochloromethane	124-48-1	51,000	840	800	800
Dibromoethane, 1,2-	106-93-4	840	4.2	1,300	4.2
Dibutyl Phthalate	84-74-2	250,000	NA	NA	250,000
Dicamba	1918-00-9	76,000	NA	NA	76,000
Dichloro-2-butene, 1,4-	764-41-0	NA	0.24	550	0.24
Dichlorobenzene, 1,2-	95-50-1	24,000	NA	380	380
Dichlorobenzene, 1,4-	106-46-7	72,000	290	NA	290
Dichlorobenzidine, 3,3'-	91-94-1	NA	160	NA	160
Dichlorodifluoromethane	75-71-8	930,000	NA	850	850
Dichloroethane, 1,1-	75-34-3	930,000	390	1,700	390
Dichloroethane, 1,2-	107-06-2	350	52	3,000	52
Dichloroethylene, 1,1-	75-35-4	2,500	NA	1,200	1,200
Dichloroethylene, 1,2-cis-	156-59-2	9,300	NA	2,400	2,400
Dichloroethylene, 1,2-trans-	156-60-5	93,000	NA	1,900	1,900
Dichlorophenol, 2,4-	120-83-2	7,600	NA	NA	7,600
Dichlorophenoxy Acetic Acid, 2,4-	94-75-7	33,000	NA	NA	33,000
Dichloropropane, 1,2-	78-87-5	170	290	1,400	170
Dichloropropane, 1,3-	142-28-9	93,000	NA	1,500	1,500
Dichloropropene, 1,3-	542-75-6	780	230	1,600	230
Dichlorvos	62-73-7	1,300	240	NA	240
Dieldrin	60-57-1	130	4.4	NA	4.4
Diethanolamine	111-42-2	5,000	NA	NA	5,000

Table III Chemical of Concern	Chemical Abstract Service Number (CAS #)	Standard for a Single Chemical Non-Carcinogen (mg/kg)	Standard for a Single Chemical Carcinogen (mg/kg)	Soil Saturation (mg/kg)	Generic Direct-Contact Soil Standard for a Single Chemical (mg/kg)
Diethyl Phthalate	84-66-2	1,000,000	NA	NA	1,000,000
Diethylstilbestrol	56-53-1	NA	0.2	NA	0.2
Dihydrosafrole	94-58-6	NA	960	NA	960
Dimethoate	60-51-5	5,600	NA	NA	5,600
Dimethoxybenzidine, 3,3'-	119-90-4	NA	44	NA	44
Dimethylamino azobenzene [p-]	60-11-7	NA	15	NA	15
Dimethylaniline, N,N-	121-69-7	9,300	NA	830	830
Dimethylbenz(a)anthracene, 7,12-	57-97-6	NA	0.25	NA	0.25
Dimethylbenzidine, 3,3'-	119-93-7	NA	6.4	NA	6.4
Dimethylformamide	68-12-2	36,000	NA	110,000	36,000
Dimethylhydrazine, 1,2-	540-73-8	NA	0.092	190,000	0.092
Dimethylphenol, 2,4-	105-67-9	51,000	NA	NA	51,000
Dinitrobenzene, 1,2-	528-29-0	250	NA	NA	250
Dinitrobenzene, 1,3-	99-65-0	250	NA	NA	250
Dinitrobenzene, 1,4-	100-25-4	250	NA	NA	250
Dinitro-o-phenol-cyclohexyl Phenol, 4,6-	131-89-5	5,100	NA	NA	5,100
Dinitrophenol, 2,4-	51-28-5	5,100	NA	NA	5,100
Dinitrotoluene Mixture, 2,4/2,6-	25321-14-6	NA	100	NA	100
Dinitrotoluene, 2,4-	121-14-2	5,000	230	NA	230
Dinitrotoluene, 2,6-	606-20-2	NA	47	NA	47
Dinoseb	88-85-7	2,500	NA	NA	2,500
Dioxane, 1,4-	123-91-1	12,000	850	120,000	850
Diphenylhydrazine, 1,2-	122-66-7	NA	89	NA	89

Table III Chemical of Concern	Chemical Abstract Service Number (CAS #)	Standard for a Single Chemical Non-Carcinogen (mg/kg)	Standard for a Single Chemical Carcinogen (mg/kg)	Soil Saturation (mg/kg)	Generic Direct-Contact Soil Standard for a Single Chemical (mg/kg)
Diquat	85-00-7	5,600	NA	NA	5,600
Disodium phosphate	7558-79-4	1,000,000	NA	NA	1,000,000
Disulfoton	298-04-4	100	NA	NA	100
Diuron	330-54-1	5,100	NA	NA	5,100
Endosulfan	115-29-7	15,000	NA	NA	15,000
Endothall	145-73-3	51,000	NA	NA	51,000
Endrin	72-20-8	760	NA	NA	760
Epichlorohydrin	106-89-8	210	3,500	11,000	210
Epoxybutane, 1,2-	106-88-7	1,700	NA	15,000	1,700
Ethion	563-12-2	1,300	NA	NA	1,300
Ethoxyethanol, 2-	110-80-5	110,000	NA	110,000	110,000
Ethyl Acetate	141-78-6	6,600	NA	11,000	6,600
Ethyl Acrylate	140-88-5	540	NA	2,500	540
Ethyl Chloride (Chloroethane)	75-00-3	140,000	NA	2,100	2,100
Ethyl Ether	60-29-7	930,000	NA	10,000	10,000
Ethyl Methacrylate	97-63-2	19,000	NA	1,100	1,100
Ethylbenzene	100-41-4	55,000	660	480	480
Ethylene Diamine	107-15-3	230,000	NA	190,000	190,000
Ethylene Glycol	107-21-1	1,000,000	NA	NA	1,000,000
Ethylene Oxide	75-21-8	2,000	0.6	120,000	0.6
Ethylene Thiourea	96-45-7	200	1,600	NA	200
Ethyleneimine	151-56-4	NA	0.29	150,000	0.29
Fluoranthene	206-44-0	89,000	NA	NA	89,000

Table III Chemical of Concern	Chemical Abstract Service Number (CAS #)	Standard for a Single Chemical Non-Carcinogen (mg/kg)	Standard for a Single Chemical Carcinogen (mg/kg)	Soil Saturation (mg/kg)	Generic Direct-Contact Soil Standard for a Single Chemical (mg/kg)
Fluorene	86-73-7	89,000	NA	NA	89,000
Fluorine (Soluble Fluoride)	7782-41-4	280,000	NA	NA	280,000
Formaldehyde	50-00-0	8,300	1,800	42,000	1,800
Formic Acid	64-18-6	1,000,000	NA	110,000	110,000
Furan	110-00-9	4,700	NA	6,200	4,700
Furfural	98-01-1	5,900	NA	10,000	5,900
Glycidyl	765-34-4	480	NA	110,000	480
Glyphosate	1071-83-6	250,000	NA	NA	250,000
Guthion	86-50-0	7,600	NA	NA	7,600
Heptachlor	76-44-8	1,300	14	NA	14
Heptachlor Epoxide	1024-57-3	33	7.1	NA	7.1
Hexachlorobenzene	118-74-1	2,000	22	NA	22
Hexachlorobutadiene	87-68-3	4,700	140	17	17
Hexachlorocyclohexane, Alpha-	319-84-6	20,000	11	NA	11
Hexachlorocyclohexane, Beta-	319-85-7	NA	39	NA	39
Hexachlorocyclohexane, Gamma- (Lindane)	58-89-9	1,000	89	NA	89
Hexachlorocyclohexane, Technical	608-73-1	NA	39	NA	39
Hexachlorocyclopentadiene	77-47-4	19	NA	16	16
Hexachloroethane	67-72-1	1,500	210	NA	210
Hexachlorophene	70-30-4	760	NA	NA	760
Hexamethylene Diisocyanate, 1,6-	822-06-0	33	NA	3,400	33
Hexamethylphosphoramide	680-31-9	1,000	NA	NA	1,000

Table III Chemical of Concern	Chemical Abstract Service Number (CAS #)	Standard for a Single Chemical Non-Carcinogen (mg/kg)	Standard for a Single Chemical Carcinogen (mg/kg)	Soil Saturation (mg/kg)	Generic Direct-Contact Soil Standard for a Single Chemical (mg/kg)
Hexane, N-	110-54-3	6,400	NA	140	140
Hexanedioic Acid	124-04-9	1,000,000	NA	NA	1,000,000
Hydrazine	302-01-2	250,000	44	NA	44
Hydrogen Chloride	7647-01-0	1,000,000	NA	NA	1,000,000
Hydrogen Cyanide	74-90-8	400	NA	1,000,000	400
Hydrogen Fluoride	7664-39-3	190,000	NA	NA	190,000
Hydrogen Sulfide	7783-06-4	1,000,000	NA	NA	1,000,000
Hydroquinone	123-31-9	100,000	1,200	NA	1,200
Indeno[1,2,3-cd]pyrene	193-39-5	NA	620	NA	620
Isobutyl Alcohol	78-83-1	760,000	NA	10,000	10,000
Isophorone	78-59-1	510,000	75,000	NA	75,000
Kerb	23950-58-5	190,000	NA	NA	190,000
Lead Acetate	301-04-2	NA	8,300	NA	8,300
Lead and Compounds *	7439-92-1	NA	NA	NA	800
Lead Phosphate	7446-27-7	NA	15,000	NA	15,000
Lead Subacetate	1335-32-6	NA	8,300	NA	8,300
Malathion	121-75-5	51,000	NA	NA	51,000
Maleic Anhydride	108-31-6	240,000	NA	NA	240,000
Maleic Hydrazide	123-33-1	1,000,000	NA	NA	1,000,000
Malononitrile	109-77-3	250	NA	NA	250
Manganese Compounds	7439-96-5	88,000	NA	NA	88,000
Mercury and Compounds	7439-97-6	92	NA	3.1	3.1
Methacrylonitrile	126-98-7	390	NA	4,600	390

Table III Chemical of Concern	Chemical Abstract Service Number (CAS #)	Standard for a Single Chemical Non-Carcinogen (mg/kg)	Standard for a Single Chemical Carcinogen (mg/kg)	Soil Saturation (mg/kg)	Generic Direct-Contact Soil Standard for a Single Chemical (mg/kg)
Methanol	67-56-1	1,000,000	NA	110,000	110,000
Methomyl	16752-77-5	63,000	NA	NA	63,000
Methoxychlor	72-43-5	13,000	NA	NA	13,000
Methyl Ethyl Ketone (2-Butanone)	78-93-3	540,000	NA	28,000	28,000
Methyl Hydrazine	60-34-4	4,700	NA	180,000	4,700
Methyl Isobutyl Ketone (4-methyl-2-pentanone)	108-10-1	350,000	NA	3,400	3,400
Methyl Isocyanate	624-83-9	49	NA	10,000	49
Methyl Methacrylate	80-62-6	48,000	NA	2,400	2,400
Methyl Parathion	298-00-0	630	NA	NA	630
Methyl tert-Butyl Ether (MTBE)	1634-04-4	160,000	5,400	8,900	5,400
Methylaniline Hydrochloride, 2-	636-21-5	NA	540	NA	540
Methylcholanthrene, 3-	56-49-5	NA	3.2	NA	3.2
Methylene Chloride	75-09-2	9,500	33,000	3,300	3,300
Methylene-bis(2-chloroaniline), 4,4'-	101-14-4	5,100	710	NA	710
Methylenebisbenzenamine, 4,4'-	101-77-9	1,000,000	44	NA	44
Methylenediphenyl Diisocyanate	101-68-8	1,000,000	NA	NA	1,000,000
Methylnaphthalene, 1-	90-12-0	160,000	2,100	390	390
Methylnaphthalene, 2-	91-57-6	8,900	NA	NA	8,900
Methyl-N-nitro-N-nitrosoguanidine, N-	70-25-7	NA	8.5	NA	8.5
Naled	300-76-5	5,100	NA	NA	5,100
Naphthalene	91-20-3	1,500	420	NA	420
Naphthylamine, 2-	91-59-8	NA	39	NA	39

Table III Chemical of Concern	Chemical Abstract Service Number (CAS #)	Standard for a Single Chemical Non-Carcinogen (mg/kg)	Standard for a Single Chemical Carcinogen (mg/kg)	Soil Saturation (mg/kg)	Generic Direct-Contact Soil Standard for a Single Chemical (mg/kg)
Nickel Carbonyl	13463-39-3	36,000	NA	NA	36,000
Nickel Soluble Salts	7440-02-0	83,000	900,000	NA	83,000
Nitroaniline, 4-	100-01-6	10,000	3,500	NA	3,500
Nitrobenzene	98-95-3	4,100	560	3,000	560
Nitroglycerin	55-63-0	250	4,200	NA	250
Nitropropane, 2-	79-46-9	2,900	1.5	4,900	1.5
Nitrosodiethanolamine, N-	1116-54-7	NA	25	NA	25
Nitrosodiethylamine, N-	55-18-5	NA	0.47	NA	0.47
Nitrosodimethylamine, N-	62-75-9	37	1.1	240,000	1.1
Nitroso-di-N-butylamine, N-	924-16-3	NA	15	NA	15
Nitroso-di-N-propylamine, N-	621-64-7	NA	10	NA	10
Nitrosodiphenylamine, N-	86-30-6	NA	14,000	NA	14,000
Nitrosomorpholine [N-]	59-89-2	NA	11	NA	11
Nitroso-N-ethylurea, N-	759-73-9	NA	2.6	NA	2.6
Nitroso-N-methylurea, N-	684-93-5	NA	0.59	NA	0.59
Nitrosopiperidine [N-]	100-75-4	NA	7.5	NA	7.5
Nitrosopyrrolidine, N-	930-55-2	NA	34	NA	34
Nitrotoluene, o-	88-72-2	4,200	590	1,500	590
Nitrotoluene, p-	99-99-0	10,000	4,400	NA	4,400
Octamethylpyrophosphoramide	152-16-9	5,100	NA	NA	5,100
Octyl Phthalate, di-N-	117-84-0	25,000	NA	NA	25,000
Oxamyl	23135-22-0	63,000	NA	NA	63,000
Parathion	56-38-2	15,000	NA	NA	15,000

Table III Chemical of Concern	Chemical Abstract Service Number (CAS #)	Standard for a Single Chemical Non-Carcinogen (mg/kg)	Standard for a Single Chemical Carcinogen (mg/kg)	Soil Saturation (mg/kg)	Generic Direct-Contact Soil Standard for a Single Chemical (mg/kg)
Pentachlorobenzene	608-93-5	2,000	NA	NA	2,000
Pentachloroethane	76-01-7	NA	790	460	460
Pentachloronitrobenzene	82-68-8	7,600	270	NA	270
Pentachlorophenol	87-86-5	7,500	100	NA	100
Phenacetin	62-44-2	NA	32,000	NA	32,000
Phenol	108-95-2	760,000	NA	NA	760,000
Phenylmercuric Acetate	62-38-4	200	NA	NA	200
Phorate	298-02-2	510	NA	NA	510
Phosgene	75-44-5	3.2	NA	1,600	3.2
Phosphine	7803-51-2	1,400	NA	NA	1,400
Phosphoric Acid	7664-38-2	1,000,000	NA	NA	1,000,000
Phthalic Anhydride	85-44-9	1,000,000	NA	NA	1,000,000
Picloram	1918-02-1	180,000	NA	NA	180,000
Polychlorinated Biphenyls, total	1336-36-3	NA	30	NA	30
Potassium Cyanide	151-50-8	9,300	NA	NA	9,300
Potassium Silver Cyanide	506-61-6	23,000	NA	NA	23,000
Propargite	2312-35-8	100,000	370	NA	370
Propargyl Alcohol	107-19-7	5,100	NA	110,000	5,100
Propham	122-42-9	51,000	NA	NA	51,000
Propionaldehyde	123-38-6	790	NA	33,000	790
Propylene Oxide	75-56-9	3,400	330	78,000	330
Pyrene	129-00-0	67,000	NA	NA	67,000
Pyridine	110-86-1	4,700	NA	530,000	4,700

Table III Chemical of Concern	Chemical Abstract Service Number (CAS #)	Standard for a Single Chemical Non-Carcinogen (mg/kg)	Standard for a Single Chemical Carcinogen (mg/kg)	Soil Saturation (mg/kg)	Generic Direct-Contact Soil Standard for a Single Chemical (mg/kg)
Quinoline	91-22-5	NA	24	NA	24
Safrole	94-59-7	NA	320	NA	320
Selenious Acid	7783-00-8	23,000	NA	NA	23,000
Selenium	7782-49-2	23,000	NA	NA	23,000
Silver	7440-22-4	23,000	NA	NA	23,000
Silver Cyanide	506-64-9	470,000	NA	NA	470,000
Simazine	122-34-9	13,000	590	NA	590
Sodium Azide	26628-22-8	19,000	NA	NA	19,000
Sodium Cyanide	143-33-9	4,700	NA	NA	4,700
Sodium Fluoride	7681-49-4	230,000	NA	NA	230,000
Sodium Fluoroacetate	62-74-8	51	NA	NA	51
Sodium Tripolyphosphate	7758-29-4	1,000,000	NA	NA	1,000,000
Strychnine	57-24-9	760	NA	NA	760
Styrene	100-42-5	93,000	NA	870	870
Sulfuric Acid	7664-93-9	1,000,000	NA	NA	1,000,000
TCDD, 2,3,7,8-	1746-01-6	0.0026	0.00076	NA	0.00076
Tetrachlorobenzene, 1,2,4,5-	95-94-3	760	NA	NA	760
Tetrachloroethane, 1,1,1,2-	630-20-6	140,000	230	680	230
Tetrachloroethane, 1,1,2,2-	79-34-5	93,000	71	1,900	71
Tetrachloroethylene	127-18-4	1,000	2,700	170	170
Tetrachlorophenol, 2,3,4,6-	58-90-2	76,000	NA	NA	76,000
Tetraethyl Dithiopyrophosphate	3689-24-5	1,300	NA	NA	1,300
Tetraethyl Lead	78-00-2	0.25	NA	2.4	0.25

Table III Chemical of Concern	Chemical Abstract Service Number (CAS #)	Standard for a Single Chemical Non-Carcinogen (mg/kg)	Standard for a Single Chemical Carcinogen (mg/kg)	Soil Saturation (mg/kg)	Generic Direct-Contact Soil Standard for a Single Chemical (mg/kg)
Tetrahydrofuran	109-99-9	240,000	NA	170,000	170,000
Thiofanox	39196-18-4	760	NA	NA	760
Thiophanate, Methyl	23564-05-8	68,000	5,900	NA	5,900
Thiram	137-26-8	38,000	NA	NA	38,000
Titanium Tetrachloride	7550-45-0	830,000	NA	NA	830,000
Toluene	108-88-3	140,000	NA	820	820
Toluene-2,4-diisocyanate	584-84-9	2.8	890	NA	2.8
Toluene-2,6-diisocyanate	91-08-7	56	18,000	1,700	56
Toluidine, p-	106-49-0	NA	2,400	NA	2,400
Toxaphene	8001-35-2	NA	64	NA	64
Triallate	2303-17-5	63,000	980	NA	980
Trichlorobenzene, 1,2,4-	120-82-1	650	4,500	400	400
Trichloroethane, 1,1,1-	71-55-6	90,000	NA	640	640
Trichloroethane, 1,1,2-	79-00-5	19,000	130	2,200	130
Trichloroethylene	79-01-6	48	160	690	48
Trichlorofluoromethane	75-69-4	1,000,000	NA	1,200	1,200
Trichlorophenol, 2,4,5-	95-95-4	250,000	NA	NA	250,000
Trichlorophenol, 2,4,6-	88-06-2	2,500	6,400	NA	2,500
Trichlorophenoxyacetic Acid, 2,4,5-	93-76-5	25,000	NA	NA	25,000
Trichlorophenoxypropionic acid, 2,4,5-	93-72-1	20,000	NA	NA	20,000
Trichloropropane, 1,2,3-	96-18-4	52	4.4	1,400	4.4
Triethylamine	121-44-8	1,200	NA	28,000	1,200
Trifluralin	1582-09-8	19,000	9,200	NA	9,200

Table III Chemical of Concern	Chemical Abstract Service Number (CAS #)	Standard for a Single Chemical Non-Carcinogen (mg/kg)	Standard for a Single Chemical Carcinogen (mg/kg)	Soil Saturation (mg/kg)	Generic Direct-Contact Soil Standard for a Single Chemical (mg/kg)
Trimethylbenzene, 1,2,3-	526-73-8	5,500	NA	290	290
Trimethylbenzene, 1,2,4-	95-63-6	4,700	NA	220	220
Trimethylbenzene, 1,3,5-	108-67-8	4,000	NA	180	180
Trinitrobenzene, 1,3,5-	99-35-4	120,000	NA	NA	120,000
Trisodium Phosphate	7601-54-9	1,000,000	NA	NA	1,000,000
Urethane	51-79-6	NA	71	NA	71
Vanadium Compounds	7440-62-2	23,000	NA	NA	23,000
Vinyl Acetate	108-05-4	9,700	NA	2,700	2,700
Vinyl Bromide	593-60-2	45	13	2,500	13
Vinyl Chloride	75-01-4	980	49	3,900	49
Warfarin	81-81-2	760	NA	NA	760
Xylenes	1330-20-7	5,600	NA	260	260
Zinc and Compounds	7440-66-6	1,000,000	NA	NA	1,000,000
Zinc Cyanide	557-21-1	230,000	NA	NA	230,000
Zinc Phosphide	1314-84-7	1,400	NA	NA	1,400

* = See paragraph (C)(3)(e) of rule 3745-300-08 of the Administrative Code.

Table IV: Generic numerical direct-contact soil standards (construction activities category)

Table IV Chemical of Concern	Chemical Abstract Service Number (CAS #)	Standard for a Single Chemical Non-Carcinogen (mg/kg)	Standard for a Single Chemical Carcinogen (mg/kg)	Soil Saturation (mg/kg)	Generic Direct-Contact Soil Standard for a Single Chemical (mg/kg)
Acenaphthene	83-32-9	290,000	NA	NA	290,000
Acetaldehyde	75-07-0	3,200	11,000	110,000	3,200
Acetone	67-64-1	1,000,000	NA	110,000	110,000
Acetonitrile	75-05-8	22,000	NA	130,000	22,000
Acetophenone	98-86-2	1,000,000	NA	2,500	2,500
Acetylaminofluorene, 2-	53-96-3	NA	290	NA	290
Acrolein	107-02-8	2.5	NA	23,000	2.5
Acrylamide	79-06-1	1,600	2,200	NA	1,600
Acrylic Acid	79-10-7	1,100	NA	110,000	1,100
Acrylonitrile	107-13-1	62	290	11,000	62
Alachlor	15972-60-8	16,000	20,000	NA	16,000
Aldicarb	116-06-3	1,600	NA	NA	1,600
Aldicarb Sulfone	1646-88-4	1,600	NA	NA	1,600
Aldrin	309-00-2	64	60	NA	60
Allyl Alcohol	107-18-6	140	NA	110,000	140
Allyl Chloride	107-05-1	64	740	1,400	64
Aluminum Phosphide	20859-73-8	970	NA	NA	970
Aminobiphenyl, 4-	92-67-1	NA	53	NA	53
Ammonium Sulfamate	7773-06-0	1,000,000	NA	NA	1,000,000
Aniline	62-53-3	11,000	200,000	NA	11,000

Table IV Chemical of Concern	Chemical Abstract Service Number (CAS #)	Standard for a Single Chemical Non-Carcinogen (mg/kg)	Standard for a Single Chemical Carcinogen (mg/kg)	Soil Saturation (mg/kg)	Generic Direct-Contact Soil Standard for a Single Chemical (mg/kg)
Anthracene	120-12-7	1,000,000	NA	NA	1,000,000
Antimony (metallic)	7440-36-0	970	NA	NA	970
Antimony Trioxide	1309-64-4	130,000	NA	NA	130,000
Aroclor 1016	12674-11-2	290	11,000	NA	290
Aroclor 1221	11104-28-2	NA	300	NA	300
Aroclor 1232	11141-16-5	NA	230	NA	230
Aroclor 1242	53469-21-9	NA	400	NA	400
Aroclor 1248	12672-29-6	NA	390	NA	390
Aroclor 1254	11097-69-1	84	420	NA	84
Aroclor 1260	11096-82-5	NA	450	NA	450
Arsenic, Inorganic	7440-38-2	760	1,400	NA	760
Atrazine	1912-24-9	4,800	4,800	NA	4,800
Auramine	492-80-8	NA	1,300	NA	1,300
Barium	7440-39-3	350,000	NA	NA	350,000
Baygon	114-26-1	6,400	NA	NA	6,400
Benomyl	17804-35-2	80,000	NA	NA	80,000
Benz[a]anthracene	56-55-3	NA	9,600	NA	9,600
Benzene	71-43-2	1,200	1,200	1,800	1,200
Benzenethiol	108-98-5	24,000	NA	1,300	1,300
Benzidine	92-87-5	4,800	4.8	NA	4.8
Benzo[a]pyrene	50-32-8	230	1,000	NA	230
Benzo[b]fluoranthene	205-99-2	NA	10,000	NA	10,000
Benzo[k]fluoranthene	207-08-9	NA	100,000	NA	100,000

Table IV Chemical of Concern	Chemical Abstract Service Number (CAS #)	Standard for a Single Chemical Non-Carcinogen (mg/kg)	Standard for a Single Chemical Carcinogen (mg/kg)	Soil Saturation (mg/kg)	Generic Direct-Contact Soil Standard for a Single Chemical (mg/kg)
Benzoic Acid	65-85-0	1,000,000	NA	NA	1,000,000
Benzotrichloride	98-07-7	NA	130	320	130
Benzyl Chloride	100-44-7	380	1,300	1,500	380
Beryllium and compounds	7440-41-7	3,500	71,000	NA	3,500
Biphenyl, 1,1'-	92-52-4	240,000	210,000	NA	210,000
Bis(2-chloro-1-methylethyl) ether	108-60-1	97,000	NA	1,000	1,000
Bis(2-chloroethoxy)methane	111-91-1	48,000	NA	NA	48,000
Bis(2-chloroethyl)ether	111-44-4	NA	290	5,000	290
Bis(2-ethylhexyl)phthalate	117-81-7	320,000	79,000	NA	79,000
Bis(chloromethyl)ether	542-88-1	NA	0.084	4,200	0.084
Bromodichloromethane	75-27-4	19,000	300	930	300
Bromoform	75-25-2	490,000	22,000	910	910
Bromomethane	74-83-9	550	NA	3,600	550
Butadiene, 1,3-	106-99-0	7.0	70	670	7.0
Butanol, N-	71-36-3	1,000,000	NA	7,600	7,600
Butyl Benzyl Phthalate	85-68-7	1,000,000	590,000	NA	590,000
Cacodylic Acid	75-60-5	32,000	NA	NA	32,000
Cadmium	7440-43-9	710	95,000	NA	710
Calcium Cyanide	592-01-8	24,000	NA	NA	24,000
Captan	133-06-2	210,000	480,000	NA	210,000
Carbaryl	63-25-2	160,000	NA	NA	160,000
Carbofuran	1563-66-2	8,000	NA	NA	8,000
Carbon Disulfide	75-15-0	9,500	NA	740	740

Table IV Chemical of Concern	Chemical Abstract Service Number (CAS #)	Standard for a Single Chemical Non-Carcinogen (mg/kg)	Standard for a Single Chemical Carcinogen (mg/kg)	Soil Saturation (mg/kg)	Generic Direct-Contact Soil Standard for a Single Chemical (mg/kg)
Carbon Tetrachloride	56-23-5	1,100	680	460	460
Carbonyl Sulfide	463-58-1	2,600	NA	5,900	2,600
Carbosulfan	55285-14-8	16,000	NA	NA	16,000
Chloramben	133-90-4	24,000	NA	NA	24,000
Chlordane	57-74-9	430	3,400	NA	430
Chlordecone (Kepone)	143-50-0	800	110	NA	110
Chlorine	7782-50-5	210,000	NA	2,800	2,800
Chloro-1,3-butadiene, 2-	126-99-8	300	10	790	10
Chloro-2-methylaniline HCl, 4-	3165-93-3	NA	2,400	NA	2,400
Chloroacetophenone, 2-	532-27-4	7,400	NA	NA	7,400
Chloroaniline, p-	106-47-8	800	5,600	NA	800
Chlorobenzene	108-90-7	13,000	NA	760	760
Chlorobenzilate	510-15-6	32,000	10,000	NA	10,000
Chloroform	67-66-3	2,500	320	2,500	320
Chloromethane	74-87-3	4,300	NA	1,300	1,300
Chloromethyl Methyl Ether	107-30-2	NA	21	9,300	21
Chloronaphthalene, Beta-	91-58-7	1,000,000	NA	NA	1,000,000
Chlorophenol, 2-	95-57-8	120,000	NA	27,000	27,000
Chlorpyrifos	2921-88-2	4,800	NA	NA	4,800
Chromium(III), Insoluble Salts	16065-83-1	920,000	NA	NA	920,000
Chromium(VI)	18540-29-9	22,000	1,300	NA	1,300
Chromium, Total	7440-47-3	NA	NA	NA	NA
Chrysene	218-01-9	NA	1,000,000	NA	1,000,000

Table IV Chemical of Concern	Chemical Abstract Service Number (CAS #)	Standard for a Single Chemical Non-Carcinogen (mg/kg)	Standard for a Single Chemical Carcinogen (mg/kg)	Soil Saturation (mg/kg)	Generic Direct-Contact Soil Standard for a Single Chemical (mg/kg)
Cobalt Compounds	7440-48-4	2,900	19,000	NA	2,900
Copper	7440-50-8	24,000	NA	NA	24,000
Copper Cyanide	544-92-3	120,000	NA	NA	120,000
Cresol, m-	108-39-4	790,000	NA	NA	790,000
Cresol, o-	95-48-7	790,000	NA	NA	790,000
Cresol, p-	106-44-5	32,000	NA	NA	32,000
Cresol, p-chloro-m-	59-50-7	160,000	NA	NA	160,000
Cresols	1319-77-3	160,000	NA	NA	160,000
Crotonaldehyde, trans-	123-73-9	24,000	900	17,000	900
Cumene	98-82-8	88,000	NA	270	270
Cyanide (CN-)	57-12-5	170	NA	1,000,000	170
Cyanogen	460-19-5	24,000	NA	NA	24,000
Cyanogen Bromide	506-68-3	220,000	NA	NA	220,000
Cyanogen Chloride	506-77-4	120,000	NA	NA	120,000
Cyclohexane	110-82-7	75,000	NA	120	120
Cyclohexanone	108-94-1	1,000,000	NA	5,100	5,100
Dalapon	75-99-0	48,000	NA	NA	48,000
DDD	72-54-8	NA	4,600	NA	4,600
DDE, p,p'-	72-55-9	NA	3,100	NA	3,100
DDT	50-29-3	1,100	4,300	NA	1,100
Diallate	2303-16-4	NA	18,000	NA	18,000
Diazinon	333-41-5	3,200	NA	NA	3,200
Dibenz[a,h]anthracene	53-70-3	NA	1,000	NA	1,000

Table IV Chemical of Concern	Chemical Abstract Service Number (CAS #)	Standard for a Single Chemical Non-Carcinogen (mg/kg)	Standard for a Single Chemical Carcinogen (mg/kg)	Soil Saturation (mg/kg)	Generic Direct-Contact Soil Standard for a Single Chemical (mg/kg)
Dibromo-3-chloropropane, 1,2-	96-12-8	240	15	980	15
Dibromochloromethane	124-48-1	320,000	13,000	800	800
Dibromoethane, 1,2-	106-93-4	69	39	1,300	39
Dibutyl Phthalate	84-74-2	480,000	NA	NA	480,000
Dicamba	1918-00-9	48,000	NA	NA	48,000
Dichloro-2-butene, 1,4-	764-41-0	NA	2.1	550	2.1
Dichlorobenzene, 1,2-	95-50-1	88,000	NA	380	380
Dichlorobenzene, 1,4-	106-46-7	63,000	2,600	NA	2,600
Dichlorobenzidine, 3,3'-	91-94-1	NA	2,500	NA	2,500
Dichlorodifluoromethane	75-71-8	490,000	NA	850	850
Dichloroethane, 1,1-	75-34-3	1,000,000	3,600	1,700	1,700
Dichloroethane, 1,2-	107-06-2	1,300	480	3,000	480
Dichloroethylene, 1,1-	75-35-4	360	NA	1,200	360
Dichloroethylene, 1,2-cis-	156-59-2	49,000	NA	2,400	2,400
Dichloroethylene, 1,2-trans-	156-60-5	5,500	NA	1,900	1,900
Dichlorophenol, 2,4-	120-83-2	32,000	NA	NA	32,000
Dichlorophenoxy Acetic Acid, 2,4-	94-75-7	19,000	NA	NA	19,000
Dichloropropane, 1,2-	78-87-5	180	2,700	1,400	180
Dichloropropane, 1,3-	142-28-9	490,000	NA	1,500	1,500
Dichloropropene, 1,3-	542-75-6	520	2,200	1,600	520
Dichlorvos	62-73-7	4,700	3,800	NA	3,800
Dieldrin	60-57-1	160	69	NA	69
Diethanolamine	111-42-2	30,000	NA	NA	30,000

Table IV Chemical of Concern	Chemical Abstract Service Number (CAS #)	Standard for a Single Chemical Non-Carcinogen (mg/kg)	Standard for a Single Chemical Carcinogen (mg/kg)	Soil Saturation (mg/kg)	Generic Direct-Contact Soil Standard for a Single Chemical (mg/kg)
Diethyl Phthalate	84-66-2	1,000,000	NA	NA	1,000,000
Diethylstilbestrol	56-53-1	NA	3.2	NA	3.2
Dihydrosafrole	94-58-6	NA	12,000	NA	12,000
Dimethoate	60-51-5	320	NA	NA	320
Dimethoxybenzidine, 3,3'-	119-90-4	NA	700	NA	700
Dimethylamino azobenzene [p-]	60-11-7	NA	240	NA	240
Dimethylaniline, N,N-	121-69-7	4,900	NA	830	830
Dimethylbenz(a)anthracene, 7,12-	57-97-6	NA	4	NA	4
Dimethylbenzidine, 3,3'-	119-93-7	NA	100	NA	100
Dimethylformamide	68-12-2	42,000	NA	110,000	42,000
Dimethylhydrazine, 1,2-	540-73-8	NA	1.2	190,000	1.2
Dimethylphenol, 2,4-	105-67-9	95,000	NA	NA	95,000
Dinitrobenzene, 1,2-	528-29-0	1,600	NA	NA	1,600
Dinitrobenzene, 1,3-	99-65-0	1,600	NA	NA	1,600
Dinitrobenzene, 1,4-	100-25-4	1,600	NA	NA	1,600
Dinitro-o-phenol-cyclohexyl Phenol, 4,6-	131-89-5	32,000	NA	NA	32,000
Dinitrophenol, 2,4-	51-28-5	32,000	NA	NA	32,000
Dinitrotoluene Mixture, 2,4/2,6-	25321-14-6	NA	1,600	NA	1,600
Dinitrotoluene, 2,4-	121-14-2	11,000	3,600	NA	3,600
Dinitrotoluene, 2,6-	606-20-2	NA	750	NA	750
Dinoseb	88-85-7	1,600	NA	NA	1,600
Dioxane, 1,4-	123-91-1	100,000	9,700	120,000	9,700
Diphenylhydrazine, 1,2-	122-66-7	NA	1,400	NA	1,400

Table IV Chemical of Concern	Chemical Abstract Service Number (CAS #)	Standard for a Single Chemical Non-Carcinogen (mg/kg)	Standard for a Single Chemical Carcinogen (mg/kg)	Soil Saturation (mg/kg)	Generic Direct-Contact Soil Standard for a Single Chemical (mg/kg)
Diquat	85-00-7	3,500	NA	NA	3,500
Disodium phosphate	7558-79-4	1,000,000	NA	NA	1,000,000
Disulfoton	298-04-4	140	NA	NA	140
Diuron	330-54-1	3,200	NA	NA	3,200
Endosulfan	115-29-7	8,000	NA	NA	8,000
Endothall	145-73-3	32,000	NA	NA	32,000
Endrin	72-20-8	3,200	NA	NA	3,200
Epichlorohydrin	106-89-8	720	35,000	11,000	720
Epoxybutane, 1,2-	106-88-7	620	NA	15,000	620
Ethion	563-12-2	3,200	NA	NA	3,200
Ethoxyethanol, 2-	110-80-5	130,000	NA	110,000	110,000
Ethyl Acetate	141-78-6	24,000	NA	11,000	11,000
Ethyl Acrylate	140-88-5	200	NA	2,500	200
Ethyl Chloride (Chloroethane)	75-00-3	19,000	NA	2,100	2,100
Ethyl Ether	60-29-7	1,000,000	NA	10,000	10,000
Ethyl Methacrylate	97-63-2	70,000	NA	1,100	1,100
Ethylbenzene	100-41-4	190,000	6,100	480	480
Ethylene Diamine	107-15-3	320,000	NA	190,000	190,000
Ethylene Glycol	107-21-1	1,000,000	NA	NA	1,000,000
Ethylene Oxide	75-21-8	4,000	5.7	120,000	5.7
Ethylene Thiourea	96-45-7	130	25,000	NA	130
Ethyleneimine	151-56-4	NA	2.9	150,000	2.9
Fluoranthene	206-44-0	170,000	NA	NA	170,000

Table IV Chemical of Concern	Chemical Abstract Service Number (CAS #)	Standard for a Single Chemical Non-Carcinogen (mg/kg)	Standard for a Single Chemical Carcinogen (mg/kg)	Soil Saturation (mg/kg)	Generic Direct-Contact Soil Standard for a Single Chemical (mg/kg)
Fluorene	86-73-7	580,000	NA	NA	580,000
Fluorine (Soluble Fluoride)	7782-41-4	140,000	NA	NA	140,000
Formaldehyde	50-00-0	11,000	17,000	42,000	11,000
Formic Acid	64-18-6	1,000,000	NA	110,000	110,000
Furan	110-00-9	24,000	NA	6,200	6,200
Furfural	98-01-1	32,000	NA	10,000	10,000
Glycidyl	765-34-4	2,200	NA	110,000	2,200
Glyphosate	1071-83-6	160000	NA	NA	160,000
Guthion	86-50-0	4,800	NA	NA	4,800
Heptachlor	76-44-8	160	200	NA	160
Heptachlor Epoxide	1024-57-3	21	110	NA	21
Hexachlorobenzene	118-74-1	16	260	NA	16
Hexachlorobutadiene	87-68-3	2,400	1,300	17	17
Hexachlorocyclohexane, Alpha-	319-84-6	13,000	180	NA	180
Hexachlorocyclohexane, Beta-	319-85-7	NA	620	NA	620
Hexachlorocyclohexane, Gamma- (Lindane)	58-89-9	6,000	1,300	NA	1,300
Hexachlorocyclohexane, Technical	608-73-1	NA	620	NA	620
Hexachlorocyclopentadiene	77-47-4	7,600	NA	16	16
Hexachloroethane	67-72-1	3,300	2,000	NA	2,000
Hexachlorophene	70-30-4	1,400	NA	NA	1,400
Hexamethylene Diisocyanate, 1,6-	822-06-0	250	NA	3,400	250
Hexamethylphosphoramide	680-31-9	6,400	NA	NA	6,400

Table IV Chemical of Concern	Chemical Abstract Service Number (CAS #)	Standard for a Single Chemical Non-Carcinogen (mg/kg)	Standard for a Single Chemical Carcinogen (mg/kg)	Soil Saturation (mg/kg)	Generic Direct-Contact Soil Standard for a Single Chemical (mg/kg)
Hexane, N-	110-54-3	6,900	NA	140	140
Hexanedioic Acid	124-04-9	1,000,000	NA	NA	1,000,000
Hydrazine	302-01-2	22,000	560	NA	560
Hydrogen Chloride	7647-01-0	1,000,000	NA	NA	1,000,000
Hydrogen Cyanide	74-90-8	490	NA	1,000,000	490
Hydrogen Fluoride	7664-39-3	95,000	NA	NA	95,000
Hydrogen Sulfide	7783-06-4	1,000,000	NA	NA	1,000,000
Hydroquinone	123-31-9	640,000	19,000	NA	19,000
Indeno[1,2,3-cd]pyrene	193-39-5	NA	10,000	NA	10,000
Isobutyl Alcohol	78-83-1	1,000,000	NA	10,000	10,000
Isophorone	78-59-1	1,000,000	1,000,000	NA	1,000,000
Kerb	23950-58-5	120,000	NA	NA	120,000
Lead Acetate	301-04-2	NA	130,000	NA	130,000
Lead and Compounds *	7439-92-1	NA	NA	NA	400
Lead Phosphate	7446-27-7	NA	200,000	NA	200,000
Lead Subacetate	1335-32-6	NA	130,000	NA	130,000
Malathion	121-75-5	32,000	NA	NA	32,000
Maleic Anhydride	108-31-6	83,000	NA	NA	83,000
Maleic Hydrazide	123-33-1	800,000	NA	NA	800,000
Malononitrile	109-77-3	1,600	NA	NA	1,600
Manganese Compounds	7439-96-5	12,000	NA	NA	12,000
Mercury and Compounds	7439-97-6	36	NA	3.1	3.1
Methacrylonitrile	126-98-7	1,900	NA	4,600	1,900

Table IV Chemical of Concern	Chemical Abstract Service Number (CAS #)	Standard for a Single Chemical Non-Carcinogen (mg/kg)	Standard for a Single Chemical Carcinogen (mg/kg)	Soil Saturation (mg/kg)	Generic Direct-Contact Soil Standard for a Single Chemical (mg/kg)
Methanol	67-56-1	1,000,000	NA	110,000	110,000
Methomyl	16752-77-5	40,000	NA	NA	40,000
Methoxychlor	72-43-5	8,000	NA	NA	8,000
Methyl Ethyl Ketone (2-Butanone)	78-93-3	48,000	NA	28,000	28,000
Methyl Hydrazine	60-34-4	2,400	NA	180,000	2,400
Methyl Isobutyl Ketone (4-methyl-2-pentanone)	108-10-1	34,000	NA	3,400	3,400
Methyl Isocyanate	624-83-9	18	NA	10,000	18
Methyl Methacrylate	80-62-6	16,000	NA	2,400	2,400
Methyl Parathion	298-00-0	1,100	NA	NA	1,100
Methyl tert-Butyl Ether (MTBE)	1634-04-4	46,000	50,000	8,900	8,900
Methylaniline Hydrochloride, 2-	636-21-5	NA	8,600	NA	8,600
Methylcholanthrene, 3-	56-49-5	NA	51	NA	51
Methylene Chloride	75-09-2	8,600	360,000	3,300	3,300
Methylene-bis(2-chloroaniline), 4,4'-	101-14-4	3,200	11,000	NA	3,200
Methylenebisbenzenamine, 4,4'-	101-77-9	1,000,000	690	NA	690
Methylenediphenyl Diisocyanate	101-68-8	4,900	NA	NA	4,900
Methylnaphthalene, 1-	90-12-0	100,000	35,000	390	390
Methylnaphthalene, 2-	91-57-6	5,800	NA	NA	5,800
Methyl-N-nitro-N-nitrosoguanidine, N-	70-25-7	NA	130	NA	130
Naled	300-76-5	3,200	NA	NA	3,200
Naphthalene	91-20-3	560	3,800	NA	560
Naphthylamine, 2-	91-59-8	NA	620	NA	620

Table IV Chemical of Concern	Chemical Abstract Service Number (CAS #)	Standard for a Single Chemical Non-Carcinogen (mg/kg)	Standard for a Single Chemical Carcinogen (mg/kg)	Soil Saturation (mg/kg)	Generic Direct-Contact Soil Standard for a Single Chemical (mg/kg)
Nickel Carbonyl	13463-39-3	3,000	NA	NA	3,000
Nickel Soluble Salts	7440-02-0	24,000	660,000	NA	24,000
Nitroaniline, 4-	100-01-6	16,000	56,000	NA	16,000
Nitrobenzene	98-95-3	4,200	5,100	3,000	3,000
Nitroglycerin	55-63-0	160	66,000	NA	160
Nitropropane, 2-	79-46-9	1,100	14	4,900	14
Nitrosodiethanolamine, N-	1116-54-7	NA	400	NA	400
Nitrosodiethylamine, N-	55-18-5	NA	7.4	NA	7.4
Nitrosodimethylamine, N-	62-75-9	19	11	240,000	11
Nitroso-di-N-butylamine, N-	924-16-3	NA	160	NA	160
Nitroso-di-N-propylamine, N-	621-64-7	NA	160	NA	160
Nitrosodiphenylamine, N-	86-30-6	NA	230,000	NA	230,000
Nitrosomorpholine [N-]	59-89-2	NA	170	NA	170
Nitroso-N-ethylurea, N-	759-73-9	NA	41	NA	41
Nitroso-N-methylurea, N-	684-93-5	NA	9.3	NA	9.3
Nitrosopiperidine [N-]	100-75-4	NA	120	NA	120
Nitrosopyrrolidine, N-	930-55-2	NA	530	NA	530
Nitrotoluene, o-	88-72-2	24,000	7,700	1,500	1,500
Nitrotoluene, p-	99-99-0	6,400	70,000	NA	6,400
Octamethylpyrophosphoramide	152-16-9	3,200	NA	NA	3,200
Octyl Phthalate, di-N-	117-84-0	160,000	NA	NA	160,000
Oxamyl	23135-22-0	40,000	NA	NA	40,000
Parathion	56-38-2	3,700	NA	NA	3,700

Table IV Chemical of Concern	Chemical Abstract Service Number (CAS #)	Standard for a Single Chemical Non-Carcinogen (mg/kg)	Standard for a Single Chemical Carcinogen (mg/kg)	Soil Saturation (mg/kg)	Generic Direct-Contact Soil Standard for a Single Chemical (mg/kg)
Pentachlorobenzene	608-93-5	13,000	NA	NA	13,000
Pentachloroethane	76-01-7	NA	12,000	460	460
Pentachloronitrobenzene	82-68-8	4,800	4,300	NA	4,300
Pentachlorophenol	87-86-5	1,000	1,800	NA	1,000
Phenacetin	62-44-2	NA	510,000	NA	510,000
Phenol	108-95-2	940,000	NA	NA	940,000
Phenylmercuric Acetate	62-38-4	130	NA	NA	130
Phorate	298-02-2	320	NA	NA	320
Phosgene	75-44-5	3.5	NA	1,600	3.5
Phosphine	7803-51-2	730	NA	NA	730
Phosphoric Acid	7664-38-2	1,000,000	NA	NA	1,000,000
Phthalic Anhydride	85-44-9	1,000,000	NA	NA	1,000,000
Picloram	1918-02-1	110,000	NA	NA	110,000
Polychlorinated Biphenyls, total	1336-36-3	NA	490	NA	490
Potassium Cyanide	151-50-8	120,000	NA	NA	120,000
Potassium Silver Cyanide	506-61-6	49,000	NA	NA	49,000
Propargite	2312-35-8	64,000	5,900	NA	5,900
Propargyl Alcohol	107-19-7	32,000	NA	110,000	32,000
Propham	122-42-9	320,000	NA	NA	320,000
Propionaldehyde	123-38-6	2,900	NA	33,000	2,900
Propylene Oxide	75-56-9	1,200	3,700	78,000	1,200
Pyrene	129-00-0	430,000	NA	NA	430,000
Pyridine	110-86-1	24,000	NA	530,000	24,000

Table IV Chemical of Concern	Chemical Abstract Service Number (CAS #)	Standard for a Single Chemical Non-Carcinogen (mg/kg)	Standard for a Single Chemical Carcinogen (mg/kg)	Soil Saturation (mg/kg)	Generic Direct-Contact Soil Standard for a Single Chemical (mg/kg)
Quinoline	91-22-5	NA	370	NA	370
Safrole	94-59-7	NA	5,100	NA	5,100
Selenious Acid	7783-00-8	12,000	NA	NA	12,000
Selenium	7782-49-2	12,000	NA	NA	12,000
Silver	7440-22-4	12,000	NA	NA	12,000
Silver Cyanide	506-64-9	120,000	NA	NA	120,000
Simazine	122-34-9	8,000	9,300	NA	8,000
Sodium Azide	26628-22-8	97,000	NA	NA	97,000
Sodium Cyanide	143-33-9	24,000	NA	NA	24,000
Sodium Fluoride	7681-49-4	120,000	NA	NA	120,000
Sodium Fluoroacetate	62-74-8	320	NA	NA	320
Sodium Tripolyphosphate	7758-29-4	1,000,000	NA	NA	1,000,000
Strychnine	57-24-9	4,800	NA	NA	4,800
Styrene	100-42-5	110,000	NA	870	870
Sulfuric Acid	7664-93-9	250,000	NA	NA	250,000
TCDD, 2,3,7,8-	1746-01-6	0.037	0.011	NA	0.011
Tetrachlorobenzene, 1,2,4,5-	95-94-3	4,800	NA	NA	4,800
Tetrachloroethane, 1,1,1,2-	630-20-6	220,000	2,100	680	680
Tetrachloroethane, 1,1,2,2-	79-34-5	120,000	670	1,900	670
Tetrachloroethylene	127-18-4	380	25,000	170	170
Tetrachlorophenol, 2,3,4,6-	58-90-2	480,000	NA	NA	480,000
Tetraethyl Dithiopyrophosphate	3689-24-5	8,000	NA	NA	8,000
Tetraethyl Lead	78-00-2	1.6	NA	2.4	1.6

Table IV Chemical of Concern	Chemical Abstract Service Number (CAS #)	Standard for a Single Chemical Non-Carcinogen (mg/kg)	Standard for a Single Chemical Carcinogen (mg/kg)	Soil Saturation (mg/kg)	Generic Direct-Contact Soil Standard for a Single Chemical (mg/kg)
Tetrahydrofuran	109-99-9	92,000	NA	170,000	92,000
Thiofanox	39196-18-4	480	NA	NA	480
Thiophanate, Methyl	23564-05-8	43,000	93,000	NA	43,000
Thiram	137-26-8	9,500	NA	NA	9,500
Titanium Tetrachloride	7550-45-0	1,000,000	NA	NA	1,000,000
Toluene	108-88-3	82,000	NA	820	820
Toluene-2,4-diisocyanate	584-84-9	1	8,200	NA	1
Toluene-2,6-diisocyanate	91-08-7	20	160,000	1,700	20
Toluidine, p-	106-49-0	NA	37,000	NA	37,000
Toxaphene	8001-35-2	NA	1,000	NA	1,000
Triallate	2303-17-5	21,000	15,000	NA	15,000
Trichlorobenzene, 1,2,4-	120-82-1	2,400	59,000	400	400
Trichloroethane, 1,1,1-	71-55-6	33,000	NA	640	640
Trichloroethane, 1,1,2-	79-00-5	97,000	1,200	2,200	1,200
Trichloroethylene	79-01-6	17	1,500	690	17
Trichlorofluoromethane	75-69-4	730,000	NA	1,200	1,200
Trichlorophenol, 2,4,5-	95-95-4	1,000,000	NA	NA	1,000,000
Trichlorophenol, 2,4,6-	88-06-2	1,600	100,000	NA	1,600
Trichlorophenoxyacetic Acid, 2,4,5-	93-76-5	160,000	NA	NA	160,000
Trichlorophenoxypropionic acid, 2,4,5-	93-72-1	13,000	NA	NA	13,000
Trichloropropane, 1,2,3-	96-18-4	19	57	1,400	19
Triethylamine	121-44-8	4,400	NA	28,000	4,400
Trifluralin	1582-09-8	12,000	140,000	NA	12,000

Table IV Chemical of Concern	Chemical Abstract Service Number (CAS #)	Standard for a Single Chemical Non-Carcinogen (mg/kg)	Standard for a Single Chemical Carcinogen (mg/kg)	Soil Saturation (mg/kg)	Generic Direct-Contact Soil Standard for a Single Chemical (mg/kg)
Trimethylbenzene, 1,2,3-	526-73-8	7,000	NA	290	290
Trimethylbenzene, 1,2,4-	95-63-6	6,000	NA	220	220
Trimethylbenzene, 1,3,5-	108-67-8	5,000	NA	180	180
Trinitrobenzene, 1,3,5-	99-35-4	1,100	NA	NA	1,100
Trisodium Phosphate	7601-54-9	1,000,000	NA	NA	1,000,000
Urethane	51-79-6	NA	1,100	NA	1,100
Vanadium Compounds	7440-62-2	8,100	NA	NA	8,100
Vinyl Acetate	108-05-4	620	NA	2,700	620
Vinyl Bromide	593-60-2	16	120	2,500	16
Vinyl Chloride	75-01-4	280	490	3,900	280
Warfarin	81-81-2	480	NA	NA	480
Xylenes	1330-20-7	6,200	NA	260	260
Zinc and Compounds	7440-66-6	730,000	NA	NA	730,000
Zinc Cyanide	557-21-1	120,000	NA	NA	120,000
Zinc Phosphide	1314-84-7	7,300	NA	NA	7,300

* = See paragraph (C)(3)(e) of rule 3745-300-08 of the Administrative Code.

Table V: Generic indoor air standards due to vapor intrusion (residential land use category)

Table V Chemical of Concern	Chemical Abstract Service Number (CAS #)	Standard for a Single Chemical Non-Carcinogen ($\mu g/m^3$)	Standard for a Single Chemical Carcinogen ($\mu g/m^3$)	Generic Indoor Air Standards Due to Vapor Intrusion for a Single Chemical ($\mu g/m^3$)
Acetaldehyde	75-07-0	9.4	13	9.4
Acetone	67-64-1	32,000	NA	32,000
Acetonitrile	75-05-8	63	NA	63
Acrolein	107-02-8	0.021	NA	0.021
Acrylic Acid	79-10-7	1	NA	1
Acrylonitrile	107-13-1	2.1	0.41	0.41
Allyl Chloride	107-05-1	1	4.7	1
Benzene	71-43-2	31	3.6	3.6
Benzyl Chloride	100-44-7	1.0	0.57	0.57
Bis(2-chloroethyl)ether	111-44-4	NA	0.085	0.085
Bis(chloromethyl)ether	542-88-1	NA	0.00045	0.00045
Bromodichloromethane	75-27-4	NA	0.76	0.76
Bromoform	75-25-2	NA	26	26
Bromomethane	74-83-9	5.2	NA	5.2
Butadiene, 1,3-	106-99-0	2.1	0.94	0.94
Carbon Disulfide	75-15-0	730	NA	730
Carbon Tetrachloride	56-23-5	100	4.7	4.7
Carbonyl Sulfide	463-58-1	100	NA	100
Chloro-1,3-butadiene, 2-	126-99-8	21	0.094	0.094
Chlorobenzene	108-90-7	52	NA	52

Table V Chemical of Concern	Chemical Abstract Service Number (CAS #)	Standard for a Single Chemical Non-Carcinogen ($\mu g/m^3$)	Standard for a Single Chemical Carcinogen ($\mu g/m^3$)	Generic Indoor Air Standards Due to Vapor Intrusion for a Single Chemical ($\mu g/m^3$)
Chloroform	67-66-3	100	1.2	1.2
Chloromethane	74-87-3	94	NA	94
Chloromethyl Methyl Ether	107-30-2	NA	0.041	0.041
Cumene	98-82-8	420	NA	420
Cyclohexane	110-82-7	6,300	NA	6,300
Dibromo-3-chloropropane, 1,2-	96-12-8	0.21	0.0047	0.0047
Dibromoethane, 1,2-	106-93-4	9.4	0.047	0.047
Dichlorobenzene, 1,2-	95-50-1	210	NA	210
Dichlorobenzene, 1,4-	106-46-7	830	2.6	2.6
Dichloroethane, 1,1-	75-34-3	NA	18	18
Dichloroethane, 1,2-	107-06-2	7.3	1.08	1.08
Dichloroethylene, 1,1-	75-35-4	210	NA	210
Dichloropropane, 1,2-	78-87-5	4.2	7.6	4.2
Dichloropropene, 1,3-	542-75-6	21	7	7
Dihydrosafrole	94-58-6	NA	2.2	2.2
Dimethylformamide	68-12-2	31	NA	31
Dioxane, 1,4-	123-91-1	31	5.6	5.6
Epichlorohydrin	106-89-8	1.0	23	1.0
Epoxybutane, 1,2-	106-88-7	21	NA	21
Ethyl Acetate	141-78-6	73	NA	73
Ethyl Acrylate	140-88-5	8.3	NA	8.3
Ethyl Chloride (Chloroethane)	75-00-3	10,000	NA	10,000
Ethylbenzene	100-41-4	1,000	11	11

Table V Chemical of Concern	Chemical Abstract Service Number (CAS #)	Standard for a Single Chemical Non-Carcinogen ($\mu g/m^3$)	Standard for a Single Chemical Carcinogen ($\mu g/m^3$)	Generic Indoor Air Standards Due to Vapor Intrusion for a Single Chemical ($\mu g/m^3$)
Ethylene Oxide	75-21-8	31	0.0034	0.0034
Ethyleneimine	151-56-4	NA	0.0015	0.0015
Formaldehyde	50-00-0	10	2.2	2.2
Hexachlorobutadiene	87-68-3	NA	1.3	1.3
Hexachloroethane	67-72-1	31	2.6	2.6
Hexane, N-	110-54-3	730	NA	730
Hydrogen Sulfide	7783-06-4	2.1	NA	2.1
Mercury and Compounds	7439-97-6	0.31	NA	0.31
Methanol	67-56-1	21,000	NA	21,000
Methyl Ethyl Ketone (2-Butanone)	78-93-3	5,200	NA	5,200
Methyl Isobutyl Ketone (4-methyl-2-pentanone)	108-10-1	3,100	NA	3,100
Methyl Isocyanate	624-83-9	1.0	NA	1.0
Methyl Methacrylate	80-62-6	730	NA	730
Methyl tert-Butyl Ether (MTBE)	1634-04-4	3,100	110	110
Methylene Chloride	75-09-2	630	1,000	630
Naphthalene	91-20-3	3.1	0.83	0.83
Nitrobenzene	98-95-3	9.4	0.7	0.7
Nitropropane, 2-	79-46-9	21	0.01	0.01
Nitrosodimethylamine, N-	62-75-9	NA	0.002	0.002
Phosgene	75-44-5	0.31	NA	0.31
Propionaldehyde	123-38-6	8.3	NA	8.3
Propylene Oxide	75-56-9	31	7.6	7.6

Table V Chemical of Concern	Chemical Abstract Service Number (CAS #)	Standard for a Single Chemical Non-Carcinogen ($\mu g/m^3$)	Standard for a Single Chemical Carcinogen ($\mu g/m^3$)	Generic Indoor Air Standards Due to Vapor Intrusion for a Single Chemical ($\mu g/m^3$)
Styrene	100-42-5	1,000	NA	1,000
Tetrachloroethane, 1,1,1,2-	630-20-6	NA	3.8	3.8
Tetrachloroethane, 1,1,2,2-	79-34-5	NA	0.48	0.48
Tetrachloroethylene	127-18-4	42	110	42
Tetrahydrofuran	109-99-9	2,100	NA	2,100
Toluene	108-88-3	5,200	NA	5,200
Trichlorobenzene, 1,2,4-	120-82-1	2.1	NA	2.1
Trichloroethane, 1,1,1-	71-55-6	5,200	NA	5,200
Trichloroethane, 1,1,2-	79-00-5	NA	1.8	1.8
Trichloroethylene	79-01-6	2.1	4.8	2.1
Trichloropropane, 1,2,3-	96-18-4	0.31	NA	0.31
Triethylamine	121-44-8	7.3	NA	7.3
Trimethylbenzene, 1,2,3-	526-73-8	63	NA	63
Trimethylbenzene, 1,2,4-	95-63-6	63	NA	63
Trimethylbenzene, 1,3,5-	108-67-8	63	NA	63
Vinyl Acetate	108-05-4	210	NA	210
Vinyl Bromide	593-60-2	3.1	0.88	0.88
Vinyl Chloride	75-01-4	100	1.7	1.7
Xylenes	1330-20-7	100	NA	100

Table VI: Generic indoor air standards due to vapor intrusion (commercial land use with high frequency child exposure)

Table VI Chemical of Concern	Chemical Abstract Service Number (CAS #)	Standard for a Single Chemical Non-Carcinogen ($\mu g/m^3$)	Standard for a Single Chemical Carcinogen ($\mu g/m^3$)	Generic Indoor Air Standards Due to Vapor Intrusion for a Single Chemical ($\mu g/m^3$)
Acetaldehyde	75-07-0	32	56	32
Acetone	67-64-1	110,000	NA	110,000
Acetonitrile	75-05-8	210	NA	210
Acrolein	107-02-8	0.07	NA	0.07
Acrylic Acid	79-10-7	3.5	NA	3.5
Acrylonitrile	107-13-1	7	1.8	1.8
Allyl Chloride	107-05-1	3.5	20	3.5
Benzene	71-43-2	110	16	16
Benzyl Chloride	100-44-7	3.5	2.5	2.5
Bis(2-chloroethyl)ether	111-44-4	NA	0.37	0.37
Bis(chloromethyl)ether	542-88-1	NA	0.002	0.002
Bromodichloromethane	75-27-4	NA	3.3	3.3
Bromoform	75-25-2	NA	110	110
Bromomethane	74-83-9	18	NA	18
Butadiene, 1,3-	106-99-0	7	4.1	4.1
Carbon Disulfide	75-15-0	2,500	NA	2,500
Carbon Tetrachloride	56-23-5	350	20	20
Carbonyl Sulfide	463-58-1	350	NA	350
Chloro-1,3-butadiene, 2-	126-99-8	70	0.41	0.41
Chlorobenzene	108-90-7	180	NA	180

Table VI Chemical of Concern	Chemical Abstract Service Number (CAS #)	Standard for a Single Chemical Non-Carcinogen ($\mu g/m^3$)	Standard for a Single Chemical Carcinogen ($\mu g/m^3$)	Generic Indoor Air Standards Due to Vapor Intrusion for a Single Chemical ($\mu g/m^3$)
Chloroform	67-66-3	340	5.3	5.3
Chloromethane	74-87-3	320	NA	320
Chloromethyl Methyl Ether	107-30-2	NA	0.18	0.18
Cumene	98-82-8	1,400	NA	1,400
Cyclohexane	110-82-7	21,000	NA	21,000
Dibromo-3-chloropropane, 1,2-	96-12-8	0.7	0.02	0.02
Dibromoethane, 1,2-	106-93-4	32	0.2	0.2
Dichlorobenzene, 1,2-	95-50-1	700	NA	700
Dichlorobenzene, 1,4-	106-46-7	2,800	11	11
Dichloroethane, 1,1-	75-34-3	NA	77	77
Dichloroethane, 1,2-	107-06-2	25	4.7	4.7
Dichloroethylene, 1,1-	75-35-4	700	NA	700
Dichloropropane, 1,2-	78-87-5	14	33	14
Dichloropropene, 1,3-	542-75-6	70	31	31
Dihydrosafrole	94-58-6	NA	9.4	9.4
Dimethylformamide	68-12-2	110	NA	110
Dioxane, 1,4-	123-91-1	110	25	25
Epichlorohydrin	106-89-8	3.5	100	3.5
Epoxybutane, 1,2-	106-88-7	70	NA	70
Ethyl Acetate	141-78-6	250	NA	250
Ethyl Acrylate	140-88-5	28	NA	28
Ethyl Chloride (Chloroethane)	75-00-3	35,000	NA	35,000
Ethylbenzene	100-41-4	3,500	49	49

Table VI Chemical of Concern	Chemical Abstract Service Number (CAS #)	Standard for a Single Chemical Non-Carcinogen ($\mu g/m^3$)	Standard for a Single Chemical Carcinogen ($\mu g/m^3$)	Generic Indoor Air Standards Due to Vapor Intrusion for a Single Chemical ($\mu g/m^3$)
Ethylene Oxide	75-21-8	110	0.026	0.026
Ethyleneimine	151-56-4	NA	0.0065	0.0065
Formaldehyde	50-00-0	34	9.4	9.4
Hexachlorobutadiene	87-68-3	NA	5.6	5.6
Hexachloroethane	67-72-1	110	11	11
Hexane, N-	110-54-3	2,500	NA	2,500
Hydrogen Sulfide	7783-06-4	7	NA	7
Mercury and Compounds	7439-97-6	1.1	NA	1.1
Methanol	67-56-1	70,000	NA	70,000
Methyl Ethyl Ketone (2-Butanone)	78-93-3	18,000	NA	18,000
Methyl Isobutyl Ketone (4-methyl-2-pentanone)	108-10-1	11,000	NA	11,000
Methyl Isocyanate	624-83-9	3.5	NA	3.5
Methyl Methacrylate	80-62-6	2,500	NA	2,500
Methyl tert-Butyl Ether (MTBE)	1634-04-4	11,000	470	470
Methylene Chloride	75-09-2	2,100	7,700	2,100
Naphthalene	91-20-3	11	3.6	3.6
Nitrobenzene	98-95-3	32	3.1	3.1
Nitropropane, 2-	79-46-9	70	0.045	0.045
Nitrosodimethylamine, N-	62-75-9	NA	0.0088	0.0088
Phosgene	75-44-5	1.1	NA	1.1
Propionaldehyde	123-38-6	28	NA	28
Propylene Oxide	75-56-9	110	33	33

Table VI Chemical of Concern	Chemical Abstract Service Number (CAS #)	Standard for a Single Chemical Non-Carcinogen ($\mu g/m^3$)	Standard for a Single Chemical Carcinogen ($\mu g/m^3$)	Generic Indoor Air Standards Due to Vapor Intrusion for a Single Chemical ($\mu g/m^3$)
Styrene	100-42-5	3,500	NA	3,500
Tetrachloroethane, 1,1,1,2-	630-20-6	NA	17	17
Tetrachloroethane, 1,1,2,2-	79-34-5	NA	2.1	2.1
Tetrachloroethylene	127-18-4	140	470	140
Tetrahydrofuran	109-99-9	7,000	NA	7,000
Toluene	108-88-3	18,000	NA	18,000
Trichlorobenzene, 1,2,4-	120-82-1	7	NA	7
Trichloroethane, 1,1,1-	71-55-6	18,000	NA	18,000
Trichloroethane, 1,1,2-	79-00-5	NA	7.7	7.7
Trichloroethylene	79-01-6	7	30	7
Trichloropropane, 1,2,3-	96-18-4	1.1	NA	1.1
Triethylamine	121-44-8	25	NA	25
Trimethylbenzene, 1,2,3-	526-73-8	210	NA	210
Trimethylbenzene, 1,2,4-	95-63-6	210	NA	210
Trimethylbenzene, 1,3,5-	108-67-8	210	NA	210
Vinyl Acetate	108-05-4	700	NA	700
Vinyl Bromide	593-60-2	11	3.8	3.8
Vinyl Chloride	75-01-4	350	2.2	2.2
Xylenes	1330-20-7	350	NA	350

Table VII: Generic indoor air standards due to vapor intrusion (commercial or industrial land use category)

Table VII Chemical of Concern	Chemical Abstract Service Number (CAS #)	Standard for a Single Chemical Non-Carcinogen (µg /m^3)	Standard for a Single Chemical Carcinogen (µg /m^3)	Generic Indoor Air Standards Due to Vapor Intrusion for a Single Chemical (µg /m^3)
Acetaldehyde	75-07-0	39	56	39
Acetone	67-64-1	140,000	NA	140,000
Acetonitrile	75-05-8	260	NA	260
Acrolein	107-02-8	0.088	NA	0.088
Acrylic Acid	79-10-7	4.4	NA	4.4
Acrylonitrile	107-13-1	8.8	1.8	1.8
Allyl Chloride	107-05-1	4.4	20	4.4
Benzene	71-43-2	130	16	16
Benzyl Chloride	100-44-7	4.4	2.5	2.5
Bis(2-chloroethyl)ether	111-44-4	NA	0.37	0.37
Bis(chloromethyl)ether	542-88-1	NA	0.002	0.002
Bromodichloromethane	75-27-4	NA	3.3	3.3
Bromoform	75-25-2	NA	110	110
Bromomethane	74-83-9	22	NA	22
Butadiene, 1,3-	106-99-0	8.8	4.1	4.1
Carbon Disulfide	75-15-0	3,100	NA	3,100
Carbon Tetrachloride	56-23-5	440	20	20
Carbonyl Sulfide	463-58-1	440	NA	440
Chloro-1,3-butadiene, 2-	126-99-8	88	0.41	0.41
Chlorobenzene	108-90-7	220	NA	220

Table VII Chemical of Concern	Chemical Abstract Service Number (CAS #)	Standard for a Single Chemical Non-Carcinogen (µg /m^3)	Standard for a Single Chemical Carcinogen (µg /m^3)	Generic Indoor Air Standards Due to Vapor Intrusion for a Single Chemical (µg /m^3)
Chloroform	67-66-3	430	5.3	5.3
Chloromethane	74-87-3	390	NA	390
Chloromethyl Methyl Ether	107-30-2	NA	0.18	0.18
Cumene	98-82-8	1,800	NA	1,800
Cyclohexane	110-82-7	26,000	NA	26,000
Dibromo-3-chloropropane, 1,2-	96-12-8	0.88	0.02	0.02
Dibromoethane, 1,2-	106-93-4	39	0.2	0.2
Dichlorobenzene, 1,2-	95-50-1	880	NA	880
Dichlorobenzene, 1,4-	106-46-7	3,500	11	11
Dichloroethane, 1,1-	75-34-3	NA	77	77
Dichloroethane, 1,2-	107-06-2	31	4.7	4.7
Dichloroethylene, 1,1-	75-35-4	880	NA	880
Dichloropropane, 1,2-	78-87-5	18	33	18
Dichloropropene, 1,3-	542-75-6	88	31	31
Dihydrosafrole	94-58-6	NA	9.4	9.4
Dimethylformamide	68-12-2	130	NA	130
Dioxane, 1,4-	123-91-1	130	25	25
Epichlorohydrin	106-89-8	4.4	100	4.4
Epoxybutane, 1,2-	106-88-7	88	NA	88
Ethyl Acetate	141-78-6	310	NA	310
Ethyl Acrylate	140-88-5	35	NA	35
Ethyl Chloride (Chloroethane)	75-00-3	44,000	NA	44,000
Ethylbenzene	100-41-4	4,400	49	49

Table VII Chemical of Concern	Chemical Abstract Service Number (CAS #)	Standard for a Single Chemical Non-Carcinogen (µg /m^3)	Standard for a Single Chemical Carcinogen (µg /m^3)	Generic Indoor Air Standards Due to Vapor Intrusion for a Single Chemical (µg /m^3)
Ethylene Oxide	75-21-8	130	0.041	0.041
Ethyleneimine	151-56-4	NA	0.0065	0.0065
Formaldehyde	50-00-0	43	9.4	9.4
Hexachlorobutadiene	87-68-3	NA	5.6	5.6
Hexachloroethane	67-72-1	130	11	11
Hexane, N-	110-54-3	3,100	NA	3,100
Hydrogen Sulfide	7783-06-4	8.8	NA	8.8
Mercury and Compounds	7439-97-6	1.3	NA	1.3
Methanol	67-56-1	88,000	NA	88,000
Methyl Ethyl Ketone (2-Butanone)	78-93-3	22,000	NA	22,000
Methyl Isobutyl Ketone (4-methyl-2-pentanone)	108-10-1	13,000	NA	13,000
Methyl Isocyanate	624-83-9	4.4	NA	4.4
Methyl Methacrylate	80-62-6	3,100	NA	3,100
Methyl tert-Butyl Ether (MTBE)	1634-04-4	13,000	470	470
Methylene Chloride	75-09-2	2,600	12,000	2,600
Naphthalene	91-20-3	13	3.6	3.6
Nitrobenzene	98-95-3	39	3.1	3.1
Nitropropane, 2-	79-46-9	88	0.045	0.045
Nitrosodimethylamine, N-	62-75-9	NA	0.0088	0.0088
Phosgene	75-44-5	1.3	NA	1.3
Propionaldehyde	123-38-6	35	NA	35
Propylene Oxide	75-56-9	130	33	33

Table VII Chemical of Concern	Chemical Abstract Service Number (CAS #)	Standard for a Single Chemical Non-Carcinogen (µg /m^3)	Standard for a Single Chemical Carcinogen (µg /m^3)	Generic Indoor Air Standards Due to Vapor Intrusion for a Single Chemical (µg /m^3)
Styrene	100-42-5	4,400	NA	4,400
Tetrachloroethane, 1,1,1,2-	630-20-6	NA	17	17
Tetrachloroethane, 1,1,2,2-	79-34-5	NA	2.1	2.1
Tetrachloroethylene	127-18-4	180	470	180
Tetrahydrofuran	109-99-9	8,800	NA	8,800
Toluene	108-88-3	22,000	NA	22,000
Trichlorobenzene, 1,2,4-	120-82-1	8.8	NA	8.8
Trichloroethane, 1,1,1-	71-55-6	22,000	NA	22,000
Trichloroethane, 1,1,2-	79-00-5	NA	7.7	7.7
Trichloroethylene	79-01-6	8.8	30	8.8
Trichloropropane, 1,2,3-	96-18-4	1.3	NA	1.3
Triethylamine	121-44-8	31	NA	31
Trimethylbenzene, 1,2,3-	526-73-8	260	NA	260
Trimethylbenzene, 1,2,4-	95-63-6	260	NA	260
Trimethylbenzene, 1,3,5-	108-67-8	260	NA	260
Vinyl Acetate	108-05-4	880	NA	880
Vinyl Bromide	593-60-2	13	3.8	3.8
Vinyl Chloride	75-01-4	440	28	28
Xylenes	1330-20-7	440	NA	440

Table VIII: Generic unrestricted potable use standards based on maximum contaminant levels or other established regulatory criteria

Table VIII Chemical of Concern	Chemical Abstract Service Number (CAS #)	Generic Unrestricted Potable Use Standard for a Single Chemical (µg/L)
Alachlor	15972-60-8	2
Aldicarb	116-06-3	3
Aldicarb Sulfone	1646-88-4	2
Antimony (metallic)	7440-36-0	6
Arsenic, Inorganic	7440-38-2	10
Asbestos (fiber >10 micrometers)	--	7 MFL (a)
Atrazine	1912-24-9	3
Barium	7440-39-3	2,000
Benzene	71-43-2	5
Benzo[a]pyrene	50-32-8	0.2
Beryllium and compounds	7440-41-7	4
Bis(2-ethylhexyl)phthalate	117-81-7	6
Bromodichloromethane	75-27-4	80 (b)
Bromoform	75-25-2	80 (b)
Cadmium	7440-43-9	5
Carbofuran	1563-66-2	40
Carbon Tetrachloride	56-23-5	5
Chlordane	57-74-9	2
Chloroacetic Acid	79-11-8	60
Chlorobenzene	108-90-7	100

Table VIII Chemical of Concern	Chemical Abstract Service Number (CAS #)	Generic Unrestricted Potable Use Standard for a Single Chemical (µg/L)
Chloroform	67-66-3	80 (b)
Chromium, Total	7440-47-3	100
Copper	7440-50-8	1,300
Cyanide (CN-)	57-12-5	200
Dalapon	75-99-0	200
Dibromo-3-chloropropane, 1,2-	96-12-8	0.2
Dibromochloromethane	124-48-1	80 (b)
Dibromoethane, 1,2-	106-93-4	0.05
Dichlorobenzene, 1,2-	95-50-1	600
Dichlorobenzene, 1,4-	106-46-7	75
Dichloroethane, 1,2-	107-06-2	5
Dichloroethylene, 1,1-	75-35-4	7
Dichloroethylene, 1,2-cis-	156-59-2	70
Dichloroethylene, 1,2-trans-	156-60-5	100
Dichlorophenoxy Acetic Acid, 2,4-	94-75-7	70
Dichloropropane, 1,2-	78-87-5	5
Dinoseb	88-85-7	7
Diquat	85-00-7	20
Endothall	145-73-3	100
Endrin	72-20-8	2
Ethylbenzene	100-41-4	700
Fluorine (Soluble Fluoride)	7782-41-4	4,000
Glyphosate	1071-83-6	700
Heptachlor	76-44-8	0.4

Table VIII Chemical of Concern	Chemical Abstract Service Number (CAS #)	Generic Unrestricted Potable Use Standard for a Single Chemical (µg/L)
Heptachlor Epoxide	1024-57-3	0.2
Hexachlorobenzene	118-74-1	1
Hexachlorocyclohexane, Gamma- (Lindane)	58-89-9	0.2
Hexachlorocyclopentadiene	77-47-4	50
Lead and Compounds	7439-92-1	15
Mercury and Compounds	7439-97-6	2
Methoxychlor	72-43-5	40
Methylene Chloride	75-09-2	5
Oxamyl	23135-22-0	200
Pentachlorophenol	87-86-5	1
Picloram	1918-02-1	500
Polychlorinated Biphenyls, total	1336-36-3	0.5
Selenium	7782-49-2	50
Simazine	122-34-9	4
Sodium Cyanide	143-33-9	200
Styrene	100-42-5	100
TCDD, 2,3,7,8-	1746-01-6	0.00003
Tetrachloroethylene	127-18-4	5
Thallium (Soluble Salts)	7440-28-0	2
Toluene	108-88-3	1,000
Toxaphene	8001-35-2	3
Trichlorobenzene, 1,2,4-	120-82-1	70
Trichloroethane, 1,1,1-	71-55-6	200
Trichloroethane, 1,1,2-	79-00-5	5

Table VIII Chemical of Concern	Chemical Abstract Service Number (CAS #)	Generic Unrestricted Potable Use Standard for a Single Chemical (µg/L)
Trichloroethylene	79-01-6	5
Trichlorophenoxyacetic Acid, 2,4,5-	93-76-5	50
Vinyl Chloride	75-01-4	2
Xylenes	1330-20-7	10,000

(a) MFL = million fibers per liter
(b) MCL is for Total Trihalomethane

Table IX: Risk-based generic unrestricted potable use standards

Table IX Chemical of Concern	Chemical Abstract Service Number (CAS #)	Standard for a Single Chemical Non-Carcinogen (µg/L)	Standard for a Single Chemical Carcinogen (µg/L)	Generic Unrestricted Potable Use Standard for a Single Chemical (µg/L)
Acenaphthene	83-32-9	530	NA	530
Acetaldehyde	75-07-0	19	26	19
Acetone	67-64-1	14,000	NA	14,000
Acetonitrile	75-05-8	130	NA	130
Acetophenone	98-86-2	1,900	NA	1,900
Acetylaminofluorene, 2-	53-96-3	NA	0.16	0.16
Acrolein	107-02-8	0.042	NA	0.042
Acrylamide	79-06-1	40	0.5	0.5
Acrylic Acid	79-10-7	2.1	NA	2.1
Acrylonitrile	107-13-1	4.1	0.52	0.52
Aldrin	309-00-2	0.6	0.009	0.009
Allyl Alcohol	107-18-6	100	NA	100
Allyl Chloride	107-05-1	2.1	7.3	2.1
Aluminum Phosphide	20859-73-8	8	NA	8
Aminobiphenyl, 4-	92-67-1	NA	0.03	0.03
Ammonium Sulfamate	7773-06-0	4,000	NA	4,000
Aniline	62-53-3	140	130	130
Anthracene	120-12-7	1,800	NA	1,800
Aroclor 1016	12674-11-2	1.4	2.2	1.4
Aroclor 1221	11104-28-2	NA	0.047	0.047

Table IX Chemical of Concern	Chemical Abstract Service Number (CAS #)	Standard for a Single Chemical Non-Carcinogen (µg/L)	Standard for a Single Chemical Carcinogen (µg/L)	Generic Unrestricted Potable Use Standard for a Single Chemical (µg/L)
Aroclor 1232	11141-16-5	NA	0.047	0.047
Aroclor 1242	53469-21-9	NA	0.08	0.08
Aroclor 1248	12672-29-6	NA	0.08	0.08
Aroclor 1254	11097-69-1	0.4	0.08	0.08
Aroclor 1260	11096-82-5	NA	0.08	0.08
Auramine	492-80-8	NA	0.67	0.67
Baygon	114-26-1	78	NA	78
Benomyl	17804-35-2	970	NA	970
Benz[a]anthracene	56-55-3	NA	0.3	0.3
Benzenethiol	108-98-5	17	NA	17
Benzidine	92-87-5	59	0.0033	0.0033
Benzo[b]fluoranthene	205-99-2	NA	2.5	2.5
Benzo[k]fluoranthene	207-08-9	NA	25	25
Benzoic Acid	65-85-0	75,000	NA	75,000
Benzotrichloride	98-07-7	NA	0.03	0.03
Benzyl Chloride	100-44-7	2	0.89	0.89
Biphenyl, 1,1'-	92-52-4	4,200	39	39
Bis(2-chloro-1-methylethyl) ether	108-60-1	710	NA	710
Bis(2-chloroethoxy)methane	111-91-1	59	NA	59
Bis(2-chloroethyl)ether	111-44-4	NA	0.14	0.14
Bis(chloromethyl)ether	542-88-1	NA	0.00072	0.00072
Bromomethane	74-83-9	7.5	NA	7.5
Butadiene, 1,3-	106-99-0	4.2	0.18	0.18

Table IX Chemical of Concern	Chemical Abstract Service Number (CAS #)	Standard for a Single Chemical Non-Carcinogen (µg/L)	Standard for a Single Chemical Carcinogen (µg/L)	Generic Unrestricted Potable Use Standard for a Single Chemical (µg/L)
Butanol, N-	71-36-3	2,000	NA	2,000
Butyl Benzyl Phthalate	85-68-7	1,700	160	160
Cacodylic Acid	75-60-5	400	NA	400
Calcium Cyanide	592-01-8	20	NA	20
Captan	133-06-2	2,400	310	310
Carbaryl	63-25-2	1,800	NA	1,800
Carbon Disulfide	75-15-0	810	NA	810
Carbonyl Sulfide	463-58-1	210	NA	210
Carbosulfan	55285-14-8	51	NA	51
Chloramben	133-90-4	290	NA	290
Chlordecone (Kepone)	143-50-0	2.9	0.035	0.035
Chlorine	7782-50-5	0.31	NA	0.31
Chloro-1,3-butadiene, 2-	126-99-8	37	0.19	0.19
Chloro-2-methylaniline HCl, 4-	3165-93-3	NA	1.7	1.7
Chloroaniline, p-	106-47-8	76	3.7	3.7
Chlorobenzilate	510-15-6	190	3.1	3.1
Chloromethane	74-87-3	190	NA	190
Chloromethyl Methyl Ether	107-30-2	NA	0.065	0.065
Chloronaphthalene, Beta-	91-58-7	750	NA	750
Chlorophenol, 2-	95-57-8	91	NA	91
Chlorpyrifos	2921-88-2	8.4	NA	8.4
Chrysene	218-01-9	NA	250	250
Cobalt Compounds	7440-48-4	6	NA	6

Table IX Chemical of Concern	Chemical Abstract Service Number (CAS #)	Standard for a Single Chemical Non-Carcinogen (µg/L)	Standard for a Single Chemical Carcinogen (µg/L)	Generic Unrestricted Potable Use Standard for a Single Chemical (µg/L)
Copper Cyanide	544-92-3	100	NA	100
Cresol, m-	108-39-4	930	NA	930
Cresol, o-	95-48-7	930	NA	930
Cresol, p-	106-44-5	1,900	NA	1,900
Cresol, p-Chloro-m-	59-50-7	1,400	NA	1,400
Cresols	1319-77-3	1,900	NA	1,900
Crotonaldehyde, trans-	123-73-9	20	0.4	0.4
Cumene	98-82-8	450	NA	450
Cyanogen	460-19-5	20	NA	20
Cyanogen Bromide	506-68-3	1,800	NA	1,800
Cyanogen Chloride	506-77-4	1,000	NA	1,000
Cyclohexane	110-82-7	13,000	NA	13,000
Cyclohexanone	108-94-1	1,400	NA	1,400
DDD	72-54-8	NA	0.32	0.32
DDE, p,p'-	72-55-9	NA	0.5	0.5
DDT	50-29-3	10	2.3	2.3
Diallate	2303-16-4	NA	5.4	5.4
Diazinon	333-41-5	10	NA	10
Dibenz[a,h]anthracene	53-70-3	NA	0.25	0.25
Dibutyl Phthalate	84-74-2	900	NA	900
Dicamba	1918-00-9	570	NA	570
Dichloro-2-butene, 1,4-	764-41-0	NA	0.013	0.013
Dichlorobenzidine, 3,3'-	91-94-1	NA	1.3	1.3

Table IX Chemical of Concern	Chemical Abstract Service Number (CAS #)	Standard for a Single Chemical Non-Carcinogen (µg/L)	Standard for a Single Chemical Carcinogen (µg/L)	Generic Unrestricted Potable Use Standard for a Single Chemical (µg/L)
Dichlorodifluoromethane	75-71-8	3,600	NA	3,600
Dichloroethane, 1,1-	75-34-3	3,800	28	28
Dichlorophenol, 2,4-	120-83-2	46	NA	46
Dichloropropane, 1,3-	142-28-9	370	NA	370
Dichloropropene, 1,3-	542-75-6	39	4.7	4.7
Dichlorvos	62-73-7	9.9	2.6	2.6
Dieldrin	60-57-1	0.38	0.018	0.018
Diethanolamine	111-42-2	40	NA	40
Diethyl Phthalate	84-66-2	15,000	NA	15,000
Diethylstilbestrol	56-53-1	NA	0.00051	0.00051
Dihydrosafrole	94-58-6	NA	3	3
Dimethoate	60-51-5	44	NA	44
Dimethoxybenzidine, 3,3'-	119-90-4	NA	0.47	0.47
Dimethylamino azobenzene [p-]	60-11-7	NA	0.05	0.05
Dimethylaniline, N,N-	121-69-7	35	NA	35
Dimethylbenz(a)anthracene, 7,12-	57-97-6	NA	0.0031	0.0031
Dimethylbenzidine, 3,3'-	119-93-7	NA	0.065	0.065
Dimethylformamide	68-12-2	61	NA	61
Dimethylhydrazine, 1,2-	540-73-8	NA	0.0003	0.0003
Dimethylphenol, 2,4-	105-67-9	360	NA	360
Dinitrobenzene, 1,2-	528-29-0	1.9	NA	1.9
Dinitrobenzene, 1,3-	99-65-0	2	NA	2
Dinitrobenzene, 1,4-	100-25-4	2	NA	2

Table IX Chemical of Concern	Chemical Abstract Service Number (CAS #)	Standard for a Single Chemical Non-Carcinogen (µg/L)	Standard for a Single Chemical Carcinogen (µg/L)	Generic Unrestricted Potable Use Standard for a Single Chemical (µg/L)
Dinitro-o-phenol-cyclohexyl Phenol, 4,6-	131-89-5	23	NA	23
Dinitrophenol, 2,4-	51-28-5	39	NA	39
Dinitrotoluene Mixture, 2,4/2,6-	25321-14-6	NA	1.1	1.1
Dinitrotoluene, 2,4-	121-14-2	38	2.4	2.4
Dinitrotoluene, 2,6-	606-20-2	NA	0.49	0.49
Dioxane, 1,4-	123-91-1	57	4.6	4.6
Diphenylhydrazine, 1,2-	122-66-7	NA	0.78	0.78
Disodium phosphate	7558-79-4	980,000	NA	980,000
Disulfoton	298-04-4	0.5	NA	0.5
Diuron	330-54-1	36	NA	36
Endosulfan	115-29-7	100	NA	100
Epichlorohydrin	106-89-8	2	29	2
Epoxybutane, 1,2-	106-88-7	42	NA	42
Ethion	563-12-2	3.8	NA	3.8
Ethoxyethanol, 2-	110-80-5	340	NA	340
Ethyl Acetate	141-78-6	140	NA	140
Ethyl Acrylate	140-88-5	14	NA	14
Ethyl Chloride (Chloroethane)	75-00-3	21,000	NA	21,000
Ethyl Ether	60-29-7	3,900	NA	3,900
Ethyl Methacrylate	97-63-2	630	NA	630
Ethylene Diamine	107-15-3	1,800	NA	1,800
Ethylene Glycol	107-21-1	40,000	NA	40,000
Ethylene Oxide	75-21-8	63	0.0067	0.0067

Table IX Chemical of Concern	Chemical Abstract Service Number (CAS #)	Standard for a Single Chemical Non-Carcinogen (µg/L)	Standard for a Single Chemical Carcinogen (µg/L)	Generic Unrestricted Potable Use Standard for a Single Chemical (µg/L)
Ethylene Thiourea	96-45-7	1.6	17	1.6
Ethyleneimine	151-56-4	NA	0.0024	0.0024
Fluoranthene	206-44-0	800	NA	800
Fluorene	86-73-7	290	NA	290
Formaldehyde	50-00-0	20	4.3	4.3
Formic Acid	64-18-6	18,000	NA	18,000
Furan	110-00-9	19	NA	19
Furfural	98-01-1	38	NA	38
Glycidyl	765-34-4	1.7	NA	1.7
Guthion	86-50-0	56	NA	56
Hexachlorobutadiene	87-68-3	6.5	1.4	1.4
Hexachlorocyclohexane, Alpha-	319-84-6	97	0.072	0.072
Hexachlorocyclohexane, Beta-	319-85-7	NA	0.25	0.25
Hexachlorocyclohexane, Technical	608-73-1	NA	0.25	0.25
Hexachloroethane	67-72-1	6.2	3.3	3.3
Hexachlorophene	70-30-4	6	NA	6
Hexamethylene Diisocyanate, 1,6-	822-06-0	0.021	NA	0.021
Hexamethylphosphoramide	680-31-9	8	NA	8
Hexane, N-	110-54-3	1,500	NA	1,500
Hexanedioic Acid	124-04-9	40,000	NA	40,000
Hydrazine	302-01-2	NA	0.01	0.01
Hydrogen Cyanide	74-90-8	1.5	NA	1.5
Hydrogen Fluoride	7664-39-3	28	NA	28

Table IX Chemical of Concern	Chemical Abstract Service Number (CAS #)	Standard for a Single Chemical Non-Carcinogen (µg/L)	Standard for a Single Chemical Carcinogen (µg/L)	Generic Unrestricted Potable Use Standard for a Single Chemical (µg/L)
Hydroquinone	123-31-9	790	13	13
Indeno[1,2,3-cd]pyrene	193-39-5	NA	2.5	2.5
Isobutyl Alcohol	78-83-1	5,900	NA	5,900
Isophorone	78-59-1	3,800	780	780
Kerb	23950-58-5	1,200	NA	1,200
Lead Acetate	301-04-2	NA	92	92
Lead Phosphate	7446-27-7	NA	91	91
Lead Subacetate	1335-32-6	NA	92	92
Malathion	121-75-5	390	NA	390
Maleic Anhydride	108-31-6	1,900	NA	1,900
Maleic Hydrazide	123-33-1	10,000	NA	10,000
Malononitrile	109-77-3	2	NA	2
Manganese Compounds	7439-96-5	430	NA	430
Methacrylonitrile	126-98-7	1.9	NA	1.9
Methanol	67-56-1	20,000	NA	20,000
Methomyl	16752-77-5	500	NA	500
Methyl Ethyl Ketone (2-Butanone)	78-93-3	5,600	NA	5,600
Methyl Hydrazine	60-34-4	20	NA	20
Methyl Isobutyl Ketone (4-methyl-2-pentanone)	108-10-1	6,300	NA	6,300
Methyl Isocyanate	624-83-9	2.1	NA	2.1
Methyl Methacrylate	80-62-6	1,400	NA	1,400
Methyl Parathion	298-00-0	4.5	NA	4.5
Methyl tert-Butyl Ether (MTBE)	1634-04-4	6,300	140	140

Table IX Chemical of Concern	Chemical Abstract Service Number (CAS #)	Standard for a Single Chemical Non-Carcinogen (µg/L)	Standard for a Single Chemical Carcinogen (µg/L)	Generic Unrestricted Potable Use Standard for a Single Chemical (µg/L)
Methylaniline Hydrochloride, 2-	636-21-5	NA	5.7	5.7
Methylcholanthrene, 3-	56-49-5	NA	0.035	0.035
Methylene-bis(2-chloroaniline), 4,4'-	101-14-4	26	4.9	4.9
Methylenebisbenzenamine, 4,4'-	101-77-9	NA	0.47	0.47
Methylnaphthalene, 1-	90-12-0	620	11	11
Methylnaphthalene, 2-	91-57-6	36	NA	36
Methyl-N-nitro-N-nitrosoguanidine, N-	70-25-7	NA	0.094	0.094
Naled	300-76-5	40	NA	40
Naphthalene	91-20-3	6.1	1.7	1.7
Naphthylamine, 2-	91-59-8	NA	0.39	0.39
Nickel Carbonyl	13463-39-3	0.029	NA	0.029
Nickel Soluble Salts	7440-02-0	390	NA	390
Nitroaniline, 4-	100-01-6	78	38	38
Nitrobenzene	98-95-3	13	1.4	1.4
Nitroglycerin	55-63-0	2	45	2
Nitropropane, 2-	79-46-9	42	0.021	0.021
Nitrosodiethanolamine, N-	1116-54-7	NA	0.28	0.28
Nitrosodiethylamine, N-	55-18-5	NA	0.0051	0.0051
Nitrosodimethylamine, N-	62-75-9	0.16	0.003	0.003
Nitroso-di-N-butylamine, N-	924-16-3	NA	0.027	0.027
Nitroso-di-N-propylamine, N-	621-64-7	NA	0.11	0.11
Nitrosodiphenylamine, N-	86-30-6	NA	120	120
Nitrosomorpholine [N-]	59-89-2	NA	0.12	0.12

Table IX Chemical of Concern	Chemical Abstract Service Number (CAS #)	Standard for a Single Chemical Non-Carcinogen (µg/L)	Standard for a Single Chemical Carcinogen (µg/L)	Generic Unrestricted Potable Use Standard for a Single Chemical (µg/L)
Nitroso-N-ethylurea, N-	759-73-9	NA	0.029	0.029
Nitroso-N-methylurea, N-	684-93-5	NA	0.0065	0.0065
Nitrosopiperidine, N-	100-75-4	NA	0.082	0.082
Nitrosopyrrolidine [N-]	930-55-2	NA	0.37	0.37
Nitrotoluene, o-	88-72-2	16	3.1	3.1
Nitrotoluene, p-	99-99-0	71	43	43
Octamethylpyrophosphoramide	152-16-9	40	NA	40
Octyl Phthalate, di-N-	117-84-0	200	NA	200
Parathion	56-38-2	86	NA	86
Pentachlorobenzene	608-93-5	3.2	NA	3.2
Pentachloroethane	76-01-7	NA	6.5	6.5
Pentachloronitrobenzene	82-68-8	26	1.2	1.2
Phenacetin	62-44-2	NA	340	340
Phenol	108-95-2	5,800	NA	5,800
Phenylmercuric Acetate	62-38-4	1.6	NA	1.6
Phorate	298-02-2	3	NA	3
Phosphine	7803-51-2	0.57	NA	0.57
Phosphoric Acid	7664-38-2	980,000	NA	980,000
Phthalic Anhydride	85-44-9	39,000	NA	39,000
Potassium Cyanide	151-50-8	40	NA	40
Potassium Silver Cyanide	506-61-6	82	NA	82
Propargite	2312-35-8	330	1.6	1.6
Propargyl Alcohol	107-19-7	40	NA	40

Table IX Chemical of Concern	Chemical Abstract Service Number (CAS #)	Standard for a Single Chemical Non-Carcinogen (µg/L)	Standard for a Single Chemical Carcinogen (µg/L)	Generic Unrestricted Potable Use Standard for a Single Chemical (µg/L)
Propham	122-42-9	350	NA	350
Propionaldehyde	123-38-6	17	NA	17
Propylene Oxide	75-56-9	63	2.7	2.7
Pyrene	129-00-0	120	NA	120
Pyridine	110-86-1	20	NA	20
Quinoline	91-22-5	NA	0.24	0.24
Safrole	94-59-7	NA	3	3
Selenious Acid	7783-00-8	100	NA	100
Silver	7440-22-4	94	NA	94
Silver Cyanide	506-64-9	1,800	NA	1,800
Sodium Azide	26628-22-8	80	NA	80
Sodium Fluoride	7681-49-4	1,000	NA	1,000
Sodium Fluoroacetate	62-74-8	0.4	NA	0.4
Sodium Tripolyphosphate	7758-29-4	980,000	NA	980,000
Strychnine	57-24-9	5.9	NA	5.9
Tetrachlorobenzene, 1,2,4,5-	95-94-3	1.7	NA	1.7
Tetrachloroethane, 1,1,1,2-	630-20-6	480	5.7	5.7
Tetrachloroethane, 1,1,2,2-	79-34-5	360	0.76	0.76
Tetrachlorophenol, 2,3,4,6-	58-90-2	240	NA	240
Tetraethyl Dithiopyrophosphate	3689-24-5	7.1	NA	7.1
Tetraethyl Lead	78-00-2	0.0013	NA	0.0013
Tetrahydrofuran	109-99-9	3,400	NA	3,400
Thiofanox	39196-18-4	5.3	NA	5.3

Table IX Chemical of Concern	Chemical Abstract Service Number (CAS #)	Standard for a Single Chemical Non-Carcinogen (µg/L)	Standard for a Single Chemical Carcinogen (µg/L)	Generic Unrestricted Potable Use Standard for a Single Chemical (µg/L)
Thiophanate, Methyl	23564-05-8	540	64	64
Thiram	137-26-8	290	NA	290
Toluene-2,4-diisocyanate	584-84-9	0.017	5.1	0.017
Toluene-2,6-diisocyanate	91-08-7	0.017	5.1	0.017
Toluidine, p-	106-49-0	NA	25	25
Triallate	2303-17-5	230	4.7	4.7
Trichlorofluoromethane	75-69-4	5,200	NA	5,200
Trichlorophenol, 2,4,5-	95-95-4	1,200	NA	1,200
Trichlorophenol, 2,4,6-	88-06-2	12	41	12
Trichlorophenoxyacetic Acid, 2,4,5-	93-76-5	160	NA	160
Trichloropropane, 1,2,3-	96-18-4	0.62	0.0075	0.0075
Triethylamine	121-44-8	15	NA	15
Trifluralin	1582-09-8	40	26	26
Trimethylbenzene, 1,2,3-	526-73-8	55	NA	55
Trimethylbenzene, 1,2,4-	95-63-6	56	NA	56
Trimethylbenzene, 1,3,5-	108-67-8	60	NA	60
Trinitrobenzene, 1,3,5-	99-35-4	590	NA	590
Trisodium Phosphate	7601-54-9	980,000	NA	980,000
Urethane	51-79-6	NA	0.78	0.78
Vanadium Compounds	7440-62-2	86	NA	86
Vinyl Acetate	108-05-4	410	NA	410
Vinyl Bromide	593-60-2	6.3	1.8	1.8
Warfarin	81-81-2	5.6	NA	5.6

Table IX Chemical of Concern	Chemical Abstract Service Number (CAS #)	Standard for a Single Chemical Non-Carcinogen (µg/L)	Standard for a Single Chemical Carcinogen (µg/L)	Generic Unrestricted Potable Use Standard for a Single Chemical (µg/L)
Zinc and Compounds	7440-66-6	6,000	NA	6,000
Zinc Cyanide	557-21-1	1,000	NA	1,000
Zinc Phosphide	1314-84-7	6	NA	6

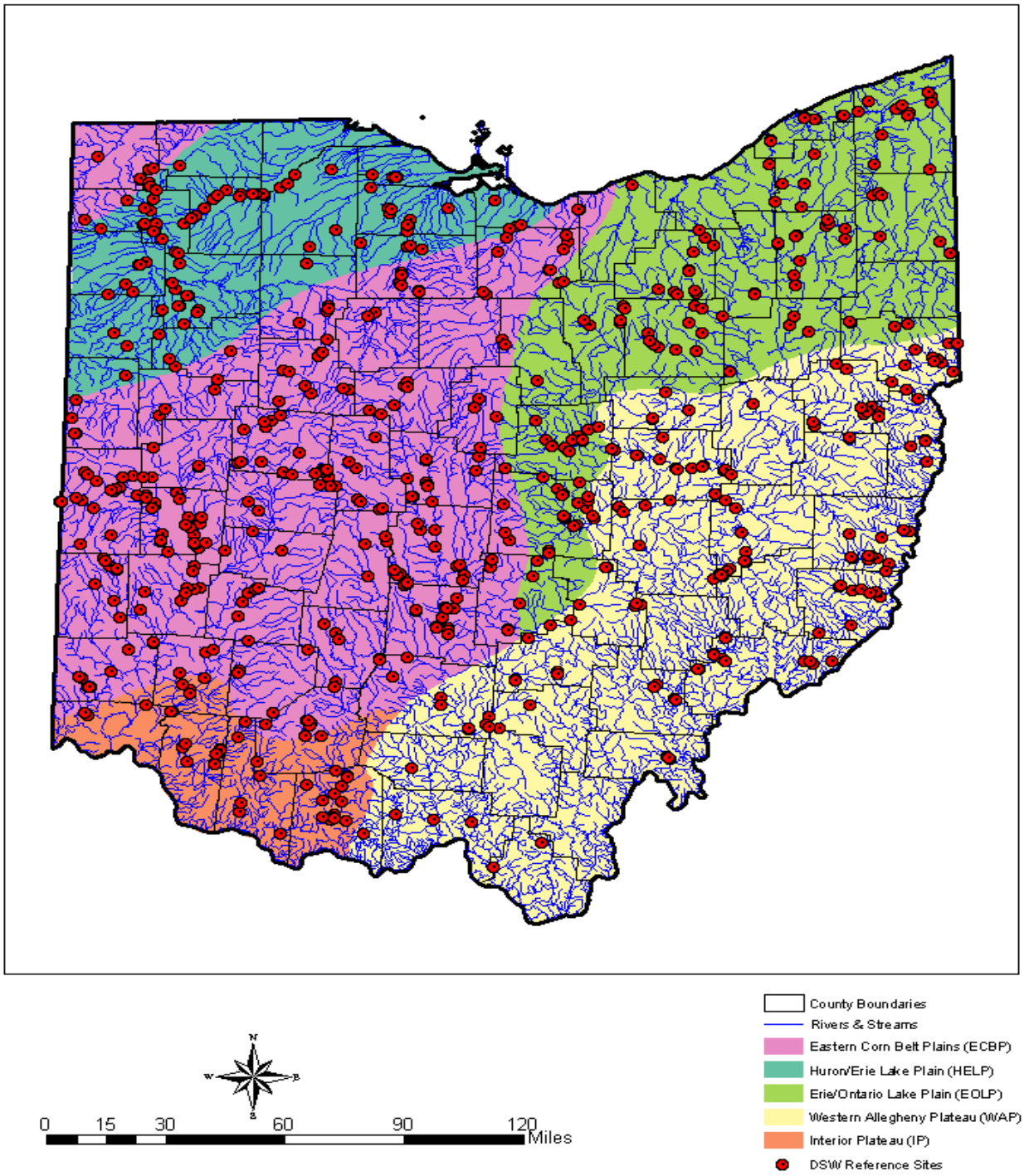
Appendix B to rule 3745-300-08 of the Administrative Code

[Comment: For dates of non-regulatory government publications, publications of recognized organizations and associations, federal rules, and federal statutory provisions referenced in this appendix, see rule 3745-300-15 of the Administrative Code titled "Incorporation by reference - voluntary action program."]

In this appendix, mg/kg means milligrams per kilogram, NA means not applicable, and µg/kg means micrograms per kilogram.

Table I: Statewide and regional sediment reference values (mg/kg)

Table I Chemical of Concern	Chemical Abstract Service Number (CAS #)	Statewide	Ecoregions (a)				
			Eastern Corn Belt Plains (ECBP)	Huron-Erie Lake Plain (HELP)	Erie-Ontario Lake Plain (EOLP)	Interior Plateau (IP)	Western Allegheny Plateau (WAP)
Antimony	7440-36-0	NA	0.92	1.3	0.84	NA	NA
Arsenic	7440-38-2	NA	18	25	11	11	19
Barium	7440-39-3	NA	240	190	210	170	360
Beryllium	7440-41-7	0.8	NA	NA	NA	NA	NA
Cadmium	7440-43-9	NA	0.90	0.79	0.96	0.30	0.80
Chromium, Total	7440-47-3	NA	40	29	51	30	53
Cobalt	7440-48-4	12	NA	NA	NA	NA	NA
Copper	7440-50-8	NA	34	32	42	25	33
Lead	7439-92-1	47	NA	NA	NA	NA	NA
Manganese	7439-96-5	NA	780	1,500	1,000	1,400	3,000
Mercury	7439-97-6	0.12	NA	NA	NA	NA	NA
Nickel	7440-02-0	NA	42	33	36	33	61
Selenium	7782-49-2	NA	2.3	1.7	1.4	1.6	2.6
Silver	7440-22-4	0.43	NA	NA	NA	NA	NA
Thallium	7440-28-0	4.7	NA	NA	NA	NA	NA
Vanadium	7440-62-2	40	NA	NA	NA	NA	NA
Zinc	7440-66-6	NA	160	160	190	100	170



(a) Figure 1: Ohio Ecoregions including Division of Surface Water (DSW) Sampling Locations

Table II: Consensus-based threshold effect concentrations[1]

Table II Chemical of Concern	Chemical Abstract Service Number (CAS #)	Consensus-Based Threshold Effect Concentration
Metals (mg/kg dry weight)		
Arsenic	7440-38-2	9.8
Cadmium	7440-43-9	0.99
Chromium	7440-47-3	43
Copper	7440-50-8	32
Lead	7439-92-1	36
Mercury	7439-97-6	0.18
Nickel	7440-02-0	23
Zinc	7440-66-6	121
Polycyclic Aromatic Hydrocarbons (µg/kg dry weight)		
Anthracene	120-12-7	57
Benz[a]anthracene	56-55-3	110
Benzo[a]pyrene	50-32-8	150
Chrysene	218-01-9	170
Dibenz[a,h]anthracene	53-70-3	33
Fluoranthene	206-44-0	420
Fluorene	86-73-7	77
Naphthalene	91-20-3	180
Phenanthrene	85-01-8	200
Pyrene	129-00-0	200
Total PAHs	NA	1,600
Polychlorinated Biphenyls (µg/kg dry weight)		
Polychlorinated Biphenyls, Total	1336-36-3	60
Pesticides (µg/kg dry weight)		
Chlordane	57-74-9	3.2
DDD	72-54-8	4.9
DDE, p,p'-	72-55-9	3.2
DDT	50-29-3	4.2
DDTs, Total	NA	5.3
Dieldrin	60-57-1	1.9
Endrin	72-20-8	2.2
Heptachlor Epoxide	1024-57-3	2.5
Hexachlorocyclohexane, Gamma- (Lindane)	58-89-9	2.4

[1] Consensus-based threshold concentrations from MacDonald, Ingersoll and Berger's "Development and Evaluation of Consensus-based Sediment Quality Guidelines for Freshwater Ecosystems" are rounded to two significant digits.

3745-300-09 **Property-specific risk assessment procedures.**

[Comment: For dates of non-regulatory government publications, publications of recognized organizations and associations, federal rules, and federal statutory provisions referenced in this rule, see rule 3745-300-15 of the Administrative Code titled "Incorporation by reference - voluntary action program."]

(A) Applicability. The volunteer may use the property-specific risk assessment procedures in this rule to determine applicable standards in place of, or in addition to, generic numerical standards in accordance with rule 3745-300-08 of the Administrative Code.

(1) If radioactive materials are identified at a property, the property may be subject to the Atomic Energy Act and regulations adopted thereunder and Chapters 3701. and 3747. of the Revised Code and rules adopted thereunder. If radionuclides or radioactive materials are present at a property, the volunteer shall conduct the cleanup of the radionuclides or radioactive material in compliance with requirements of the Ohio department of health. Remedy approval by the Ohio department of health are sufficient to meet applicable standards for radionuclides or radioactive materials for the voluntary action.

(2) Elective application. If a volunteer elects not to apply one or more of the generic numerical standards established under rule 3745-300-08 of the Administrative Code to a chemical of concern (COC), the volunteer shall use a property-specific risk assessment to develop an applicable standard for that COC.

(3) Mandatory application. A volunteer shall conduct a property-specific risk assessment in accordance with this rule to determine applicable standards instead of, or in addition to, use of the generic numerical standards in rule 3745-300-08 of the Administrative Code if any of the following apply to the property:

(a) The complete exposure pathways identified in accordance with paragraph (F)(1) of rule 3745-300-07 of the Administrative Code include exposure pathways that are not considered in the development of standards listed in the appendices to rule 3745-300-08 of the Administrative Code.

(b) The exposure factors for the receptors identified in paragraph (E)(6) of rule 3745-300-07 of the Administrative Code are not considered in the development of standards listed in the appendices to rule 3745-300-08 of the Administrative Code.

(c) COCs that originate from the property, as follows:

(i) The COCs consist of hazardous substances or petroleum that do not have generic numerical standards included in the appendices to rule 3745-300-08 of the Administrative Code.

(ii) If only some of the COCs identified have a generic numerical standard listed in the appendices to rule 3745-300-08 of the Administrative Code, a volunteer may use the applicable generic numerical standards for the COC that has listed standards, and may conduct a property-specific risk assessment in accordance with this rule.

(iii) When a combination of generic numerical standards and applicable standards determined by a property-specific risk assessment conducted in accordance with this rule is used, the volunteer shall adjust the concentrations of the applicable standards to meet the human health risk and hazard levels described in paragraph (B) of this rule.

(d) Concentrations of COCs in surface water or sediment exceed applicable standards determined in accordance with rule 3745-300-08 of the Administrative Code.

(e) There are complete exposure pathways to important ecological resources (IERs) other than sediment or surface water, such as soil.

(f) There are persistent, bioaccumulative, and toxic (PBT) COCs that are determined to be from the property that do not have or that exceed applicable standards as determined in accordance with rule 3745-300-08 of the Administrative Code. A list of PBTs can be found in Ohio EPA's Ecological Risk Assessment Guidance.

(B) Applicable risk and hazard levels for human receptors. The volunteer shall determine the applicable standards for human receptors developed from a property-specific risk assessment in accordance with the following risk and hazard levels:

(1) Carcinogenic risk. For COCs which have carcinogenic effects, the cumulative human health carcinogenic risk shall not exceed the following risk levels based on the reasonably anticipated use of the property:

(a) For all residential and commercial property land uses, the cumulative carcinogenic risk, which is attributable to the COCs, shall not exceed an excess upper bound lifetime cancer risk to an individual of one in one hundred thousand ($1x10^{-5}$).

(b) For industrial property land use, the cumulative carcinogenic risk shall not exceed an excess upper bound lifetime cancer risk to an individual, which is attributable to the COCs, of one in ten thousand ($1x10^{-4}$) provided that a demonstration that the cumulative cancer risk to off-property receptors, which is attributable to COCs, is less than an excess upper bound lifetime cancer risk to an individual of one in one hundred thousand ($1x10^{-5}$):

(2) Non-carcinogenic hazard. For COCs which have non-carcinogenic effects, the cumulative human health hazard, which is attributable to the COCs, shall not exceed a hazard index of one.

(3) Carcinogenic risk and non-carcinogenic hazard. For COCs which have both carcinogenic and non-carcinogenic effects, the concentration of the COCs shall not exceed the risk and hazard levels established in paragraphs (B)(1) and (B)(2) of this rule. If more than one complete exposure pathway exists to each receptor population, the incremental cancer risk and hazard indices determined for each exposure pathway shall be summed to calculate a cumulative cancer risk and hazard index to each receptor population. All final cumulative human health carcinogenic risk and non-carcinogenic hazard levels are based on one significant figure.

(C) Petroleum standards.

(1) COCs that are required to be evaluated are dependent on the petroleum fraction of the released product. The volunteer shall evaluate additional petroleum constituents or typical impurities to ensure applicable standards are met. The volunteer shall assess and evaluate the risk indicator compounds for each appropriate petroleum fraction including the following:

(a) For light petroleum fractions, such as natural gasoline, gasohol, or naphtha solvents, the volunteer shall analyze environmental media for benzene, toluene, ethylbenzene, methyl tert-butyl ether, total xylenes, naphthalene, and 1,2,4-trimethylbenzene.

(b) For middle petroleum fractions, such as kerosene, diesel fuel, or jet fuel, the volunteer shall analyze environmental media for benzene, toluene, ethylbenzene, total xylenes, acenaphthene, anthracene, chrysene, benzo[a]anthracene, benzo[a]pyrene, benzo[b]fluoranthene, benzo[k]fluoranthene, dibenzo[a,h]anthracene, fluoranthene, fluorene, indeno[1,2,3-cd]pyrene, naphthalene, and pyrene.

(c) For heavy petroleum fractions, such as hydraulic oil, lube oil, or residual fuel oils, the volunteer shall analyze environmental

media for acenaphthene, anthracene, chrysene, benzo[a]pyrene, benzo[a]anthracene, benzo[b]fluoranthene, benzo[k]fluoranthene, dibenzo[a,h]anthracene, fluoranthene, fluorene, indeno[1,2,3-cd]pyrene, naphthalene, and pyrene. Where the heavy petroleum is used motor oil, used cutting oil, or hydraulic oil, the volunteer shall identify additional COCs that may be typical impurities of the used heavy petroleum fractions product, and the volunteers shall include such COCs in the analysis, as appropriate.

(d) For releases of automotive gasoline formulated before January 1, 1996, racing fuel, or aviation gasoline, the volunteer shall analyze environmental media for the constituents listed in paragraph (C)(1)(a) of this rule as well as 1,2-dichloroethane and 1,2-dibromoethane (ethylene dibromide).

(e) For petroleum from an unknown source, the volunteers shall analyze environmental media for benzene, ethylbenzene, toluene, total xylenes, methyl tert-butyl ether, acenaphthene, anthracene, chrysene, benzo[a]anthracene, benzo[a]pyrene, benzo[b]fluoranthene, benzo[k]fluoranthene, dibenzo[a,h]anthracene, fluoranthene, fluorene, indeno[1,2,3-cd]pyrene, naphthalene, and pyrene. The volunteer shall identify additional COCs that may be typical impurities of used petroleum fractions, and the volunteer shall include such additional COCs in the analysis, as appropriate.

(2) Evaluation of compliance with applicable standards. The concentrations of COCs evaluated in accordance with paragraph (D)(3)(a) of this rule on or from the property shall meet applicable standards for the media and exposure pathways evaluated. As appropriate, the volunteer shall evaluate applicable standards for petroleum and petroleum's constituents or impurities in the following manner:

(a) The volunteer shall conduct a human health property-specific risk assessment that includes derivation of applicable standards in accordance with paragraph (D) of this rule, or shall use generic numerical standards provided in rule 3745-300-08 of the Administrative Code. The volunteer may use generic numerical standards for the exposure pathways included in rule 3745-300-08 of the Administrative Code. The volunteer shall evaluate other exposure pathways in accordance with paragraph (D) of this rule. The volunteer shall conduct an evaluation of cumulative risks in accordance with paragraphs (B) and (D)(3)(d) of this rule.

(b) The volunteer shall determine soil saturation concentrations of total petroleum hydrocarbons utilizing the vertical hydraulic conductivity

of the unsaturated soil or otherwise demonstrate the soil type most representative of the soils impacted by petroleum. The corresponding petroleum fraction shall meet the residual saturation concentration in table I of this rule.

Table I: Total petroleum hydrocarbon soil saturation concentration (values are in milligrams per kilogram)

	Residual Saturation Concentrations for:		
	Sand and Gravel; Unknown Soil Type	Silty or Clayey Sand	Glacial Till and Silty Clay
Petroleum Fraction	K_V: 10^{-3} - 10^{-4} cm/s	K_V: 10^{-4} - 10^{-5} cm/s	K_V: < 10^{-5} cm/s
Light (C_6 - C_{12})	1,000	5,000	8,000
Middle (C_{10} - C_{20})	2,000	10,000	20,000
Heavy (C_{20} - C_{34})	5,000	20,000	40,000
Where K_V means vertical hydraulic conductivity of the unsaturated soil, cm/s means centimeters per second, and C_X means carbon chain length.			

(c) Free product exceeds applicable standards for unrestricted potable use of ground water. Ground water with free product shall meet the appropriate ground water response requirements in accordance with rule 3745-300-10 of the Administrative Code.

(d) The volunteer shall evaluate sediment, surface water, and ecological exposure pathways in accordance with this rule and rule 3745-300-08 of the Administrative Code as appropriate.

(D) Procedures for human health risk assessments.

(1) For a human health property-specific risk assessment conducted in accordance with this rule the volunteer shall demonstrate that the concentrations of COCs on or from a property meet the applicable risk and hazard levels under paragraph (B) of this rule.

(2) Voluntary action activities affecting the property-specific risk assessment. For the property-specific risk assessment, the volunteer shall take into account the following:

(a) The classification and use of the ground water determined in accordance with rule 3745-300-10 of the Administrative Code.

(b) The implementation of remedial activities other than institutional controls or engineering controls that address the COCs and are consistent with rule 3745-300-11 of the Administrative Code.

(c) The use of institutional controls including, without limitation, activity and use limitations in the environmental covenant. Institutional controls shall meet the following criteria:

(i) Be effective at eliminating or mitigating exposures to all receptor populations sufficient to meet the risk and hazard levels in paragraph (B) of this rule.

(ii) Be capable of being monitored, maintained, and enforced by the owner or operator of the property during the period of time which the control is used to achieve and maintain applicable standards.

(iii) Be transferrable with the property and recorded with the county recorder during the period of time which the control is used to achieve and maintain applicable standards.

(d) The existence of engineering controls including, without limitation, fences, cap systems, cover systems, and landscaped controls. Engineering controls shall meet the following criteria:

(i) Be effective at eliminating or mitigating exposures to all receptor populations sufficient to meet the risk and hazard levels or applicable standards in this rule.

(ii) Be effective and reliable for the climatic conditions and activities at the property to which the control is applied.

(iii) Be reliable during the period of time which the control is used to achieve and maintain applicable standards.

(iv) Be capable of being monitored and maintained as required by an operation and maintenance plan or agreement developed in accordance with rule 3745-300-11 of the Administrative Code in order to ensure that the control remains effective.

(e) The physical and chemical characteristics of the COCs at the property, identified under rules 3745-300-06 and 3745-300-07 of the

Administrative Code, as either individual chemicals or as chemical mixtures whenever such chemical mixture data are available.

(f) Relevant exposure pathway information for a property. Property-specific information includes the following:

(i) As identified following the procedures under rules 3745-300-06 and 3745-300-07 of the Administrative Code, the physical characteristics of the property or properties that describe and define complete exposure pathways determined in accordance with paragraph (F)(1) of rule 3745-300-07 of the Administrative Code. Physical characteristics shall include, at a minimum, topography, climate, native soils and fill material characteristics, consolidated and unconsolidated geological units, hydrogeological conditions and zones of saturation, surface water bodies, engineered structures (e.g., buildings, roads, retaining walls, constructed fills), and subsurface utilities.

(ii) The spatial distribution of the COCs in identified areas or exposure units on the property, which are determined in accordance with the procedures under rule 3745-300-07 of the Administrative Code. The physical distribution information shall include the relative concentrations of the COCs in identified areas on the property.

(3) The property-specific risk assessment is comprised of four parts: selection of chemicals of concern, exposure assessment, toxicity assessment, and characterization of risk. These four parts are as follows:

(a) Selection of COCs. Hazardous substances or petroleum identified on or from the property are considered COCs and the volunteer shall evaluate such COCs pursuant to all the appropriate risk assessment calculations and methods referenced in paragraph (D)(3) of this rule if such hazardous substances or petroleum fall into one of the following categories:

(i) Do not meet the applicable standards established for background pursuant to paragraph (H) of rule 3745-300-07 of the Administrative Code.

(ii) Do not constitute contamination in de minimis or previously addressed areas pursuant to paragraph (E) of rule 3745-300-06 of the Administrative Code.

(iii) Cannot be removed from the list of COCs pursuant to paragraph (F)(5)(f) of rule 3745-300-07 of the Administrative Code.

(b) Exposure assessment. The exposure assessment shall determine the reasonably anticipated magnitude, frequency, duration, and routes of exposure. The exposure assessment shall include consideration of the information obtained or activities performed under paragraph (D)(2) of this rule for the known and reasonably anticipated land use.

(i) Identification of receptor populations. The exposure assessment shall evaluate the risk and hazard potential to all receptor populations as identified in paragraph (E)(6) of rule 3745-300-07 of the Administrative Code that are reasonably anticipated to be exposed to COCs on or from the property. The exposure assessment shall evaluate populations for the magnitude and frequency of exposure for each exposure period.

(ii) Evaluation of exposure pathways, as follows:

(a) The property-specific exposure assessment shall evaluate all complete exposure pathways in accordance with paragraph (F)(1) of rule 3745-300-07 of the Administrative Code.

(b) The exposure assessment shall include a written justification for all exposure pathways eliminated or mitigated through the use of institutional controls or engineering controls. The written justification shall include a description of the efficacy of such controls. The volunteer shall implement the described institutional controls or engineering controls in accordance with rules 3745-300-11 and 3745-300-13 of the Administrative Code.

(c) The volunteer shall evaluate complete exposure pathways in accordance with the procedures in the following sources, as incorporated by reference in rule 3745-300-15 of the Administrative Code:

(i) U.S. EPA's "Risk Assessment Guidance for Superfund (RAGs), Volume I: Human Health Evaluation Manual (Part A)."

(ii) U.S. EPA's "Risk Assessment Guidance for Superfund (RAGs), Volume I: Human Health Evaluation Manual

(Part E, Supplemental Guidance for Dermal Risk Assessment."

(iii) U.S. EPA's "Risk Assessment Guidance for Superfund (RAGs), Volume I: Human Health Evaluation Manual (Part F, Supplemental Guidance for Inhalation Risk Assessment)."

(iv) U.S. EPA's "Exposure Factors Handbook," 2011 Edition and 2017 Chapter 5 updates.

(v) U.S. EPA's "Human Health Evaluation Manual, Supplemental Guidance: Standard Default Exposure Factors."

(iii) Quantification of chemical-specific intake. The volunteer shall calculate chemical-specific intakes to quantify the exposure of each receptor population as identified in accordance with paragraph (E)(6) of rule 3745-300-07 of the Administrative Code, to COCs on or from the property as identified in accordance with paragraph (D)(3)(a) of this rule, and for each medium identified in a phase II property assessment.

(a) The volunteer shall calculate the chemical-specific intakes using formulas identified in the following sources, as incorporated by reference in rule 3745-300-15 of the Administrative Code:

(i) U.S. EPA's "Risk Assessment Guidance for Superfund (RAGs), Volume I: Human Health Evaluation Manual (Part A)."

(ii) U.S. EPA's "Risk Assessment Guidance for Superfund (RAGs), Volume I: Human Health Evaluation Manual (Part E, Supplemental Guidance for Dermal Risk Assessment."

(iii) U.S. EPA's "Risk Assessment Guidance for Superfund (RAGs), Volume I: Human Health Evaluation Manual (Part F, Supplemental Guidance for Inhalation Risk Assessment)."

(iv) U.S. EPA's "Exposure Factors Handbook," 2011 Edition and 2017 Chapter 5 updates.

(v) U.S. EPA's "Human Health Evaluation Manual, Supplemental Guidance: Standard Default Exposure Factors."

(vi) Ohio EPA's "Support Document for the Development of Generic Numerical Standards and Risk Assessment Procedures."

(b) The volunteer shall determine the numerical values for the exposure factor terms in formulas in accordance with paragraphs (D)(3)(b)(iii)(c) and (D)(3)(b)(iii)(d) of this rule.

(c) Exposure factors.

(i) The volunteer shall determine the exposure factor values either as point values or as the output value from a probabilistic simulation of twenty thousand or more iterations which solve for the chemical-specific intake equation. A probabilistic simulation output value for the intake shall be the ninetieth per centile or greater value.

(ii) For risk-derived unrestricted potable use ground water, the volunteer shall obtain exposure factor values using the reasonable maximum exposure point values in Ohio EPA's "Support Document for the Development of Generic Numerical Standards and Risk Assessment Procedures," which are the basis for the development of the generic unrestricted potable use standards listed in appendix A to rule 3745-300-08 of the Administrative Code. Distributions developed by the volunteer shall adequately describe the parameter in question following U.S. EPA's "Risk Assessment Guidance for Superfund (RAGs), Volume I: Human Health Evaluation Manual (Part A)."

(iii) For all other pathways, the volunteer shall obtain the exposure factor values using one of the following methods:

(A) Exposure factor values not determined from property-specific information. For exposure factors represented by a point value, these

values shall be upper bound or central tendency with an estimate of upper-bound exposures obtained in accordance with U.S. EPA's "Human Health Evaluation Manual, Supplemental Guidance: Standard Default Exposure Factors" and Ohio EPA's "Support Document for the Development of Generic Numerical Standards and Risk Assessment Procedures" for the complete exposure pathway which contributes most substantially to risk, and for any other complete exposure pathways for which upper-bound exposures are deemed likely. For all other complete exposure pathways, exposure factor point values shall be the values representative of central tendency, upper bound or other appropriate exposures as defined in Ohio EPA's "Support Document for the Development of Generic Numerical Standards and Risk Assessment Procedures." When exposure factor values are represented by probability distributions as input for a probabilistic simulation, the volunteer shall derive the probability distributions using guidance in U.S. EPA's "Risk Assessment Guidance for Superfund (RAGs), Volume III Part A: Process for Conducting a Probabilistic Risk Assessment."

(B) Exposure factor values determined from property-specific information. For the complete exposure pathway which contributes most substantially to risk, and for any other complete exposure pathways for which upper-bound exposures are deemed likely, the property-specific exposure factor value shall reasonably represent the upper bound value or central tendency value from a distribution of property-specific data, as appropriate. Exposure factor values shall be consistent with an estimate of upper-bound exposures as described in U.S. EPA's "Risk Assessment Guidance for Superfund (RAGs), Volume I: Human Health Evaluation Manual

(Part A)," and Ohio EPA's "Support Document for the Development of Generic Numerical Standards and Risk Assessment Procedures." For all other complete exposure pathways, the property-specific exposure factor values shall reasonably represent either an upper-bound or central tendency value from a distribution of property-specific data for that exposure factor term. Property-specific exposure factor distributions and, if used, the upper bound or central tendency values derived from property-specific exposure factor distributions, shall meet the criteria for property-specific data described in paragraph (D)(3)(b)(iv) of this rule.

(d) Exposure point concentration. The volunteer shall determine exposure point concentrations for each complete exposure pathway and shall represent the concentration of COCs from each of the identified areas or exposure units. This representation of exposure point concentration shall be consistent with concentrations of the COCs determined in accordance with paragraph (F)(6) of rule 3745-300-07 of the Administrative Code, and the exposure factor values as determined in accordance with paragraph (D)(3)(b)(iii)(c) of this rule.

(iv) Criteria for use of property-specific data. Property-specific data used in the identification of receptor populations described in paragraph (D)(3)(b)(i) of this rule, the identification of exposure pathways as described in paragraph (D)(3)(b)(ii) of this rule, or the quantification of chemical-specific intake as described in paragraph (D)(3)(b)(iii) of this rule, shall meet the following criteria:

(a) The volunteer shall collect property-specific physical data in accordance with paragraph (E) of rule 3745-300-07 of the Administrative Code.

(b) Property-specific information used to define any parameter which requires the prediction of human use and activity patterns on a property, or the physical, physiological, and behavioral characteristics of the receptor populations shall be representative of the reasonably anticipated land use category and the actual property characteristics, and shall be included

in an institutional control or engineering control that complies with rule 3745-300-11 of the Administrative Code.

(c) Peer-reviewed literature sources may be used for the express intent to define property-specific data for paragraphs (D)(3)(b)(i), (D)(3)(b)(ii), and (D)(3)(b)(iii) of this rule. Literature-based data shall be consistent with property-specific conditions.

(c) Toxicity assessment.

(i) Information hierarchy. The volunteer shall obtain the toxicity information used in a property-specific risk assessment from the following hierarchy:

(a) U.S. EPA toxicity values [i.e., "Integrated Risk Information System" (IRIS)]. The volunteer shall obtain the most current toxicity information from the IRIS for COCs that are being evaluated in the property-specific risk assessment.

(b) Ohio EPA toxicity information. If the toxicity information required to be used in a property-specific risk assessment is not in the IRIS, or is not listed in Ohio EPA's "Support Document for the Development of Generic Numerical Standards and Risk Assessment Procedures," the volunteer shall consult Ohio EPA to obtain appropriate toxicity information.

(ii) Absorption factors and adjustment of toxicity values, as follows:

(a) The volunteer shall evaluate the toxicity values selected for use in the property-specific risk assessment as described in paragraph (D)(3)(c)(i) of this rule for each of the COCs in conjunction with the quantification of chemical-specific intake as described in paragraph (D)(3)(b)(iii) of this rule for each complete exposure pathway, in accordance with the procedures described in U.S. EPA's "Risk Assessment Guidance for Superfund (RAGs), Volume I: Human Health Evaluation Manual (Part A)," and U.S. EPA's "Risk Assessment Guidance for Superfund (RAGs), Volume I: Human Health Evaluation Manual (Part E, Supplemental Guidance for Dermal Risk Assessment)."

(b) The volunteer shall perform the risk characterization in accordance with the procedures described in paragraph (D)(3)(d) of this rule so that chemical-specific intake and toxicity values are both expressed as the absorbed dose or both expressed as the administered dose.

(c) The volunteer shall obtain default and chemical-specific absorption factor and bioavailability values in accordance with U.S. EPA's "Risk Assessment Guidance for Superfund (RAGs), Volume I: Human Health Evaluation Manual (Part A)," and U.S. EPA's "Risk Assessment Guidance for Superfund (RAGs), Volume I: Human Health Evaluation Manual (Part E, Supplemental Guidance for Dermal Risk Assessment)" or from Ohio EPA's "Support Document for the Development of Generic Numerical Standards and Risk Assessment Procedures."

(d) Risk characterization. Risk characterization shall integrate the exposure and toxicity assessments in order to quantitatively determine the risk or hazard posed by the COCs on or from the property. The risk characterization shall evaluate carcinogenic risks and non-carcinogenic hazard separately.

(i) Cancer risk characterization. The volunteer shall estimate cancer risks as an incremental probability of an individual member of a receptor population developing cancer over a lifetime as a result of exposure to carcinogenic COCs on or from the property; hereafter, this estimation of cancer risk is referred to as incremental cancer risk. The volunteer shall calculate separately an incremental cancer risk, at a minimum, for each receptor population identified in accordance with the procedures described in paragraph (D)(3)(b)(i) of this rule. An estimate of incremental cancer risk for each receptor population shall not exceed the applicable carcinogenic risk goal in paragraph (B)(1) of this rule. An estimate of incremental cancer risk is calculated as follows:

(a) A volunteer shall determine incremental cancer risk in accordance with the procedures described in this rule and in U.S. EPA's "Risk Assessment Guidance for Superfund (RAGs), Volume I: Human Health Evaluation Manual (Part A)" for each carcinogenic COC and for each complete exposure pathway identified in accordance with paragraphs (D)(3)(a) and (D)(3)(b)(ii) of this rule, respectively.

(b) If incremental cancer risk is determined for a receptor population for more than one carcinogenic COC, the volunteer shall calculate separately, as appropriate, the cumulative incremental cancer risk posed by these multiple COCs, for each complete exposure pathway in accordance with the procedures described in U.S. EPA's "Risk Assessment Guidance for Superfund (RAGs), Volume I: Human Health Evaluation Manual (Part A)."

(c) If incremental cancer risk is determined for a receptor population for more than one complete exposure pathway, the volunteer shall calculate the cumulative incremental cancer risk posed by an estimate based on the complete exposure pathways in accordance with the procedures described in paragraph (D)(3)(d) of this rule and in U.S. EPA's "Risk Assessment Guidance for Superfund (RAGs), Volume I: Human Health Evaluation Manual (Part A)."

(ii) Noncancer hazard characterization. The volunteer shall calculate a hazard index value to determine the exposure which is not likely to cause noncancer adverse health effects posed by COCs to each receptor population at a property for the duration of that exposure in accordance with the applicable noncancer hazard goals described in paragraph (B)(2) of this rule. The volunteer shall calculate a separate hazard index for each receptor population over a specified exposure period (i.e., chronic or sub-chronic exposure) identified in accordance with the procedures described in paragraph (D)(3)(b)(ii) of this rule, as follows:

(a) The volunteer shall calculate a hazard quotient for each COC with noncancer effects described by a reference dose or reference concentration for each complete exposure pathway in accordance with the procedures described in this rule and in U.S. EPA's "Risk Assessment Guidance for Superfund (RAGs), Volume I: Human Health Evaluation Manual (Part A)."

(b) If the volunteer determines hazard quotient values representing noncancer hazards for one receptor population over a specified exposure period for more than one COC as described in paragraph (D)(3)(d)(ii)(a) of this rule, the volunteer shall calculate separately, as appropriate, the cumulative noncancer hazards posed by these COCs as a

hazard index value for each complete exposure pathway in accordance with the procedures described in U.S. EPA's "Risk Assessment Guidance for Superfund (RAGs), Volume I: Human Health Evaluation Manual (Part A)." The volunteer may perform separate hazard index calculations based on the consideration of major non-carcinogenic toxic endpoints, which shall include, at a minimum, those toxic endpoints identified with the critical effect upon which the reference dose or reference concentration is based, for each non-carcinogenic COC. The volunteer shall submit a written justification for separate hazard index calculations in the property-specific risk assessment report.

(c) If the volunteer determines hazard index values representing noncancer hazard for one receptor population over a specified exposure period for more than one complete exposure pathway, the volunteer shall calculate cumulative noncancer hazard posed by one or more complete exposure pathways, as appropriate, as a hazard index value in accordance with the procedures described in this rule and in U.S. EPA's "Risk Assessment Guidance for Superfund (RAGs), Volume I: Human Health Evaluation Manual (Part A)." Exclusion of one or more non-carcinogenic COCs from the hazard index calculations performed in accordance with paragraph (D)(3)(d)(ii)(b) of this rule may be reconsidered with respect to the toxic endpoints, (including, as available, target organ, modes of action, or mechanisms of action) identified for the non-carcinogenic COCs associated with each complete exposure pathway considered in accordance with this paragraph.

(iii) Uncertainty analysis. The volunteer shall evaluate uncertainty associated with the property-specific risk assessment. The uncertainty analysis shall include a qualitative description or quantitative evaluation of uncertainty associated with any of the following:

(a) Selection of COCs and the exposure point concentration.

(b) Estimates of chemical-specific intake factors.

(c) Complete exposure pathways.

(d) Toxicity criteria.

(e) Additive or antagonistic effects of exposure to multiple COCs through one or more complete exposure pathways.

(f) Evaluation of site-specific, epidemiological, or health studies.

(E) Procedures for ecological risk assessment.

(1) For each complete exposure pathway to IERs from environmental media that contain COCs that are persistent, bioaccumulative, and toxic, the volunteer shall evaluate the environmental media using a food web model in accordance with Ohio EPA's "Ecological Risk Assessment Guidance Document," as incorporated by reference in rule 3745-300-15 of the Administrative Code. Further assessment is not needed if concentrations of COCs in sediment or surface water do not exceed the following:

(a) Ohio-specific metal sediment reference values by ecoregion in table I of appendix B to rule 3745-300-08 of the Administrative Code.

(b) Consensus-based threshold effect concentrations in "Development and Evaluation of Consensus-based Sediment Quantity Guidelines for Freshwater Ecosystems," as incorporated by reference in rule 3745-300-15 of the Administrative Code. These values are in table II of appendix B to rule 3745-300-08 of the Administrative Code.

(c) Surface water standards provided in Chapter 3745-1 of the Administrative Code, in accordance with paragraph (F)(2)(a) of rule 3745-300-08 of the Administrative Code, for all releases or source areas of hazardous substances on or from the property to surface waters of the state.

(2) If COCs are present for which there are no reference values in accordance with paragraph (E)(1) of this rule, then the volunteer shall determine such values in consultation with Ohio EPA.

(a) If concentrations of COCs do not exceed reference values, then no further evaluation is necessary.

(b) If concentrations exceed reference values, then the following apply:

(i) A qualitative property-specific ecological risk assessment may be appropriate, and the volunteer may conduct a qualitative property-specific ecological risk assessment in order to demonstrate that COCs on or from a property are not harmful to IERs in cases where toxicity is likely to be low based on the concentrations of

such COCs, the land use, the habitat quality, contributions from upstream anthropogenic inputs, and the areal extent of the habitat.

(ii) The volunteer shall conduct a quantitative property-specific ecological risk assessment in accordance with Ohio EPA's "Ecological Risk Assessment Guidance Document" if complete exposure pathways from environmental media other than surface water or sediment exist to IERs and the provisions in paragraph (E)(1) or (E)(2) of this rule do not apply.

(3) The volunteer shall collect data to assess ecological risk for both qualitative and quantitative ecological property-specific risk assessments in accordance with rule 3745-300-07 of the Administrative Code.

(F) Procedures for assessment and remediation of sediments.

(1) For each complete human health exposure pathway from source areas on the property to sediments, the volunteer shall determine if concentrations of COCs in sediments meet applicable standards in accordance with paragraph (G) of rule 3745-300-08 of the Administrative Code, or shall conduct a human health property-specific risk assessment following the methodology provided in paragraph (D) of this rule.

(2) For purposes of this rule and rule 3745-300-07 of the Administrative Code, an exposure pathway to humans is considered to exist if both of the following apply:

(a) The surface water which contains the sediments produces or can produce a consistent supply of edible-sized fish.

(b) COCs that are persistent, bioaccumulative, and toxic are present in the sediment or the surface water.

(3) An exposure pathway to humans is considered to exist if the surface water which contains the sediments is reasonably anticipated to support recreational activities such as wading, fishing, swimming, and boating.

(4) For each complete exposure pathway from sediments to IERs where applicable standards determined in accordance with paragraph (H)(2) of rule 3745-300-08 of the Administrative Code are not met or sediment samples are not compared to the appropriate values in accordance with paragraph (H) of rule 3745-300-08 of the Administrative Code, the volunteer shall evaluate the sediment toxicity according to the following methodology:

(a) For all surface waters that have an aquatic life use designation of warm-water habitat, exceptional warm-water habitat (excluding lakes and reservoirs), modified warm-water habitat, or cold-water habitat assigned under Chapter 3745-1 of the Administrative Code, the volunteer shall conduct a biological survey. The biological survey shall include the following:

(i) The volunteer shall use a fish and physical habitat survey to calculate the qualitative habitat evaluation index, the index of biotic integrity and, where applicable, a modified index of well-being for the surface water. To accomplish this, the volunteer shall follow the procedures in "Biological Criterial for the Protection of Aquatic Life" (hereinafter in this rule referred to as the "biocriteria manual") and Ohio EPA's division of surface water "Manual of Ohio EPA Surveillance Methods and Quality Assurance Practices," as both documents are incorporated by reference in rule 3745-300-15 of the Administrative Code. If possible, the sampling locations for the fish and physical habitat survey shall include the same locations where sediment samples are collected.

(ii) The volunteer shall use a quantitative macroinvertebrate survey to calculate the invertebrate community index for the surface waters. To accomplish this, the volunteer shall follow the biocriteria manual unless the water body does not have sufficient depth and flow to conduct a quantitative macroinvertebrate study. If the water body does not have sufficient depth and flow to conduct a quantitative macroinvertebrate study, the volunteer shall conduct a qualitative macroinvertebrate study using the biocriteria manual and the instruction provided by the biocriteria certification and qualified data collector approval obtained in accordance with paragraph (D) of rule 3745-300-05 and paragraph (B) of rule 3745-4-03 of the Administrative Code. If possible, the sampling locations for the quantitative macroinvertebrate survey shall include the same locations established where sediment samples are collected.

[Comment: If the volunteer conducts a qualitative macroinvertebrate study, Ohio EPA recommends that the volunteer consult Ohio EPA regarding appropriate steps to perform the study.]

(b) For all surface waters with an aquatic life use designation of limited resource water assigned under Chapter 3745-1 of the Administrative Code, or that are a lake, reservoir, wetland, or pond, the volunteer

shall conduct sediment bioassays using sediment samples taken from the surface waters to evaluate sediment toxicity. The volunteer shall determine sediment bioassay sampling locations in accordance with this rule and rule 3745-300-07 of the Administrative Code. At a minimum, sediment bioassays shall include the ten-day survival and growth test for Hyalella azteca and Chironomus tentans following the procedures in U.S. EPA's "Methods for Measuring the Toxicity and Bioaccumulation of Sediment-associated Contaminants with Freshwater Invertebrates," as incorporated by reference in rule 3745-300-15 of the Administrative Code. Chironomus riparius may be substituted for Chironomus tentans if necessary.

(c) For all surface waters with an aquatic life use designation of limited warm-water habitat or with no aquatic life use designation assigned under Chapter 3745-1 of the Administrative Code, a volunteer shall either conduct a use attainability analysis as detailed in the biocriteria manual to assign the appropriate aquatic life use designation, or shall apply biocriteria for warm-water habitat. The volunteer shall consult Ohio EPA for assistance to make a determination on an aquatic life use designation for an unlisted water body.

(5) Unless concentrations of COCs in sediments meet applicable standards in accordance with paragraph (H) of rule 3745-300-08 of the Administrative Code, applicable standards for sediments and surface water are as follows:

(a) For surface water that has an aquatic life use designation of warm-water habitat, exceptional warm-water habitat (excluding lakes and reservoirs), modified warm-water habitat, or cold-water habitat assigned under Chapter 3745-1 of the Administrative Code, the volunteer shall determine the applicable standards in accordance with the water quality standards established or developed under the Water Pollution Control Act and Chapter 6111. of the Revised Code and the regulations adopted thereunder.

[Comment: The applicable standards for releases or source areas of hazardous substances or petroleum include the water quality standards established or developed in accordance with Chapter 3745-1 of the Administrative Code. Examples of such standards include, but are not limited to, the general water quality criteria, water use designations and statewide water quality criteria, the criteria provided for the applicable drainage basin, the site-specific modifications to criteria and values, and the methodologies for the development of criteria and values.]

(b) For surface water with an aquatic life use designation of limited resource water assigned under Chapter 3745-1 of the Administrative Code and for surface waters which are wetlands, ponds, lakes, or reservoirs, the applicable standards are the absence of toxic effects to both organism groups as defined in U.S. EPA's "Methods for Measuring the Toxicity and Bioaccumulation of Sediment-associated Contaminants with Freshwater Invertebrates."

(6) The volunteer shall take the following actions when applicable standards for sediments are not met in accordance with paragraphs (F)(5)(a) and (F)(5)(b) of this rule:

(a) Submit a written demonstration to be in a risk assessment report or a section of the phase II property assessment under paragraph (I) of this rule that substantiates the determination that hazardous substances or petroleum on or from the property did not cause the failure to meet the applicable standards in paragraph (F)(5) of this rule, taking into consideration upstream sources not related to releases from the property. Applicable standards for sediment are met if the volunteer demonstrates that hazardous substances or petroleum on or from the property are not contributing to the failure to meet the applicable standards in paragraph (F)(5) of this rule.

(b) Implement a remedy conducted in accordance with rule 3745-300-11 of the Administrative Code to meet applicable standards.

(7) The volunteer may conduct a bioassay or biosurvey in accordance with paragraph (F) of this rule instead of applying paragraph (H)(1) of rule 3745-300-08 of the Administrative Code. If sediment bioassay or biosurvey does not demonstrate full compliance with applicable standards, the volunteer shall conduct sediment sampling according to rule 3745-300-07 of the Administrative Code in order to determine the concentrations of COCs in sediments.

(8) A volunteer may use historical biological data collected and interpreted by Ohio EPA or certified professionals approved as level 3 qualified data collectors in accordance with paragraph (D) of rule 3745-300-05 of the Administrative Code, as part of the demonstration that applicable standards are met, provided that the data are not collected more than ten years prior to the issuance of the no further action letter. Prior to the inclusion of historical data within an applicable standards demonstration, volunteers shall consider any changes in the watershed, release history, property characteristics, or knowledge of recent data collection.

(G) Surface water assessment. If concentrations of COCs in surface water exceed applicable standards in accordance with paragraph (F)(2)(a) of rule 3745-300-08 of the Administrative Code, then the standards for surface water in paragraphs (E) and (F)(5) of this rule are applicable.

(H) Determination of applicable standards from a property-specific risk assessment. If the volunteer elects or is required to apply risk derived standards determined in accordance with this rule, applicable standards from a property-specific risk assessment are one or more of the following:

(1) Concentrations of COCs which meet the risk and hazard levels for human health in accordance with paragraphs (B) and (C) of this rule and in accordance with paragraphs (D) and (F) of this rule.

(2) Concentrations of COCs that protect IERs in accordance with paragraph (E) of this rule.

(3) The applicable standards for sediments under paragraphs (F) of this rule.

(4) The applicable standards for surface water under paragraph (G) of this rule.

(5) The soil saturation concentrations, for all compounds which are not at solid phase at ambient soil temperatures, if such concentration are lower than the applicable standard concentrations determined in accordance with paragraphs (H)(1) to (H)(4) of this rule. The volunteer shall use the following equation, along with property-specific information, to calculate a property-specific soil saturation concentration:

$$C_{sat} = \frac{S}{\rho_b}\left(K_d \rho_b + \theta_w + H'\,\theta_a\right)$$

$Where$:
C_{sat} *is the soil saturation concentration* (mg/kg)
S *is the water solubility* $(mg/L\ water)$
ρ_b *is dry soil bulk density* (kg/L)
K_d *is the soil* $-$ *water partition coefficient* (L/kg) $(default\ is\ K_d = K_{oc} \times f_{oc})$
K_{oc} *is the soil organic carbon/water partition coefficient* (l/kg)
f_{oc} *is the fraction organic carbon of soil* g/g
θ_w *is the water* $-$ *filled soil porosioty* (L_{water}/L_{soil})
H' *is the dimensionless Henry's Law constant*
θ_a *is the air* $-$ *filled porosity* (L_{pore}/L_{soil})

(a) The volunteer shall obtain all chemical-specific values for the above equation from one of the following sources:

(i) Ohio EPA's "Support Document for the Development of Generic Numerical Standards and Risk Assessment Procedures."

(ii) If chemical-specific values for the above equation are not available in the sources listed above, contact Ohio EPA to determine other appropriate values.

(b) The volunteer shall obtain physical values from one of the following sources:

(i) U.S. EPA's "Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites."

(ii) Property-specific data that meet the criteria in paragraph (D)(3)(b)(iv) of this rule.

(I) Risk assessment information. Upon completion of a property-specific risk assessment conducted in accordance with this rule, the volunteer shall present the information in a risk assessment report or in a section of the phase II property assessment. The volunteer shall prepare a risk assessment and shall include, at a minimum, the following information:

(1) The circumstances under which the property-specific risk assessment was conducted with respect to paragraphs (A)(2) and (A)(3) of this rule.

(2) A list of the institutional controls and engineering controls implemented upon which the property-specific risk assessment is based. Pursuant to rule 3745-300-11 of the Administrative Code, the volunteer shall demonstrate the efficacy of those controls.

(3) A list of the COCs on or from the property which are not considered in the property-specific risk assessment because the COCs meet the criteria under paragraph (D)(3)(a) of this rule and a written demonstration, which includes supporting data, of how those criteria are met.

(4) A list of the receptor populations and exposure pathways identified under paragraphs (D)(3)(b)(i) and (D)(3)(b)(ii) of this rule, respectively, and a written justification for the selection or elimination of those receptor populations and exposure pathways.

(5) All appropriate documentation which supports the derivation and application of exposure factors used to quantify intake as described in paragraph (D)(3)(b)(iii) of this rule and meets the criteria in paragraph (D)(3)(b)(iv) of this rule.

(6) A list of all the toxicity values that are used in the property-specific risk assessment, in accordance with paragraph (D)(3)(c) of this rule, and the sources for those values.

(7) Characterization of risk, as described in paragraph (D)(3)(d) of this rule.

(8) Ecological risk report, in accordance with paragraph (E) of this rule.

(9) Sediment assessment report, in accordance with paragraph (F) of this rule.

(10) Surface water assessment report, if surface waters are required to be assessed, in accordance with paragraph (G) of this rule.

(11) A summary of compliance with applicable standards, in accordance with paragraph (H) of this rule.

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3745-300-10 **Ground water classification and potable use response requirements, and urban setting designations.**

[Comment: For dates of non-regulatory government publications, publications of recognized organizations and associations, federal rules, and federal statutory provisions referenced in this rule, see rule 3745-300-15 of the Administrative Code titled "Incorporation by reference - voluntary action program."]

(A) Obligation to classify ground water zones identified in paragraph (F)(2) of rule 3745-300-07 of the Administrative Code. Ground water underlying a property shall be classified in accordance with this rule and paragraphs (F)(7) and (F)(8) of rule 3745-300-07 of the Administrative Code unless one of the following conditions applies:

(1) The ground water zone does not contain concentrations of chemicals of concern (COCs) in excess of unrestricted potable use standards as determined in accordance with a phase II property assessment conducted under paragraph (F)(3) of rule 3745-300-07 of the Administrative Code.

(2) For ground water zones that exceed unrestricted potable use standards underlying and emanating from the property, the response requirements consistent with critical resource ground water under paragraph (E) of this rule are implemented.

(B) Ground water classification system.

(1) Critical resource ground water. A ground water zone that meets any of the following criteria is classified as critical resource ground water:

(a) The ground water zone is used by a public water system and is in a drinking water source protection area.

(b) The ground water zone is located in an unconsolidated saturated zone that is capable of yielding water at a time-weighted average rate greater than one hundred gallons per minute over a twenty-four-hour period as determined in accordance with paragraphs (F)(7) and (F)(8) of rule 3745-300-07 of the Administrative Code.

(c) The ground water zone is in a consolidated saturated zone that is part of a sole source aquifer.

(2) Class A ground water. A ground water zone that does not meet any of the criteria for critical resource ground water and meets any of the following criteria is classified as a class A ground water zone:

(a) The ground water zone is currently utilized as a source of potable water on the property or within one-half mile of the property boundary.

(b) The ground water within the zone has a background level of total dissolved solids of less than three thousand milligrams per liter, and except as provided in paragraph (B)(3) of this rule, the ground water zone is capable of yielding water at a time-weighted average rate greater than one-tenth of a gallon per minute over a twenty-four-hour period. The ground water yield shall be determined in accordance with paragraphs (F)(7) and (F)(8) of rule 3745-300-07 of the Administrative Code.

(c) The ground water is located in an unconsolidated zone capable of yielding water at a time-weighted average rate of greater than one-tenth of a gallon per minute but less than one hundred gallons per minute as determined in accordance with paragraphs (F)(7) and (F)(8) of rule 3745-300-07 of the Administrative Code, unless any of the criteria in paragraph (B)(3) of this rule are met.

(d) The ground water zone is located in a consolidated zone capable of yielding water at a time-weighted average rate of greater than one-tenth of a gallon per minute and is not part of a sole source aquifer, unless any of the criteria in paragraph (B)(3) of this rule are met.

(3) Class B ground water. A ground water zone that does not meet any of the criteria for either critical resource ground water or a class A ground water zone and meets any of the following criteria is classified as class B ground water:

(a) The ground water zone to be classified yields less than three gallons per minute as determined in accordance with paragraph (F)(8) of rule 3745-300-07 of the Administrative Code, another ground water zone underlies the property, and the underlying ground water zone is a potential source of potable water within one mile of the property. The ground water zone used for comparison shall be present beneath both the property and the surrounding area off-property, shall be capable of yielding three or more gallons per minute, and shall produce at least twice as much ground water as the zone to be classified.

(b) The ground water zone to be classified yields less than three gallons per minute over a twenty-four-hour period, and all parts of the zone are wholly contained within fifteen feet below ground surface.

(c) The ground water zone to be classified has a background level of total dissolved solids greater than three thousand milligrams per liter.

(C) Urban setting designation criteria and process. An urban setting designation may be used only to eliminate the potable use pathway for areas surrounding the property and may be requested only through a certified professional. An urban setting designation does not impact ground water response requirements for on-property or off-property pathways that are unrelated to the potable use of ground water.

(1) Threshold criteria. A certified professional may request an urban setting designation from the director for a property that meets the following threshold criteria:

(a) Location. The property is entirely within the boundaries of a community. For purposes of this rule, "community" means any of the following:

(i) A township with a population of twenty thousand or more residents in the unincorporated area of the township.

(ii) The unincorporated portion of a township that has an average population density of six hundred fifty people per square mile within the unincorporated area of the township.

(iii) The corporation boundaries of a city.

(iv) The boundaries of a former township that is entirely composed of municipal corporations.

(v) An area that is completely surrounded by areas that are otherwise eligible as described in paragraphs (C)(1)(a)(i) to (C)(1)(a)(iv) of this rule.

(b) Community water supply connectability- ninety per cent or greater. A community water system shall be present. One of the following shall be demonstrated:

(i) Ninety per cent of the parcels within the communities for which the urban setting designation is requested are connected or are capable of being connected to the community water system. Parcels in unincorporated areas that are wholly surrounded by the community shall be considered in the calculation of parcels connected.

(ii) Ninety per cent of the parcels within a minimum of one mile from the proposed boundary of the urban setting designation are connected or are capable of being connected to the community water system. Parcels in unincorporated areas that are wholly surrounded by

communities shall be considered in the calculation of parcels connected.

(c) Community water supply connectability- less than ninety per cent. If the evaluation conducted under paragraph (C)(1)(b) of this rule indicates that less than ninety per cent of the parcels are connected or are capable of being connected to a community water system, an urban setting designation for the property may be requested, provided that one or both of the following apply:

(i) The parcels that are not connected or are not capable of being connected to a community water system would be unaffected by hazardous substances or petroleum on or emanating from the properties within the urban setting designation.

(ii) Installation of wells used for potable water supply purposes at the parcels that are not connected or are not capable of being connected to a community water system would be impractical for reasons other than ground water quality or the presence of the community water system. The following criteria may be considered to demonstrate that well installation would be impractical:

(a) Land use patterns (e.g., the parcel is on the right-of-way of a highway).

(b) Topography.

(c) Legally enforceable and reliable restrictions.

(d) Water supply- future needs. The community has a community water system that the community considers capable of meeting the community's future water supply needs.

(e) Drinking water source protection areas. The property for which the urban setting designation is requested is not located within a drinking water source protection area for a public water system using ground water. An urban setting designation for a property located within a drinking water source protection area for a public water system using ground water, where the public water supply is a community system, may be requested if the owner of the community water system has a drinking water source protection plan and the owner consents in writing to the urban setting designation.

(f) Potable use wells.

(i) Wells connected for potable water supply purposes shall not be located in or within one-half mile of the defined boundary of the property or properties for which the urban setting designation is requested. The existence of potable wells shall be determined in accordance with paragraph (F)(7)(a) of rule 3745-300-07 of the Administrative Code.

(ii) If potable wells are located in or within one-half mile of the defined boundary, the property may be designated as an urban setting if either of the following occurs:

(a) The wells are part of a community water system with a drinking water source protection plan, and the owner of the community water system consents in writing to the urban setting designation.

(b) The certified professional who requests the urban setting designation demonstrates that the capture zones of any wells connected for potable water supply purposes in or within one-half mile of the defined boundary do not extend under the property for which the urban setting designation is requested.

(g) Other ground water resource considerations. When the property for which urban setting designation is requested is located either over a sole source aquifer in a consolidated saturated zone, or over an unconsolidated ground water zone capable of sustaining a yield greater than one hundred gallons per minute as determined in accordance with paragraph (F)(7)(b) of rule 3745-300-07 of the Administrative Code, the certified professional shall demonstrate that there is a reasonable expectation that no wells will be installed or used for potable water supply purposes within one-half mile of the property boundary. The certified professional, at a minimum, shall consider all of the following criteria to make this demonstration:

(i) The certified professional shall consult with the owner of the community water system and the appropriate legislative authority or the legislative authority's authorized representative.

(ii) The presence of legally enforceable, reliable restrictions on ground water use, other than those imposed for wellhead protection or ground water protection purposes.

(iii) Whether current land use patterns in or within one-half mile of the property that is the subject of the urban setting designation request, or ground water quality, make development of a well impractical.

(iv) Whether ninety per cent or more of the parcels in or within one-half mile of the property that is the subject of the urban setting designation request are connected to a community water system.

(v) Whether the capture zones of any wells that can reasonably be expected to be installed or connected in or within one-half mile of the property boundary would not extend under the property for which urban setting designation is requested.

(h) Other ground water potable uses.

(i) Sources of potable ground water use other than a well, such as springs used for potable purposes, shall not be located in or within one-half mile of the defined boundary of the property for which urban setting designation is requested.

(ii) If sources of potable ground water use other than wells are located in or within one-half mile of the defined boundary, the property may be designated as an urban setting if the certified professional who requests the urban setting designation demonstrates that the source of ground water used for potable purposes that is located in or within one-half mile of the defined boundary is not hydraulically connected to the property or properties for which the urban setting designation is requested.

(2) Approval or denial of a request for an urban setting designation. An urban setting designation may not be used to classify ground water or to determine applicable standards under this chapter and Chapter 3746. of the Revised Code until the director approves the urban setting designation in accordance with this paragraph. The process by which a request for an urban setting designation is submitted, considered by the director, and approved or denied by the director is as follows:

(a) Request for approval of urban setting designation. A certified professional shall send a written request to the director for approval of an urban setting designation in the format prescribed by Ohio EPA. At a minimum, the request for approval shall include the following:

(i) The requested urban setting designation shall be based upon a defined property boundary that consists of one or more of the following:

(a) The area described by the plat of a survey completed (signed and sealed) by a professional surveyor under Ohio law.

(b) The entirety of a city as may be established by that municipality and Chapter 709. of the Revised Code, or the entirety of a township as may be established by Chapter 503. of the Revised Code (i.e., by certified copy of the recorded plat or map that establishes the legal boundary of the entire city or the entire township at the time of the request).

(c) The area described by complete and adjacent parcels of real property shown on a plat or other recorded documents maintained by the county or political subdivision. Any urban setting designation boundary that divides a parcel shall be determined by a survey completed by a professional surveyor under Ohio law.

(ii) The name and address of each applicant who seeks the urban setting designation requested by the certified professional.

(iii) A description of the location and size of the property that is the subject of the urban setting designation request.

(iv) If known, whether the legislative authority of the communities in which the property is located is in favor of or in opposition to the proposed urban setting designation.

(v) An affidavit by the certified professional which affirms the following:

(a) The urban setting designation threshold criteria in paragraph (C)(1) of this rule are met.

(b) Attached is a true and accurate copy of all documents which form the basis of the certified professional's determination that the urban setting designation threshold criteria in paragraph (C)(1) of this rule have been met.

(c) Attached is an "11 x 17" inch or smaller reproducible figure that is an aerial photo and a topographic map that identifies the defined boundary for the requested urban setting designation and a one-half mile radius around the boundary.

(d) Notice was provided in accordance with paragraph (C)(2)(b) of this rule.

(vi) The documents identified in paragraphs (C)(2)(a)(v)(b) and (C)(2)(a)(v)(c) of this rule.

(b) Notice. Notification of a request for the director's approval of an urban setting designation shall accomplish the following:

(i) The notice shall be provided to the following:

(a) The legislative authority or authorized representative of any county, township, and municipality in which the property for which the urban setting designation is sought is located.

(b) The legislative authority of any county, township, and municipality whose boundaries are in or within one-half mile of the property for which the urban setting designation is sought.

(ii) The notice shall be made concurrently with a request for approval under paragraph (C)(2)(a) of this rule.

(iii) At a minimum, the notice shall include the following:

(a) An explanation of the voluntary action program.

(b) The purpose of an urban setting designation.

(c) The threshold criteria for an urban setting designation, and the fact that the director shall approve or deny the urban setting designation after consultation with the community in which the property is located.

(d) A copy of the documents described in paragraph (C) of this rule.

(e) The location of and a description of the defined boundary of the property for which the urban setting designation is sought.

(f) Standards that apply to the ground water and source areas of ground water contamination and the point of compliance, if approval for the urban setting designation is not received.

(g) Standards that apply to the ground water and source areas of ground water contamination and the point of compliance, if approval for the urban setting designation is received.

(h) A statement which advises the legislative authority that the director shall consult with the legislative authority regarding the urban setting designation, and which encourages the legislative authority to provide written comments or any information relevant to the director's consideration of the urban setting designation.

(i) A statement that a decision may be made by the director within ninety days after the director's consultation with the community where the property is located.

(c) Information. After receipt of a complete request for approval of an urban setting designation, the following may occur:

(i) The director may request any additional information from the certified professional, the applicant, local jurisdictions, or residents, which may be relevant to the director's decision whether or not to approve the urban setting designation. Failure by a certified professional or applicant to cooperate with any request under this paragraph may result in the director's refusal to consider the urban setting designation request.

(ii) At the director's discretion, a public meeting may be held on the urban setting designation request.

(d) Consultation. No later than ninety days after receipt of a complete request for approval of an urban setting designation, the director shall complete consultation with the legislative authority or authorized representative of the community in which the property is located, or any other persons which the director deems appropriate, to obtain sufficient information to determine whether to approve or deny the urban setting designation request, as provided in paragraph (C)(2)(e) of this rule.

(e) Criteria for approval or denial. After consultation with the legislative authority or authorized representative of the community where the property for which the urban setting designation is sought is located, the director may approve or deny the request for an urban setting designation. The director may approve or deny a request for an urban

setting designation upon consideration of one or more of the following factors, as relevant:

(i) Whether all of the applicable threshold criteria in paragraph (C)(1) of this rule have been met for the property for which the urban setting designation is sought.

(ii) The potential impact of the urban setting designation on surrounding jurisdictions or communities.

(iii) The potential impact of the intended urban setting designation on regional water resource needs, and the consistency of the urban setting designation with any existing regional water resource obligations of the community where the property for which the urban setting designation is sought is located. This shall include any drinking water source protection plans for ground water in the area.

(iv) Whether the ground water in the region or area where the property for which the urban setting designation is sought is not currently used by residents as a source of water used for potable purposes such that the risk of exposure to humans of contaminated ground water as a result of the urban setting designation is not likely.

(v) Whether the ground water in the region or area where the property for which the urban setting designation is sought is located is not reasonably expected to be used as a future source of water used for potable purposes by residents such that a risk of exposure to humans of contaminated ground water as a result of the urban setting designation is not likely. For purposes of this evaluation, the director shall consider, but is not limited to consideration of, the following:

(a) The likelihood of future water use by local residents in light of the existence of regional, commingled contamination in the area surrounding the property for which the urban setting designation is sought.

(b) The existence of reasonably available alternative potable water sources to satisfy the future needs of local residents other than the ground water proposed for the urban setting designation.

(c) The existence of reliable and legally enforceable local laws which restrict or prohibit the use of the ground water

proposed for the urban setting designation, such that the risk of exposure of humans to contaminated ground water as a result of the urban setting designation is not likely.

(vi) The availability and feasibility of treatment systems at community water systems that are capable of preventing exposures to ground water with concentrations of COCs in excess of unrestricted potable use standards.

(vii) Any other factors that pertain to the request for approval of the urban setting designation that the director considers relevant in the determination of whether the urban setting designation is protective of public health and safety and the environment.

(f) Costs. Ohio EPA incurs costs to review and consider a request for an urban setting designation. Those costs shall be addressed as follows:

(i) After the request for an urban setting designation is approved, denied, or withdrawn, Ohio EPA shall send to the applicant a statement of costs.

(ii) The applicant for the urban setting designation shall reimburse Ohio EPA for all of the costs on the statement of costs. This payment shall be made, in full, within sixty days after receipt of the statement of costs.

(g) Timing. The director shall approve or deny a request for an urban setting designation in one of the following time frame options:

(i) Within ninety days after the following:

(a) Receipt of a complete request, as provided in paragraph (C)(2)(a) of this rule.

(b) Consultation with each community, as provided in paragraph (C)(2)(d) of this rule.

(ii) The director may extend the time to approve or deny a request for an urban setting designation if the director determines that an extension of time is necessary to properly consider the request. If the director extends the time to consider the request for an urban setting designation, Ohio EPA shall notify the applicant and other interested persons of the extended time frame.

(3) Use of an urban setting designation to support a no further action letter. An urban setting designation approved by the director may be used to determine the appropriate ground water response requirements in paragraph (E) of this rule. The certified professional shall verify that the urban setting designation remains protective of the potable use pathway for property that is the subject of a no further action letter. The certified professional shall make the verification at the time of and as part of issuance of the no further action letter for the property. Verification is not required when there is reason to believe that the urban setting designation remains protective of the potable use pathway because conditions are unchanged since the urban setting designation request or most recent verification of record. When a certified professional determines that verification is not required for a property pursuant to this rule, the certified professional shall provide written justification for the determination in the phase II property assessment report for the property.

(a) To verify the urban setting designation, the certified professional shall consider the criteria in paragraph (C)(3)(b) of this rule and shall determine that the criteria are still protective of the potable use pathway.

(b) To verify that an urban setting designation is protective of the potable use pathway, the certified professional shall evaluate the following:

(i) Whether additional wells have been installed in or within one-half mile of the defined urban setting designation boundary or the geographic area that are or will be impacted by the COCs at or from the property. To accomplish this evaluation, the certified professional shall do, at a minimum, the following:

(a) Review the ground water well logs submitted to the Ohio department of natural resources since the request for, or most recent verification of, the urban setting designation. If wells have been installed, the certified professional shall determine whether the wells are used or are reasonably anticipated to be used for potable purposes.

(b) Contact the county health department or other local authorities with jurisdiction over installation of wells used for potable purposes to determine if any residential wells are used or are reasonably anticipated to be used for potable purposes.

(ii) If a determination in accordance with paragraph (C)(3) of this rule is made that new potable wells have been installed or if previously unknown potable wells are discovered, the urban setting

designation may be verified to be protective of the potable use pathway as long as either of the following criteria are met:

(a) The wells are part of a community water system with a drinking water source protection plan and the owners of the community water system consents in writing to the use of the urban setting designation in support of the no further action letter.

(b) The capture zones of any wells installed or used for potable water supply purposes in or within one-half mile of the property boundary do not extend under the property to which the urban setting designation applies.

(iii) If an ordinance or other imposed restrictions on the potable use of ground water were used as part of the urban setting designation, determine whether the restrictions are still valid.

(iv) Whether any new drinking water source protection areas have been delineated that incorporate areas within the urban setting designation.

(v) Evaluate whether the ground water in the region or area within or surrounding the urban setting designation is used or is reasonably anticipated to be used as a source of potable water. To accomplish this evaluation, the certified professional shall do, at a minimum, the following:

(a) Contact the owner or operator of each public water system in the region or area, communities, and the community's planners to determine the following:

(i) Whether the public water systems meet the current water use demands.

(ii) If there are any plans to develop ground water, either within or in the vicinity of the urban setting designation, as a source of potable water.

(b) As applicable to the property that is the subject of the no further action letter, contact the surrounding communities to determine whether there are any plans to develop the ground water in the vicinity of the urban setting designation.

(c) To verify an urban setting designation, the certified professional may rely upon either of the following:

(i) The certified professional's evaluation of the criteria in paragraph (C)(3)(b) of this rule.

(ii) The director's evaluation, if any, of the urban setting designation provided for in paragraph (C)(4) of this rule. Use of the director's evaluation of the urban setting designation in accordance with paragraph (C)(4) of this rule to comply with this paragraph is acceptable if the urban setting designation was recently approved by the director, or the criteria in paragraph (C)(3)(b) of this rule were recently evaluated and determined to be protective of the potable use pathway. In this situation, the certified professional does not need to verify the urban setting designation where changed conditions do not otherwise exist. However, when determining whether a covenant not to sue may be issued, the director reserves the authority to evaluate the protectiveness of the urban setting designation as the urban setting designation applies to a submitted no further action letter.

(d) To rely on an urban setting designation for the ground water response requirements in paragraph (E) of this rule, the entire property being considered for a no further action letter must be wholly contained within the approved urban settling designation boundary.

(4) Periodic protectiveness verification. The director may implement a program to periodically verify the protectiveness of an urban setting designation elimination of a potable use pathway. Based on an evaluation of the criteria in paragraph (C)(3)(b) of this rule, the director may determine that the urban setting designation is still valid or that the urban setting designation is no longer valid. The director may decrease the size of the urban setting designation so that the decreased area remains protective of the potable use pathway.

(a) The director shall make available to certified professionals any determinations regarding urban setting designations.

(b) If the director determines that an urban setting designation is no longer valid or decreases the size of the urban setting designation, Ohio EPA shall notify certified professionals and the original applicants for the urban setting designation. The director's determination shall be public noticed in any affected county.

(D) Protection of ground water that meets unrestricted potable use standards.

(1) When any ground water zone underlying the property complies with unrestricted potable use standards, the remedial activities shall ensure that contamination shall not result in unrestricted potable use standards being exceeded anywhere within any ground water zone underlying the property that otherwise meets the standards. However, when the contamination that exceeds standards is entirely the result of source areas from off-property releases, this provision for protection of ground water does not apply for protection of another ground water zone, except when any of the criteria in paragraph (E)(1)(b) of this rule are applicable.

(2) Except as provided in rule 3745-300-12 of the Administrative Code, no provision of this chapter modifies the requirements of this paragraph.

(E) Response requirements for ground water zones that exceed unrestricted potable use standards.

(1) Assigning responsibility for purposes of this rule for COCs in ground water zones.

(a) Paragraphs (E)(2) to (E)(7) of this rule apply to the volunteer when COCs released to ground water originate from a source area on the voluntary action property, or when COCs released to ground water originate from an off-property source area and the volunteer is required to address the release, as specified in paragraph (E)(1)(b) of this rule.

(b) The volunteer is required to address requirements of paragraph (E)(2)(d)(ii), (E)(2)(e), or (E)(3) of this rule for COCs that originate from a release from an off-property source area when any of the following apply:

(i) The owner of the voluntary action property was an owner or operator of any property other than the voluntary action property, where any source area was located during the owner's ownership of or operation on any such property, and hazardous substances or petroleum on or from the off-property source area migrated onto the voluntary action property.

(ii) The volunteer, or owner if different from the volunteer, caused or contributed to the source areas or release.

(iii) The volunteer, or owner if different from the volunteer, has entered into an agreement with any person with the purpose or effect of creating a less stringent ground water standard than would otherwise be applicable in this rule.

(iv) The volunteer is a parent, subsidiary, or other commonly owned entity of any party identified in paragraphs (E)(1)(b)(i) to (E)(1)(b)(iii) of this rule.

(2) Response requirements that apply to all critical resource ground water zones (with or without an urban setting designation) include the following:

(a) The volunteer shall implement institutional controls or engineering controls that reliably prevent human exposure on the property to ground water with concentrations of COCs in excess of unrestricted potable use standards, or shall restore the ground water underlying the property to unrestricted potable use standards.

(b) The volunteer shall address all non-potable use ground water exposure pathways in accordance with paragraph (F) of rule 3745-300-07 of the Administrative Code.

(c) For ground water that contains COCs that have impacted any off property potable use wells above unrestricted potable use standards, a volunteer shall do one of the following:

(i) Restore the contaminated ground water to unrestricted potable use standards.

(ii) Provide a reliable alternate potable water supply or water treatment system that does the following:

(a) Provides a volume of potable water sufficient for the intended use.

(b) Is provided for a period of time no shorter than the time that the ground water supply of off-property ground water users exceeds unrestricted potable use standards due to sources for which the volunteer is responsible.

(d) Notification and evaluation of ground water use requirements for critical resource ground water zone. These requirements are applicable where ground water has or is reasonably anticipated to have contamination in excess of unrestricted potable use standards beyond the property boundary, except when in an urban setting designation. If the property is within an urban setting designation, these requirements are applicable where ground water has or is reasonably anticipated to have contamination in excess of unrestricted potable use standards beyond the

urban setting designation boundary or beyond a distance of one-half mile from the property boundary, whichever is greater.

(i) Prior to issuance of the no further action letter, the volunteer shall send a written notification by certified mail to the applicable local health department and all owners of properties in areas where ground water has or is reasonably anticipated to have concentrations of COCs in excess of unrestricted potable use standards.

(ii) The written notification required in paragraph (E)(2)(d)(i) of this rule shall include the following:

(a) The location and a description of the property where the voluntary action has taken place.

(b) A summary of the releases or type of COCs that were assessed as part of the voluntary action and the remedial activities that were taken or are being taken in response to the releases.

(c) A description of the concentrations of COCs in ground water that has or may migrate onto or under the properties in areas where ground water has or is reasonably anticipated to have concentrations of COCs in excess of unrestricted potable use standards.

(d) A summary of the unrestricted potable use standards for the COCs that have emanated from the property.

(e) A description of the requirements in paragraph (E)(2)(e) of this rule that the volunteer, or subsequent owners relying on a no further action letter, that address exposures of humans to ground water with concentrations of COCs in excess of applicable standards.

(f) A request for information regarding any current or intended use of ground water in areas where ground water has or is reasonably anticipated to have concentrations of COCs in excess of unrestricted potable use standards, with the name, address, and telephone number of a representative of the volunteer, or subsequent owner relying on a no further action letter who can be notified of any current or intended use of ground water or contacted for further information.

(e) Ongoing obligations after issuance of a covenant not to sue.

(i) At least annually, review Ohio department of natural resources water well log and applicable health department information for the properties where ground water has or is reasonably anticipated to have concentrations of COCs in excess of unrestricted potable use standards to determine whether new ground water wells have been installed. If any new potable use wells are discovered, implement remedial activities consistent with paragraph (E)(2)(c) of this rule as needed for compliance with applicable standards.

(ii) At least annually, identify any known changes and inquire of changes in ownership of properties in areas where ground water has or is reasonably anticipated to have concentrations of COCs in excess of unrestricted potable use standards. If there is any change in ownership, provide the new owners with the notification prescribed in paragraph (E)(2)(c) of this rule.

(f) Critical resource points of compliance:

(i) For critical resource ground water without an urban setting designation, ground water on or from the property shall not exceed unrestricted potable use standards at the point of compliance determined in accordance with paragraph (E)(5)(a) of this rule. The exceptions are described in paragraph (E)(5)(b) or (E)(5)(c) of this rule.

(ii) For critical resource ground water in an urban setting designation, the point of compliance is the urban setting designation defined boundary or one-half mile from the property boundary, whichever is greater. The exceptions are described in paragraph (E)(5)(b) or (E)(5)(c) of this rule.

(3) Response requirements that apply to class A ground water zones include the following:

(a) Class A without an urban setting designation requirements include the following:

(i) The volunteer shall implement institutional controls or engineering controls that reliably prevent human exposure on the property to ground water with concentrations of COCs in excess of unrestricted potable use standards, or shall restore the ground water underlying the property to unrestricted potable use standards.

(ii) The volunteer shall address all non-potable use ground water exposure pathways in accordance with paragraph (F) of rule 3745-300-07 of the Administrative Code.

(iii) Ground water on or from the property shall not exceed unrestricted potable use standards at the point of compliance determined in accordance with paragraph (E)(5)(a) of this rule. The exceptions are described in paragraph (E)(5)(b) or (E)(5)(c) of this rule.

(iv) For ground water that contains COCs that have impacted any off property potable use wells above unrestricted potable use standards, a volunteer shall do one of the following:

(a) Restore the contaminated ground water to unrestricted potable use standards.

(b) Provide a reliable alternate potable water supply or water treatment system that does the following:

(i) Provides a volume of potable water sufficient for the intended use.

(ii) Is provided for a period of time no shorter than the time that the ground water supply of off-property ground water users exceeds unrestricted potable use standards due to sources for which the volunteer is responsible.

(b) Class A with an urban setting designation requirements include the following:

(i) The volunteer shall implement institutional controls or engineering controls that reliably prevent human exposure on the property to ground water with concentrations of COCs in excess of unrestricted potable use standards, or shall restore the ground water underlying the property to unrestricted potable use standards.

(ii) The volunteer shall address all non-potable use ground water exposure pathways in accordance with paragraph (F) of rule 3745-300-07 of the Administrative Code.

(4) Response requirements that apply to class B ground water zones (with or without an urban setting designation) include the following:

(a) The volunteer shall implement institutional controls or engineering controls that reliably prevent human exposure on the property to ground water with concentrations of COCs in excess of unrestricted potable use standards, or shall restore the ground water underlying the property to unrestricted potable use standards.

(b) The volunteer shall address all non-potable use ground water exposure pathways in accordance with paragraph (F) of rule 3745-300-07 of the Administrative Code.

(5) Determination of point of compliance for potable use ground water response requirements.

(a) The point of compliance where unrestricted potable use standards shall be met is the property boundary, unless the volunteer chooses to demonstrate an alternative point of compliance under the following circumstances:

(i) If ground water discharges to an off-property surface water body that is in close proximity to the property and there is no complete exposure pathway for potable use off-property, as determined in accordance with paragraph (F)(1) of rule 3745-300-07 of the Administrative Code, the point of compliance is the surface water body. The applicable standards in paragraph (F) of rule 3745-300-08 of the Administrative Code or paragraph (G) of rule 3745-300-09 of the Administrative Code for the receiving surface water body shall be met instead of unrestricted potable use standards.

(ii) If the property's down gradient boundary is adjacent to an established transportation corridor, such as a public road or railroad, the point of compliance is the most distant edge of the transportation corridor.

(iii) If an activity and use limitation in an environmental covenant pursuant to sections 5301.80 to 5301.92 of the Revised Code restricts the potable use of ground water on an adjacent down gradient property, the point of compliance is the down gradient edge of the adjacent property.

(iv) If the property boundary bisects a landfill, the point of compliance is the down gradient edge of the lateral extent of the landfill.

(b) If the contamination is due to off-property sources in whole or in part, then the volunteer shall implement remedial activities to prevent leaching of COCs from source areas on the property that are reasonably anticipated

to result in unrestricted potable use standards being exceeded at the point of compliance determined from paragraph (E)(5)(a) of this rule. This paragraph does not apply if any of the provisions in paragraph (E)(1)(b) of this rule are applicable.

(c) When ground water emanates from the property into a surface water body immediately adjoining the property boundary, the applicable standards in paragraph (F) of rule 3745-300-08 of the Administrative Code or paragraph (G) of the rule 3745-300-09 of the Administrative Code for the receiving surface water body shall be met.

(6) The volunteer shall implement the applicable requirements of paragraphs (E)(2)(c), (E)(2)(e), and (E)(3)(a)(iv) of this rule through an operation and maintenance plan prepared under rule 3745-300-11 of the Administrative Code or through another method prescribed by rule 3745-300-11 of the Administrative Code.

(7) All remedial activities, including institutional controls or engineering controls, shall be implemented in accordance with rule 3745-300-11 of the Administrative Code or other applicable law.

Replaces:	3745-300-10
Effective:	10/17/2019
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CERTIFIED ELECTRONICALLY

Certification

10/07/2019

Date

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3745-300-11 **Remediation.**

[Comment: For dates of non-regulatory government publications, publications of recognized organizations and associations, federal rules, and federal statutory provisions referenced in this rule, see rule 3745-300-15 of the Administrative Code titled "Incorporation by reference - voluntary action program."]

(A) Applicability and identification of when remedial activities are required.

(1) Remedial activities shall be conducted to meet applicable standards when a phase II property assessment conducted in accordance with rule 3745-300-07 of the Administrative Code reveals that concentrations of chemicals of concern (COCs) in any environmental media fail to comply with any of the following:

(a) Applicable standards as determined from the generic numerical standards in accordance with rule 3745-300-08 of the Administrative Code.

(b) Applicable standards as determined from a property-specific risk assessment conducted in accordance with rule 3745-300-09 of the Administrative Code.

(c) Background levels as determined in accordance with rule 3745-300-07 of the Administrative Code, when background levels are the applicable standards.

(d) Any other applicable standard of this chapter.

(2) Each complete exposure pathway for environmental media determined in accordance with paragraph (F)(1) of rule 3745-300-07 of the Administrative Code shall comply with an applicable standard determined in accordance with this chapter. When a complete exposure pathway does not comply with an applicable standard, the volunteer shall implement a remedy in accordance with this rule. Implementation of a remedy under the voluntary action may be deferred or excluded, as applicable, for any complete exposure pathway that is in compliance with paragraph (D) of this rule.

(3) An institutional control in the form of a use restriction, or activity and use limitation, as applicable, shall be established in accordance with this rule to apply applicable standards to a restricted land use, pursuant to paragraph (F)(5) of rule 3745-300-07 of the Administrative Code.

(4) An operation and maintenance plan shall be prepared and implemented in accordance with paragraph (F) of this rule for a property that relies on one or more of the following:

(a) Engineering controls that are necessary to maintain applicable standards following issuance of a no further action letter.

(b) Any on-going remedy employed at a property that does not yet meet applicable standards at the time that a no further action letter is issued. Such remedial activities shall achieve applicable standards within five years after the no further action letter issuance date, inclusive of verification, or such other time frame agreed to by the director in accordance with an operation and maintenance agreement. In the case of any complete exposure pathway to indoor air due to vapor exposure from environmental media, the indoor air applicable standards shall be met prior to occupancy of the building.

(c) The evaluation, response, and other activities that are implemented to comply with critical resource ground water response requirements in accordance with paragraph (E)(5) of rule 3745-300-10 of the Administrative Code.

(d) The evaluation, response, and other activities that are implemented to comply with off-property pathway deferral or exclusion response requirements in accordance with paragraph (D) of this rule.

(B) Compliance with other laws. Remedial activities conducted under this chapter and Chapter 3746. of the Revised Code shall be conducted in compliance with all applicable laws, regulations, rules, resolutions, and ordinances, including but not limited to the following:

(1) Chapter 3734. of the Revised Code.

(2) Chapter 6111. of the Revised Code.

(3) Chapter 3704. of the Revised Code;

(4) The Safe Drinking Water Act, including the requirements applicable to underground injection control wells.

(5) Rule 3745-9-03 of the Administrative Code, including the requirements for proper construction, sealing, repairing, and abandonment of monitoring wells.

(6) The laws and regulations administered by the occupational safety and health administration.

(C) Remedial activities. When remedial activities are required to be conducted at a property pursuant to paragraph (A) of this rule, one or more of the following remedial

activities, if utilized to determine compliance with applicable standards, shall have been conducted and documented. To support a no further action letter for a property, the remedial activity shall be conducted and documented prior to issuance of the no further action letter.

(1) Remediation. Remediation shall be capable of attaining applicable standards within the following time frame:

(a) If remediation has not achieved applicable standards prior to issuance of the no further action letter for the property, an operation and maintenance plan prepared in accordance with this rule for continued implementation of the remediation shall be included with the no further action letter.

(b) If the remediation has not achieved applicable standards upon issuance of the no further action letter, the no further action letter shall demonstrate that the remediation is capable of attaining the applicable standards, inclusive of verification, within five years after the no further action letter issuance date or other time frame agreed upon by the director in an operation and maintenance agreement, in accordance with this rule. Until there is verification that the remediation meets applicable standards, the property shall remain protective of public health and safety and the environment through use of interim measures or other remedial activities.

(2) Institutional controls. Institutional controls (use restrictions or activity and use limitations, as applicable), shall meet the following criteria:

(a) Establish restrictions or limitations on use of the property that mitigate or eliminate risk or an exposure pathway to human receptors in order to achieve applicable standards.

(b) Be consistent with the criteria for representative exposure assumptions in accordance with paragraph (D)(3)(b) of rule 3745-300-09 of the Administrative Code, as applicable.

(c) Be effective at eliminating or mitigating exposures to human receptor populations sufficient to meet the risk goals described in rule 3745-300-08 or 3745-300-09 of the Administrative Code, as applicable.

(d) Be capable of being monitored, maintained and enforced by the owner or operator of the property during the period of time which the control is used to comply with applicable standards.

(e) Be transferrable with the property and valid in an instrument recorded with the county recorder in the same manner as a deed to the property during the time relied upon to comply with applicable standards.

(f) Be recorded with the county recorder in the same manner as a deed to the property, consistent with the requirements to record documents that are required for the voluntary action program.

(g) Be established through an environmental covenant pursuant to Chapter 5301. of the Revised Code in the case of activity and use limitations.

(h) Be overseen by a central management entity as follows:

(i) In the case of restricted residential land use at a property that relies on on-going implementation of remedial activities, the environmental covenant or environmental use limitations shall provide for a central management entity to oversee compliance with the activity and use limitations, engineering controls, and any other remedial activities that are relied upon for compliance with applicable standards.

(ii) In the case of commercial land use, a central management entity may be used to oversee the institutional controls.

(3) Engineering controls. Engineering controls shall meet the following criteria:

(a) Be effective and reliable for the climatic conditions and activities at the property to which the control shall be applied.

(b) Be consistent with the criteria in paragraph (D)(3)(b)(iv)(b) of rule 3745-300-09 of the Administrative Code, as applicable.

(c) Be effective at eliminating or mitigating exposures to receptor populations sufficient to meet the risk goals of rule 3745-300-08 or 3745-300-09 of the Administrative Code, as applicable.

(d) Be reliable during the period of time the control is used to achieve or maintain applicable standards.

(e) Be capable of being monitored and maintained as required by an operation and maintenance plan developed and implemented in accordance with this rule.

(f) Be able to demonstrate that receptor exposure meets applicable standards.

(g) Be overseen by a central management entity as follows:

(i) In the case of restricted residential land use that relies on on-going implementation of remedial activities, the operation and maintenance plan and agreement shall provide for a central management entity to oversee compliance with engineering controls or other remedial activities that are relied upon for compliance with applicable standards.

(ii) In the case of commercial land use, a central management entity may be used to oversee the engineering controls.

(4) Critical resource ground water activities. The evaluation, response, and other activities required to protect off-property receptors when concentrations of COCs in critical resource ground water exceed unrestricted potable use standards shall be implemented in accordance with rule 3745-300-10 of the Administrative Code. The activities are provided in paragraphs (E)(3) and (E)(7) of rule 3745-300-10 of the Administrative Code.

(5) Off-property pathway deferral and exclusion. The evaluation, response, and other activities required to apply any pathway deferral or exclusion shall be implemented in accordance with paragraph (D) of this rule.

(6) Interim measures. Interim measures shall be in place for a property when applicable standards have not yet been achieved. At a minimum, interim measures shall mitigate the risks associated with complete exposure pathways to human receptor populations until the property complies with applicable standards through a permanent remedy. Institutional controls or engineering controls used as interim measures shall be consistent with the criteria in paragraphs (C)(2) and (C)(3) of this rule.

(7) Risk mitigation measures. Risk mitigation measures shall effectively eliminate or reduce the current or reasonably anticipated risk to persons who would be exposed to concentrations of COCs in environmental media that exceed applicable standards or the risk is uncharacterized.

(a) Risk mitigation measures shall be utilized to protect workers and other persons who would be exposed to COCs in excess of applicable standards as a result of construction activities.

(b) Risk mitigation measures are necessary when construction activities do any of the following:

(i) Breach the point of compliance for direct contact with soil for properties that rely on institutional controls to achieve the applicable standard.

(ii) Breach an engineering control, such as pavement or a soil cap, intended to eliminate direct-contact exposure to COCs in environmental media.

(iii) Result in direct contact with ground water which has not been demonstrated to meet applicable standards for this exposure pathway.

(c) If the risk mitigation measures are necessary for the property to meet applicable standards after issuance of the no further action letter for the property, the risk mitigation measures shall be implemented through a risk mitigation plan in accordance with paragraph (G) of this rule.

(8) Ground water use limitations. Restrictions on the extraction or use of ground water for any purpose, potable or otherwise, developed in accordance with paragraph (E)(2) of rule 3745-300-10 of the Administrative Code in order to achieve applicable standards for ground water, shall be applied to all ground water zones beneath the property, unless a property-specific investigation conducted in accordance with rule 3745-300-07 of the Administrative Code demonstrates the following:

(a) The ground water zone made subject to the use restriction has been demonstrated to have no interconnection to an unrestricted ground water zone.

(b) Selective use restrictions shall be implemented for each ground water zone, as necessary, to reliably restrict the use of each ground water zone, except the specific permissible uses that are demonstrated to ensure the following:

(i) The continued protection of all ground water zones that otherwise meet unrestricted potable use standards in accordance with paragraph (F)(4) of rule 3745-300-07 and paragraph (D) of rule 3745-300-10 of the Administrative Code.

(ii) Applicable standards are met for all complete exposure pathways for the resulting ground water use.

(D) Procedures to address complete exposure pathways to off-property receptors that cannot be remedied after a volunteer has applied diligent efforts. A volunteer may choose

to either defer or exclude an off-property complete exposure pathway in accordance with the following:

(1) Pathway deferral. When the volunteer has employed diligent efforts to access an off-property area known or suspected to have a complete exposure pathway but access has been denied, an off-property pathway deferral shall be implemented by use of an operation and maintenance plan included in the no further action letter. The releases of hazardous substances or petroleum that are associated with the deferral of a complete exposure pathway remain subject to the covenant not to sue issued for the property as long as the pathway deferral obligations continue to be implemented in accordance with any applicable operation and maintenance plan and agreement and rule 3745-300-11 of the Administrative Code. Compliance with applicable standards associated with the pathway are deferred until access to the off-property area is attained, and the remedy is implemented and verified in accordance with this chapter. To justify the pathway deferral, the volunteer shall demonstrate that the following have been completed:

(a) Off-property receptors. Off-property areas where receptors are located and are different from the voluntary action property as follows:

(i) Identification of current or reasonably anticipated off-property receptors that may be exposed to COCs from the voluntary action property, in accordance with paragraph (E)(6) of rule 3745-300-07 of the Administrative Code.

(ii) Identification of current or reasonably anticipated exposure pathways to the off-property receptors, in accordance with paragraph (F) of rule 3745-300-07 of the Administrative Code.

(b) Communication. Communication with owners of the off-property areas where the off-property receptors are located as follows:

(i) Communication to every owner of each receptor area property of each complete exposure pathway, the applicable COCs, and the potential risks with the COCs associated with the pathway deferral.

(ii) Explanation to every owner of each receptor area property regarding the activities that might be reasonably employed to investigate and remedy the pathway associated with the release from the voluntary action property.

(iii) Offer to pay all costs associated with or to complete the assessment, and, as applicable, remedial activities that are required to achieve applicable standards for the complete exposure pathway related to releases from the voluntary action property, including fair and reasonable compensation for repair of aesthetic impacts to the off-property receptor area that result from the activities.

(iv) Offer to pay for all sampling costs after the installation or implementation of a remedy to demonstrate the effectiveness of the remedy.

(v) Offer to pay or otherwise compensate for the cost of operation and maintenance of engineering controls, if any.

(vi) Document discussions or correspondence with the owners that indicate the owner's refusal to allow the volunteer the necessary access to complete assessment and, as applicable, to conduct a reasonable remedy to achieve compliance with applicable standards for the complete exposure pathway in accordance with this chapter.

(vii) Document, if applicable, any other reason that might prevent access to complete assessment and installation of a reasonable remedy, as necessary to comply with applicable standards for the complete exposure pathway.

(c) Notice to the owner of each receptor area property. The volunteer shall provide a written notice to each owner of a receptor area property. At a minimum, the written notice shall include the following:

(i) Explanation of the voluntary action program.

(ii) Description of the off-property pathways and potential risks associated with the COCs from the voluntary action property.

(iii) Location and description of the off-property area locations to which the notification applies.

(iv) A statement that the volunteer shall contact Ohio EPA within thirty days after the notice is sent to seek assistance to access the off-property area.

(d) Ohio EPA assistance. Within thirty days after the notice required in paragraph (D)(1)(c) of this rule is sent, the volunteer shall contact Ohio EPA to seek assistance with access to an off-property area, as follows:

(i) After the notice required in paragraph (D)(1)(c) of this rule is sent, contact Ohio EPA to seek assistance to allow the volunteer access to an off-property area to assess or install a reasonable remedy.

(ii) Upon request by Ohio EPA, provide to Ohio EPA, in a manner prescribed by Ohio EPA, the following:

(a) A summary of the diligent efforts and pathway deferral demonstration pursuant to paragraph (D)(1) of this rule.

(b) A description of the completed measures described in paragraphs (D)(1)(a) and (D)(1)(b) of this rule.

(c) Documentation of the notice provided to each owner of a receptor area property, as required in paragraph (D)(1)(c) of this rule.

(d) Documentation of the discussions or correspondence with the owners that indicate the owner's refusal to allow the volunteer the necessary access to complete assessment and, as applicable, to conduct a reasonable remedy to achieve compliance with applicable standards for the complete exposure pathway in accordance with this chapter, pursuant to paragraph (D)(1)(b)(vi) of this rule.

(e) Any other information the director deems necessary that may be relevant to assist with justification that pathway deferral is appropriate for the off-property receptor.

(iii) If Ohio EPA gains access to an off-property area on behalf of the volunteer, the volunteer shall continue to evaluate the current or reasonably anticipated exposure pathways to the off-property receptors in accordance with paragraph (F) of rule 3745-300-07 of the Administrative Code to determine compliance with applicable standards in accordance with paragraph (I) of rule 3745-300-07 of the Administrative Code.

(iv) A statement or statements of costs incurred by Ohio EPA shall be sent to the volunteer after Ohio EPA’s assistance is complete. The volunteer shall pay the costs in full within sixty days after receipt of the statement, pursuant to paragraph (E) of rule 3745-300-03 of the Administrative Code.

(v) Reimburse Ohio EPA actual costs incurred to aid in communication with the owner of the receptor area property, as described in paragraph (D)(1)(d) of this rule.

(e) Timing. If Ohio EPA's assistance to seek access does not result in access to an off-property area, the timing for inclusion of pathway deferral in an operation and maintenance plan and issuance of a no further action letter shall occur as follows:

(i) If Ohio EPA's efforts to assist with access pursuant to paragraph (D)(1)(d) of this rule fail to obtain access needed for the volunteer to complete a remedy of any off-property receptor area, include the pathway deferral in an operation and maintenance plan prepared in accordance with paragraphs (D)(1)(f) and (F) of this rule.

(ii) Issue the no further action letter with an operation and maintenance plan prepared pursuant to paragraphs (D)(1)(f) and (F) of this rule within one hundred eighty days after Ohio EPA's efforts to assist with access pursuant to paragraph (D)(1)(d) of this rule failed to obtain the needed access.

(iii) If more than one hundred eighty days have passed since the volunteer or Ohio EPA last contacted the owner of a receptor area property about access to an off-property area, the volunteer shall send notice to such property owner at least thirty days prior to issuance of the no further action letter. This notice shall contain the following:

(a) Written invitation to the owner of the receptor area property to re-initiate discussions regarding the deferred pathway.

(b) The information required by paragraphs (D)(1)(c) to (D)(1)(c)(iv) of this rule.

(f) Operation and maintenance plan. The certified professional shall include an operation and maintenance plan in the no further action letter prepared for the voluntary action property. The operation and maintenance plan shall include the following:

(i) The owner's name, the property address, and a description of the receptor area property or properties to which the pathway deferral applies.

(ii) A map that shows the receptor area property that is subject to the pathway deferral.

(iii) A description of the deferred pathway, including but not limited to, the associated receptors, media, and COCs.

(iv) Provision for annual notification to the owner of the receptor area property, as follows:

(a) The operation and maintenance plan shall include a provision that the volunteer or other person responsible for compliance with applicable standards shall provide a written invitation to the owner of the off-property receptor property to re-initiate discussions about the deferred pathway and access to implement the remedy needed to achieve applicable standards.

(b) The notice shall include the information required by paragraphs (D)(1)(c)(i) to (D)(1)(c)(iv) of this rule.

(v) If the owner of the off-property receptor property chooses to re-initiate discussions about the deferred pathway in response to the annual notification sent in accordance with paragraph (D)(1)(f)(iv) of this rule, the volunteer may enact a post-covenant not to sue remedy change pursuant to paragraph (H) of this rule.

(2) Pathway exclusion. An off-property pathway exclusion from the release of liability in the covenant not to sue shall be requested prior to issuance of a no further action letter for the property if the volunteer has employed diligent efforts to remedy the pathway. The pathway exclusion request shall be submitted under affidavit by a certified professional on behalf of the volunteer. A certified professional shall not rely upon a pathway exclusion in a no further action letter unless the request was approved by the director. The director may approve or deny the volunteer's request to exclude the pathway.

(a) Prior to submittal of a pathway exclusion request, the following shall be evaluated and, unless nonapplicable, shall be documented as completed:

(i) Off-property receptors. Off-property areas where receptors are located and are different from the voluntary action property:

(a) Identification of current or reasonably anticipated off-property receptors that may be exposed to COCs from the voluntary action property, in accordance with paragraph (E)(6) of rule 3745-300-07 of the Administrative Code.

(b) Identification of current or reasonably anticipated exposure pathways to the off-property receptors, in accordance with paragraph (F) of rule 3745-300-07 of the Administrative Code.

(ii) Communication. Communication with owners of the off-property areas where the off-property receptors are located:

(a) Communication to each owner of each receptor area property of each complete exposure pathway, and the potential risks with the COCs associated with the pathway exclusion.

(b) Explanation to the owner of each receptor area property regarding the activities that might be reasonably employed to investigate and remedy the pathway associated with the release from the voluntary action property.

(c) Offer to pay all costs associated with the assessment, and, as applicable, remediation of the pathway related to releases from the voluntary action property, including fair and reasonable compensation for the repair of aesthetic impacts to the off-property receptor area that result from the activities.

(d) Offer to pay for all sampling costs after the installation or implementation of a remedy to demonstrate the effectiveness of the remedy.

(e) Offer to pay or otherwise compensate for the cost of operation and maintenance of engineering controls, if any.

(f) Document discussions or correspondence with the owners that indicate the owner's refusal to allow the volunteer the necessary access to an off-property area to complete assessment and, as applicable, to conduct a reasonable remedy to achieve compliance with applicable standards for the complete exposure pathway in accordance with this chapter.

(g) Document, if applicable, any other reason that might prevent access to an off-property area to complete assessment and installation of a reasonable remedy, as necessary to comply with applicable standards for the complete exposure pathway.

(iii) Criteria for off-property sediment pathways. The provisions of paragraphs (D)(2)(a)(ii) and (D)(2)(b) of this rule are not required for off-property sediment pathways. Rather, the volunteer may choose to evaluate the following, and include the demonstration of both in the request for pathway exclusion:

(a) Confirmation that on-property sources that migrate to the surface water body are in compliance with applicable standards, in accordance with paragraph (I) of rule 3745-300-07 of the Administrative Code.

(b) Explanation of why remedial activities pursuant to paragraph (C) of this rule at the off-property sediment area are not feasible, and how approval of the pathway exclusion request would result in the overall improvement of environmental conditions related to the voluntary action activities.

(b) Notice to property owner. If the volunteer applies diligent efforts and still cannot assess or implement a remedy to address off-property receptors, the volunteer shall provide a written notice to each owner of a receptor area property. The written notice shall be provided to such property owners prior to submittal of the pathway exclusion request to Ohio EPA. At a minimum, the written notice shall include the following:

(i) Explanation of the voluntary action program.

(ii) Description of the off-property pathways and potential risks associated with the COCs from the voluntary action property.

(iii) Location and description of the off-property area locations to which the notification applies.

(iv) A statement that the volunteer shall submit the pathway exclusion request to Ohio EPA within thirty days after the written notice is sent in order to request the director to review and approve the pathway exclusion.

(v) An explanation that the pathway exclusion, if approved, excludes coverage of the pathway from any covenant not to sue that is issued pursuant to section 3746.12 of the Revised Code pertaining to the voluntary action.

(c) Pathway exclusion request. The pathway exclusion request provided by the certified professional shall include the following:

(i) The owner's name, the address, and a description of the receptor property or properties to which the pathway exclusion request applies.

(ii) A map that shows the portion of the receptor property area that is subject to the request for pathway exclusion.

(iii) A description of the complete exposure pathway, including but not limited to, the associated receptors, media, and COCs.

(iv) A summary of the diligent efforts and completed measures described in paragraphs (D)(2)(a) to (D)(2)(b)(v) of this rule.

(v) Documentation of the notice provided to each owner of a receptor area property, as required in paragraph (D)(1)(c) of this rule.

(vi) Documentation of the discussions or correspondence with the owners, as applicable, that indicate the owner's refusal to allow the volunteer the necessary access to the off-property area to complete assessment and, as applicable, to conduct a reasonable remedy to achieve compliance with applicable standards for the complete exposure pathway in accordance with this chapter, pursuant to paragraph (D)(1)(b)(vi) of this rule.

(vii) All supporting information that demonstrates completion of the measures described in paragraphs (D)(2)(a) and (D)(2)(b) of this rule.

(d) Costs. The volunteer who enacts the pathway exclusion shall reimburse Ohio EPA for all costs incurred for the review of the pathway exclusion request, and in assistance with communication with the owner of the receptor property, as follows:

(i) Following Ohio EPA's assistance provided in support of the request for a pathway exclusion, Ohio EPA shall send to the volunteer a statement of costs.

(ii) Within sixty days after receipt of the statement of costs from Ohio EPA, the volunteer shall pay the cost in full, pursuant to paragraph (E) of rule 3745-300-03 of the Administrative Code.

(e) Request for additional information. After the director receives a complete request for review of a pathway exclusion, the director may request any additional information which may be relevant to the approval or denial of

the pathway exclusion request. The information may be requested from the certified professional, the volunteer, local jurisdictions, or residents. Ohio EPA may attempt to contact owners of receptor properties to seek access to the off-property area.

(f) Criteria for approval or denial of the pathway exclusion request. The director may approve or deny a request for pathway exclusion, taking into consideration the following:

(i) The director shall first consider whether all applicable measures in paragraphs (D)(2)(a) and (D)(2)(b) of this rule were met.

(ii) The director may consider whether approval of the requested pathway exclusion would result in improved environmental conditions.

(g) Timing. The time frame of the director's approval or denial of a pathway exclusion request includes the following options:

(i) The director shall approve or deny a request for approval of a pathway exclusion within ninety days after receipt of a complete pathway exclusion request, as provided in paragraph (D)(2) of this rule.

(ii) If the director determines that an extension of time is necessary to properly consider the pathway exclusion request, the director may extend the time to approve or deny the pathway exclusion request. If the director extends the time to consider the pathway exclusion request, Ohio EPA shall notify the volunteer and other interested persons of such extension.

(h) If the pathway exclusion request is approved by the director, the approved pathway exclusion may be applied to a no further action letter that is submitted to Ohio EPA with a request for a covenant not to sue.

(E) Verification that remedial activities are effective, and determination that applicable standards are met. When remedial activities are completed under this chapter, the volunteer shall verify that the remedial activities were implemented in accordance with this rule and resulted in compliance with applicable standards. At a minimum, verification shall include the following, as applicable:

(1) When remedies are completed to achieve compliance with applicable standards in accordance with paragraph (I) of rule 3745-300-07 of the Administrative Code, the demonstration shall include the following, when applicable:

(a) Description of the implemented remedial activities that are a part of the voluntary action, and the applicable standards for each remedial activity.

(b) Summary tables of the data collected that verify compliance with applicable standards, based on the remedial activities performed.

(c) Documentation that each institutional control relied upon was developed in accordance with paragraph (C) of this rule, and was implemented in accordance with rule 3745-300-13 of the Administrative Code.

(d) Documentation that each engineering control or remedy that requires operation or maintenance under this rule is made the subject of an operation and maintenance plan and agreement, as applicable, developed in accordance with paragraph (F) of this rule.

(e) Documentation that each risk mitigation measure under this rule is made the subject of a risk mitigation plan, as applicable, in accordance with paragraph (G) of this rule.

(f) Demonstration that each remedy implemented to comply with standards for a vapor intrusion to indoor air pathway is made the subject of an evaluation in accordance with paragraph (I)(3)(b) of rule 3745-300-07 of the Administrative Code. The evaluation shall verify that the concentrations of each COC do not exceed any applicable standard as required by rule 3745-300-07 of the Administrative Code.

(g) When a remedial activity is completed after the issuance of a no further action letter for property that relies on the remedial activity, an affidavit from a certified professional is required. The affidavit shall certify that applicable standards are met, based on the remedial activity verification.

(2) Termination of remedial activities. To document that a remedial activity is no longer necessary for compliance with applicable standards and may be terminated, the volunteer or other person responsible for remedy implementation shall demonstrate that the criteria in this rule have been met. At a minimum, the demonstration shall include the following:

(a) Description of the remedial activity that is no longer necessary to maintain compliance with applicable standards.

(b) Identification of the information relied upon to demonstrate the continued compliance with applicable standards without further implementation of the remedial activity.

(c) Information that supports the verification necessary to document the termination of the remedial activity in accordance with this rule and other criteria governing the remedial activity, such as the criteria provided in an operation and maintenance plan or agreement, environmental covenant, or risk mitigation plan.

(d) An affidavit from a certified professional, certifying that applicable standards are met without further implementation of the remedial activity.

(e) An affidavit from the volunteer or other person responsible for remedy implementation that attests to the completion of the remedy, demonstration of compliance with applicable standards, or understanding that the remedy may be terminated based on criteria in this rule and any other applicable criteria, as applicable.

(F) Operation and maintenance plan and agreement.

(1) Content of operation and maintenance plan. When a remedy is required to have an operation and maintenance plan in accordance with this rule, the volunteer shall develop and implement an operation and maintenance plan that includes the following components as applicable, for each of the remedial activities subject to the operation and maintenance plan:

(a) A summary of the applicable standards for the property and the purpose of the remedial activities to achieve compliance with applicable standards.

(b) A plan to implement the remedial activities, including operation and maintenance and a description of tasks that shall be performed to implement the operation and maintenance of the remedial activities, including but not limited to, the following:

(i) Description of the tasks for standard operation of the remedial activities.

(ii) Description of the tasks and procedures to maintain the remedial activities, including but not limited to a plan for periodic preventive measures.

(iii) Description of prescribed treatment or operating conditions for the remedial activities, as applicable.

(iv) Schedules to implement remedial activities and for operation and maintenance tasks.

(c) A plan to evaluate the effectiveness of each remedial activity shall be included in the operation and maintenance plan. At a minimum, the plan shall include the following:

(i) The purpose and objective of the activities planned to evaluate the effectiveness of the remedy.

(ii) Description of the activities that shall be performed to determine the effectiveness of the remedial activities in meeting or maintaining compliance with applicable standards.

(iii) Description of the activities that shall be performed to evaluate or confirm assumptions and predictions of a property-specific risk assessment conducted in accordance with rule 3745-300-09 of the Administrative Code, if a property-specific risk assessment was conducted.

(iv) Description of the activities that shall be conducted, to comply with the response requirements for critical resource ground water in accordance with paragraphs (E)(3) to (E)(5) of rule 3745-300-10 of the Administrative Code, as applicable.

(v) Summary of the procedures developed in accordance with paragraph (F) of rule 3745-300-07 of the Administrative Code, if data collection, field test, sampling, or data analysis activities are appropriate for the monitoring activities.

(vi) Description of the anticipated length and planned frequency of each monitoring activity that shall be performed to evaluate the effectiveness of the remedial activities.

(vii) Description of the monitoring and sampling activities that shall be conducted to determine the effectiveness of the remedial activities to meet or maintain compliance with applicable standards, as appropriate.

(d) A description of the type of equipment required to operate and maintain the remedial activities, including the following:

(i) Description of the monitoring and remedial equipment that was installed or shall be utilized, and the criteria for installation and the utilization.

(ii) A schedule for the maintenance and replacement of monitoring and remedial equipment, as appropriate for each remedial activity.

(e) A description of the reasonably anticipated adjustments and criteria establishing when the adjustments to be taken to re-establish the standard operation and maintenance of the remedial activities so that the remedial activities remain effective.

(f) A plan to address potential problems with the remedial activities, if the remedial activities are disrupted.

(g) A description of all records that shall be kept to document that the requirements of paragraphs (F)(1) and (F)(2) of this rule are met.

(h) A plan for termination of the remedial activities, including but not limited to, the following:

(i) An identification and description of the data and information that shall be collected to support the criteria for termination of the remedial activities subject to the operation and maintenance plan to verify completion of the remedial activities in accordance with paragraph (E)(2) of this rule.

(ii) An identification and description of the criteria for termination, as appropriate, of the monitoring activity to verify completion of the remedial activity in accordance with paragraph (E)(2) of this rule.

(i) A property map or maps that show the portion of the property subject to the remedial activities under the operation and maintenance plan. If any remedial activity, including any engineering control, applies to a portion of the property, the operation and maintenance plan shall include a survey plat that depicts the boundary of the portion of the property. The operation and maintenance plan shall include a survey plat that depicts the engineering control area location relative to the property boundary. The survey plat shall be completed (signed and sealed) by a professional surveyor under Ohio law.

(j) Identification of the central management entity roles and responsibilities, as applicable, in accordance with paragraph (C)(3) of this rule.

(k) Written cost estimate, in current dollars, that itemizes the annual projected cost to implement the operation and maintenance plan activities over a five-year period. At a minimum, the cost estimate shall account for the following:

(i) Costs of the reasonably anticipated repairs, replacements, monitoring, and remedy verification activities, as applicable.

(ii) Costs of recordkeeping and reporting.

(iii) Costs for a third party to conduct the operation and maintenance plan activities.

(iv) Costs to implement the operation and maintenance plan activities that are reasonably anticipated to occur over the next five years, starting from the first activity required by the operation and maintenance plan.

(2) Report evaluation of the effectiveness of remedial activities that are subject to an operation and maintenance plan and agreement. At least once annually following issuance of a covenant not to sue pursuant to Chapter 3746. of the Revised Code, or at such other interval as agreed upon in an operation and maintenance plan or agreement regarding the property, the volunteer or other person responsible for implementation of the operation and maintenance plan and agreement, shall submit documentation to Ohio EPA. The documentation shall be provided under affidavit of a person in responsible charge or with knowledge of the implementation of the remedial activities. At a minimum, the documentation shall include the following:

(a) The results from the evaluation activities performed in accordance with paragraph (F)(1)(c) of this rule.

(b) A description of the activities, conducted to address remedy problems encountered, if any, including emergencies.

(c) A demonstration of the performance of all remedial activities subject to the operation and maintenance plan.

(d) A demonstration of how compliance with applicable standards is met or maintained, including the measures used to maintain the remedy's protectiveness of public health and safety and the environment.

(e) A description of reports, documents, and maintenance records to be provided.

(f) A projection of the yearly cost estimate to operate and maintain remedial activities, and other updates to the current annual cost estimate in the operation and maintenance plan, based on the actual implementation costs during the prior year.

(3) When an operation and maintenance plan is required in accordance with this rule, the operation and maintenance plan shall be prepared and implemented, as appropriate to maintain applicable standards, prior to issuance of the no further action letter. The no further action letter shall include the operation and maintenance plan. If an operation and maintenance plan is required for an engineering control or other remedy following the receipt of a covenant not to sue issued pursuant to Chapter 3746. of the Revised Code, the operation and maintenance plan may be included in a remedy revision notice prepared pursuant to paragraph (H) of this rule.

(4) Operation and maintenance agreement. When requesting a covenant not to sue from the director pursuant to this chapter and Chapter 3746. of the Revised Code for a property subject to a remedial activity that requires an operation and maintenance plan pursuant to this rule, the volunteer shall enter into an operation and maintenance agreement with the director.

(a) At a minimum, the operation and maintenance agreement shall include the following:

(i) An operation and maintenance plan for the property developed in accordance with paragraphs (F)(1) and (F)(2) of this rule and approved by Ohio EPA.

(ii) A provision that the volunteer agrees to implement the operation and maintenance plan.

(iii) A provision that requires periodic reporting to Ohio EPA of monitoring results and evaluation of the effectiveness of the remedial activities subject to the operation and maintenance plan, in accordance with paragraph (F)(2) of this rule, to the extent the operation and maintenance plan does not provide for such periodic reporting.

(iv) A provision that requires notification to Ohio EPA within a specified time of all adjustments made to the operation and maintenance activities as specified in the operation and maintenance plan, and of implementation of the contingency plan activities, if any, specified in the operation and maintenance plan.

(v) A provision that requires that proposed modifications to a remedial activity, or the operation and maintenance plan, other than adjustments to operation and maintenance plan activities developed in accordance with paragraphs (F)(1)(e) to (F)(1)(f) of this rule

and prescribed by the operation and maintenance plan, shall be submitted to Ohio EPA for review and approval prior to implementation of the proposed modification. The provision shall be written in a manner consistent with paragraph (H) of this rule, including but not limited to updates to sampling, data evaluation, demonstration, and verification activities based on the modifications.

(vi) A provision that requires that prior notification, within a specified reasonable time frame, be provided to the prospective buyers or transferees of the property of the remedy subject to the operation and maintenance plan and agreement.

(vii) A provision that requires notice to Ohio EPA within a specified reasonable time frame of each transfer of the property subject to the operation and maintenance plan and agreement.

(viii) A provision that requires notice to Ohio EPA within a specified reasonable time frame of the transfer of the operation and maintenance plan and agreement, and of the terms and conditions of the transfer.

(ix) A provision that requires the establishment and description of financial assurances that the remedy subject to the operation and maintenance plan and agreement shall remain operational and functional. The financial assurance mechanism or instrument established pursuant to this rule shall be based on a current cost estimate over the next five years of implementation of the operation and maintenance plan, starting from the first activity required by the operation and maintenance plan, and shall be subject to updates based on adjustments made to the cost estimate prepared and submitted with the operation and maintenance plan in accordance with paragraph (F)(1)(k) of this rule. Unless otherwise approved by Ohio EPA, the financial assurance established and described for purposes of this rule shall apply the following:

(a) Equal or exceed the projected yearly updates to the cost estimate to operate and maintain the remedial activities prepared in accordance with paragraph (F)(2)(f) of this rule.

(b) Designate the director as beneficiary to the financial assurance established under this rule.

(c) Prepare and establish financial assurance based on the criteria for selection, wording, use, duration, approval, establishment, and termination of mechanisms or instruments provided in rules 3745-27-16 to 3745-27-18 or 3745-66-40 to 3745-66-48 of the Administrative Code.

[Comment: Financial assurance for purposes of this rule applies the financial assurance criteria given by Ohio EPA rules for solid waste and hazardous waste facility post-closure care activities.]

(x) A provision for inspection of the property by the director or the director's authorized representatives to determine compliance with the operation and maintenance plan and agreement.

(xi) Other provisions necessary to protect public health and safety and the environment or to demonstrate effectiveness of the remedial activities subject to the operation and maintenance plan or agreement.

(xii) Approval of the termination of the remedial activities subject to the operation and maintenance plan and agreement may be requested with proper documentation and demonstration, including verification that the remedial activity is no longer needed to comply with applicable standards in accordance with paragraph (E) of this rule.

(b) The operation and maintenance agreement may specify a reasonable time frame within which the property shall attain applicable standards through the remedial activities specified in the operation and maintenance plan or agreement.

(c) Operation and maintenance agreements may be transferred by the volunteer to another person by assignment or in conjunction with the acquisition of title to the property that is the subject of the agreement. The volunteer may choose to but is not required to transfer any operation and maintenance agreement to another person (e.g., the subsequent property buyer). The term "other person responsible for operation and maintenance plan and agreement implementation" is defined in rule 3745-300-01 of the Administrative Code for this purpose.

(G) Risk mitigation plans. When risk mitigation measures are to be employed after issuance of a no further action letter, a risk mitigation plan shall be developed and implemented as follows:

(1) At a minimum, the risk mitigation plan shall include the following components:

(a) A description of the purpose of the risk mitigation plan.

(b) A summary of the potential health risks associated with the COCs at the property.

(c) A description of the specific precautions against exposure to be taken at the property.

(d) Directions on how to handle environmental media at the property that may contain COCs.

(e) Provisions regarding when to implement the risk mitigation plan at the property.

(f) Provisions regarding where to implement the risk mitigation plan at the property. If the entire property is not subject to the risk mitigation plan, a plat of survey completed (signed and sealed) by a professional surveyor under Ohio law that shows the portions of the property subject to the risk mitigation plan shall be attached to and referenced in the risk mitigation plan.

(g) A property map or maps that show the property subject to the risk mitigation plan, including the survey plat, if required by paragraph (G)(1)(f) of this rule.

(h) Provisions to give notice of the risk mitigation plan activities to contractors, subcontractors, and other persons working in areas where risk mitigation measures are necessary.

(i) A summary explanation of the precautions that each contractor shall require of and communicate to the contractor’s employees and subcontractors.

(j) For property where a covenant not to sue is requested, provisions to annually notify the director as to whether or not implementation of the risk mitigation plan occurred, and if implemented, notification of the events that required implementation of the risk mitigation plan, the exposures to hazardous substances or petroleum that may have occurred, and the risk mitigation measures undertaken in accordance with the risk mitigation plan.

(k) The criteria for termination of the risk mitigation plan, as appropriate.

(2) For a covenant not to sue issued pursuant to Chapter 3746. of the Revised Code, the risk mitigation plan is developed as a separate plan for implementation as a condition of a covenant not to sue.

(H) Post covenant not to sue remedy changes, as follows:

(1) A volunteer, including persons responsible for compliance with applicable standards, may revise an existing remedy or remedies relied upon to meet applicable standards. In order to ensure a covenant not to sue issued pursuant to Chapter 3746. of the Revised Code remains effective, the volunteer shall do the following:

(a) Continue to comply with all existing institutional controls, engineering controls, operation and maintenance plan activities, risk mitigation measures, and other remedies required for compliance, until the existing remedies are replaced or terminated under this chapter.

(b) Collect any data necessary to scope and support the remedy revision in accordance with rule 3745-300-07 of the Administrative Code.

(c) Implement the remedy revision in accordance with this chapter, and as follows:

(i) For remedial activities that do not conflict with an existing requirement in an operation and maintenance plan or agreement, institutional control, or risk mitigation plan, remedial activities may be conducted at any time without Ohio EPA approval by the volunteer or persons responsible for compliance with applicable standards. If Ohio EPA approval is desired, the remedy shall be implemented prior to any request for approval. Paragraphs (H)(2) and (H)(3) of this rule describe the process to obtain Ohio EPA approval.

(ii) For remedial activities that conflict with an existing requirement in an operation and maintenance plan or agreement, institutional control, or risk mitigation plan, Ohio EPA's approval of the modification is required before the remedial activities are implemented. Paragraphs (H)(2) and (H)(3) of this rule describe the process to obtain Ohio EPA approval. Ohio EPA review of the remedy revision request requires at least ninety days to complete.

(d) Take any steps necessary to ensure that the property complies with all applicable standards prior to, during, and after the remedy revision.

(e) Ensure remedial activities are implemented in accordance with this rule.

(2) Remedy revision documentation. If paragraph (H)(1)(c)(i) of this rule applies, the volunteer may choose to demonstrate to Ohio EPA that additional remedial activities comply with applicable standards and submit the remedy revision documents after the remedy was implemented. If paragraph (H)(1)(c)(ii) of this rule applies, the volunteer shall provide the remedy revision documents to seek Ohio EPA approval to ensure that proposed remedial activities comply with applicable standards. The remedy revision documents shall be in the format prescribed by Ohio EPA, and shall include the following:

(a) A description of the remedial activities necessary to achieve or maintain compliance with applicable standards.

(b) A statement in an affidavit from the certified professional that the property complies with applicable standards through implementation of one or more of the remedial activities in accordance with this rule and paragraph (I) of rule 3745-300-07 of the Administrative Code.

(c) Both a description and a reference list of the data, information, records, and documents relied upon by the certified professional to determine and verify that the property complies with applicable standards.

(d) A description of any remedial activity that the certified professional concluded is no longer relied upon for compliance with applicable standards, with supporting documentation for termination of the remedial activity in accordance with paragraph (E) of this rule.

(e) If compliance with applicable standards requires a new or revised institutional control, each such institutional control shall be developed as an activity and use limitation in accordance with paragraphs (C) and (E) of this rule, and shall be consistent with rule 3745-300-13 of the Administrative Code, as applicable.

(f) If compliance with applicable standards relies on an engineering control, a new or revised operation and maintenance plan and agreement, as applicable, shall be developed with regard to the engineering control in accordance with paragraph (F) of this rule.

(g) If compliance with applicable standards relies on a risk mitigation measure, a new or revised risk mitigation plan, as applicable, shall be developed in accordance with paragraph (G) of this rule.

(h) A request for remedy revision approval in accordance with paragraph (H)(3) of this rule.

(3) Request to Ohio EPA for remedy revision approval. Ohio EPA review of the remedy revision request requires at least ninety days to complete. A volunteer who submits a remedy revision notice and requests a remedy approval letter shall do the following:

(a) Include copies of all relevant data, information, records, and documents referenced in paragraph (H)(2)(c) of this rule.

(b) Respond to questions or requests from Ohio EPA sufficient for the director to issue a remedy approval letter and any new or modified engineering control, operation and maintenance plan or agreement, institutional control, or risk mitigation plan.

(c) Reimburse Ohio EPA for actual costs incurred to review the remedy revision notice and prepare and process the remedy approval letter, and new or modified operation and maintenance plan or agreement, institutional control, or risk mitigation plan, or other remedial activities or documentation, as applicable. The applicant shall establish a direct billing schedule for receipt of such costs charged pursuant to paragraph (E) of rule 3745-300-03 of the Administrative Code. A statement of costs shall be sent to the applicant after the request is approved, denied, or withdrawn. The applicant shall pay the costs, in full, within sixty days after receipt of the statement of costs.

(4) A remedy revision that includes the modification or establishment of institutional controls shall apply the criteria of paragraph (F)(5) of rule 3745-300-07 of the Administrative Code for development of activity and use limitations. The institutional control shall be developed in accordance with paragraphs (C) and (E) of this rule, and shall be consistent with rule 3745-300-13 of the Administrative Code, as applicable.

(5) A remedy revision that requires the establishment or modification of an operation and maintenance agreement shall have the agreement established or modified in accordance with paragraph (F)(4) of this rule. The remedy revision shall provide financial assurance in accordance with paragraph (F)(4)(a) of this rule, based on the cost estimate calculated to implement the remedy revision.

(6) A remedy revision that involves a land use change that cannot be supported by data gathered for the original no further action letter requires issuance of a new no further action letter in support of the land use change.

Replaces:	3745-300-11
Effective:	10/17/2019
Five Year Review (FYR) Dates:	10/17/2024

CERTIFIED ELECTRONICALLY

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3745-300-12 **Variances and case-by-case determinations.**

(A) Authority and scope for variances. A volunteer may apply to the director for a variance from any applicable standard that otherwise applies to a property on which a voluntary action is conducted.

(1) Criteria for variances. The director shall issue a variance from those applicable standards only if the volunteer makes the following demonstrations to the director's satisfaction:

(a) Either or both of the following:

(i) Compliance with the applicable standards otherwise established at the property named in the application is technically infeasible.

(ii) The costs of compliance with the applicable standards otherwise established at the property substantially exceed the economic benefits.

(b) The proposed alternative standard or set of standards and terms and conditions provided in the application result in an improvement of environmental conditions at the property, and ensure the protection of public health and safety.

(c) The establishment of and compliance with the alternative standard or set of standards and terms and conditions are necessary to promote, protect, preserve, or enhance employment opportunities or the reuse of the property named in the application.

(2) Application contents. An application for a variance shall be prepared and submitted by a certified professional, on behalf of the volunteer, on a form provided by Ohio EPA. The application shall include, but is not limited to, the following information:

(a) The name and address of the volunteer.

(b) The name and title of the volunteer's representative who requests the variance.

(c) The certified professional's certification identification number assigned by Ohio EPA, and the certification's expiration date.

(d) A copy of the certified laboratory's certificate or an indication of the certified laboratory's identification number assigned by Ohio EPA for any data submitted to support the variance request. If an accredited laboratory is

used, documentation of accreditation for the data supporting the variance request.

(e) A statement that identifies the applicable standard that is the focus of the variance request.

(f) A statement of the proposed alternative standard or set of standards proposed to be applicable to the affected property and any terms and conditions thereof, including a detailed description or explanation, and the supporting rationale for the new alternative standard.

(g) A summary of the technology, methods, or controls used to achieve the alternative standard or set of standards and terms and conditions.

(h) A description of the affected property.

(i) All information obtained from a phase I or phase II property assessment that is relevant to the affected property.

(j) A written demonstration that the proposed variance complies with paragraph (A)(1) of this rule.

(k) The names and addresses of all adjacent property owners.

(l) The addresses and parcel numbers of all adjacent properties.

(3) Application review process.

(a) Within fourteen days after receipt of the application, the director shall determine whether a variance determination application is complete and contains all of the items required by paragraph (A)(2) of this rule, and shall notify the applicant in a letter sent by certified mail.

(b) In determining whether a variance determination application is complete, the director may request additional information. The variance applicant, through a certified professional, shall promptly respond to any requests from the director for additional information.

(c) Upon determining that a variance determination application is complete, the director shall implement the public notice and public meeting procedures in paragraph (C) of this rule.

(d) The applicant for a variance, or a representative of the applicant who is knowledgeable about the affected property and the application, shall

attend the public meeting for the variance application, shall present information about the application and the basis of the request for the variance, and shall respond to questions from the public about the affected property and the variance application.

(4) Issuance or denial of the variance determination.

(a) When considering whether to approve or deny the application, or whether to impose terms and conditions on the variance determination that are in addition to, or alternative to, any terms and conditions proposed by the applicant, the director shall consider the following:

(i) Any comments made by the public at the public meeting on the application.

(ii) Any written comments on the application.

(b) Within ninety days after the public meeting on a variance determination application, the director shall issue a proposed action to the applicant. The proposed action shall include the director's intent with regard to approval or denial of the application, and shall include the findings upon which that proposed action is based.

(c) The director shall issue a variance from applicable standards established in this chapter only if the variance application makes all of the demonstrations required by paragraph (A)(1) of this rule to the director's satisfaction.

(d) A variance issued pursuant to this rule shall do the following:

(i) State the specific standards whose terms are varied.

(ii) Provide the specific alternative standards or set of standards to be applicable to the affected property, and any terms and conditions of such standards that are imposed on the affected property.

(iii) Provide the specific alternative standards or set of standards to be applicable to the variance applicant, and any terms and conditions of such standards that are imposed on the variance applicant.

(iv) Include only standards and terms and conditions proposed by the applicant in the variance application, except that the director may impose any additional or alternative terms and conditions that the

director determines necessary to ensure the protection of public health and safety.

(e) The director shall deny a variance application if the director finds that the application is not in compliance with paragraphs (A)(1) and (A)(2) of this rule. If the variance application fails to propose applicable standards which are protective of public health and safety as required in paragraph (A)(1)(b) of this rule, the director shall deny the variance application, unless the imposition of additional or alternative terms and conditions pursuant to paragraph (A)(4) of this rule are protective of public health and safety.

(f) Whether an approval or denial of the variance application, the director shall issue an order to the applicant in accordance with paragraph (A)(4) of this rule. Variances shall be approved or denied in accordance with this rule and Chapter 3745. of the Revised Code.

(B) Authority and scope for case-by-case determinations. A volunteer may apply to the director for a case-by-case determination that renders a generic numeric ground water standard or a property-specific risk assessment-derived ground water standard inapplicable to a property on which a voluntary action is conducted. If the no further action letter relies on a case-by-case determination, then the case-by-case determination shall be approved by the director prior to issuance of the no further action letter for that property.

(1) Criteria for case-by-case determinations. The director shall consider public comments received by Ohio EPA during the public comment period conducted pursuant to paragraph (C) of this rule. The director shall issue a case-by-case determination from those applicable standards to remediate contaminated ground water only if the volunteer demonstrates that doing so ensures the continued protection of public health and safety.

(2) Application contents. An application for a case-by-case determination shall be prepared and submitted by a certified professional, on behalf of the volunteer, on a form provided by Ohio EPA. The application shall include, but is not limited to, the following information:

(a) The name and address of the volunteer.

(b) The name and title of the volunteer's representative who requests the determination.

(c) The certified professional's certification identification number assigned by Ohio EPA, and the certification's expiration date.

(d) A copy of the certified laboratory's certificate or an identification number assigned by Ohio EPA for any data submitted to support the case-by-case determination request. If an accredited laboratory is used, documentation of accreditation for the data supporting the case-by-case determination request.

(e) A description of the affected property.

(f) A statement that identifies the applicable ground water standard that is the focus of the case-by-case determination request.

(g) A statement of the proposed alternative standard or set of standards proposed to be applicable to the affected property and any terms and conditions thereof. Include a detailed description or explanation, and the supporting rationale for the new alternative standard, if any.

(h) All information obtained from a phase I or phase II property assessment that is relevant to the determination and the affected property.

(i) The names and addresses of all adjacent property owners.

(j) The addresses and parcel numbers of all adjacent properties.

(3) Application review process.

(a) Within fourteen days after receipt of the application, the director shall determine whether the case-by-case determination application is complete and contains all of the items required by paragraph (B)(2) of this rule, and shall notify the applicant in a letter sent by certified mail.

(b) In determining whether a case-by-case determination application is complete, the director may request additional information. The applicant, through a certified professional, shall promptly respond to any requests from the director for additional information.

(c) Upon determining that a case-by-case determination application is complete, the director shall implement the public notice and public meeting procedures in paragraph (C) of this rule.

(d) The applicant for a case-by-case determination, or a representative of the applicant who is knowledgeable about the affected property and the

application, shall attend the public meeting, shall present information about the application and the basis of the request for the case-by-case determination, and shall respond to questions from the public about the affected property and the application.

(4) Issuance or denial of the case-by-case determination.

(a) When considering whether to approve or deny the application, or whether to impose terms and conditions on the case-by-case determination that are in addition to, or alternative to, any terms and conditions proposed by the applicant, the director shall consider the following:

(i) Any comments made by the public at the public meeting on the application.

(ii) Any written comments on the application.

(b) Within ninety days after the public meeting on a case-by-case determination application, the director shall issue a proposed action to the applicant in accordance with section 3745.07 of the Revised Code. The proposed action shall include the director's intent with regard to approval or denial of the application, and shall include the findings upon which that proposed action is based.

(c) The director shall deny a case-by-case application if the director finds that the application fails to be protective of public health and safety, as required in paragraph (B)(1) of this rule.

(d) Whether an approval or denial of the case-by-case determination application, the director shall issue an order to the applicant in accordance with paragraph (B)(4) of this rule. Case-by-case determinations shall be approved or denied in accordance with this rule and Chapter 3745. of the Revised Code.

(C) Public notice and public meeting. Upon determining that a variance or case-by-case determination application is complete, the director shall do the following:

(1) Mail notice of the application to each owner of each parcel of land that is adjacent to the affected property.

(2) Schedule a public meeting for the application and publish notice of the public meeting. The public meeting shall be held between thirty and ninety days after the date of the letter specified in paragraph (A)(3)(a) or (B)(3)(a) of this rule.

The public meeting shall be held in the county where the affected property or the greatest portion of that affected property is located.

(3) At least thirty days before the date scheduled for the public meeting on an application, the director shall publish public notice of the public meeting. The public notice shall be published in a newspaper of general circulation in the county in which the affected property is located. If the affected property is located in close proximity, as determined by the director, to the boundary of that county with an adjacent county, the director shall publish the public notice in a newspaper of general circulation in the adjacent county. At a minimum, the public notice shall contain the following information:

(a) Notification that the director will receive written comments on the application for a period of forty-five days that begins on the date of publication of the public notice.

(b) The address of the property to which the application pertains.

(c) A brief summary of the alternative standards or set of standards and any terms and conditions proposed by the applicant.

(d) The date, time, and location of the public meeting.

(4) Concurrently with the publication of the public notice required in paragraph (C)(3) of this rule, the director shall mail notice by certified mail of the application, comment period, and public meeting to each owner of each parcel of land that is adjacent to the affected property, and to the legislative authority of the municipal corporation or township, and county, in which the property is located. The notices mailed to the owners of adjacent land and legislative authorities shall contain the same information as the public notice described in paragraph (C)(3) of this rule.

(5) A representative of Ohio EPA who is familiar with the affected property and the application shall attend the public meeting to receive comments from the public and to respond to questions from the public about the affected property and the application.

(6) A stenographic record of the proceedings at the public meeting shall be kept and shall be made a part of the administrative record about the application. Ohio EPA shall maintain all records produced by or for the public meeting.

(D) Administrative fees. An applicant who seeks a variance or case-by case determination shall reimburse Ohio EPA for actual costs incurred to review the application and the application's accompanying information. The applicant shall establish a direct billing

schedule for payments, as required by paragraph ~~(E)~~(C) of rule 3745-300-03 of the Administrative Code. After the application is approved, denied, or withdrawn, Ohio EPA shall send to the applicant a statement of actual costs for payment. The applicant shall pay the actual costs, in full, within sixty days after receipt of the statement.

(E) Application withdrawal. Upon receipt of a written request by the applicant, an application for variance or a case-by-case determination made in accordance with this rule may be withdrawn from the director's consideration. A request for withdrawal shall be submitted to Ohio EPA prior to an approval or denial of the application. Upon the application's withdrawal, the director shall cease review of the application and shall discontinue the public notice and public meeting processes. Any costs incurred by Ohio EPA prior to withdrawal are non-refundable.

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Five Year Review (FYR) Dates: 10/17/2024

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3745-300-13 **No further action letter content and procedures.**

[Comment: For dates of non-regulatory government publications, publications of recognized organizations and associations, federal rules, and federal statutory provisions referenced in this rule, see rule 3745-300-15 of the Administrative Code titled "Incorporation by reference - voluntary action program."]

(A) No further action letter timing. For the purposes of this chapter and Chapter 3746. of the Revised Code, a no further action letter may be issued pursuant to this rule by a certified professional for a property under one or a combination of the following circumstances:

(1) After completion of a phase I property assessment conducted in accordance with rule 3745-300-06 of the Administrative Code, a certified professional determines that there is no information that establishes any reason to believe a release of hazardous substances or petroleum has or may have occurred at or upon a property.

(2) After completion of a phase I property assessment conducted in accordance with rule 3745-300-06 of the Administrative Code, a certified professional determines a release of hazardous substances or petroleum occurred on the property, and the release is demonstrated in writing to be within a de minimis or previously addressed area in accordance with paragraph (E)(2) of rule 3745-300-06 of the Administrative Code.

(3) After completion of a phase II property assessment conducted in accordance with rule 3745-300-07 of the Administrative Code, a certified professional determines the concentrations of chemicals of concern (COCs) pertaining to the property do not exceed the applicable standards.

(4) After completion of a phase II property assessment conducted in accordance with rule 3745-300-07 of the Administrative Code, a certified professional determines the concentrations of COCs pertaining to the property exceed the applicable standards but one or both of the following situations occurs:

(a) Those applicable standards are achieved through remedial activities.

(b) Those applicable standards shall be achieved in accordance with one of the following mechanisms:

(i) An operation and maintenance plan, if required under rule 3745-300-11 of the Administrative Code.

(ii) A consolidated standards permit issued under section 3746.15 of the Revised Code and any rules adopted thereunder.

(B) Volunteer provides supporting information to certified professional. In order to support a volunteer's request to a certified professional for a no further action letter to be issued by the certified professional, a volunteer, and other persons who perform work to support the issuance of the no further action letter, shall submit to a certified professional, by affidavit, all relevant investigatory and remedial information that pertains to the property. The information shall include, but is not limited to, the following:

(1) Information that demonstrates that there is no contamination by hazardous substances or petroleum of soil, sediments, surface water, or ground water released on or from the property that exceeds applicable standards. Each demonstration shall be based upon the findings of a phase I property assessment in accordance with rule 3745-300-06 of the Administrative Code or a phase II property assessment in accordance with rule 3745-300-07 of the Administrative Code.

(2) Information that demonstrates compliance with rule 3745-300-02 of the Administrative Code regarding the eligibility of the property to participate in the voluntary action program.

(3) If remedial activities were conducted in connection with a voluntary action, data that demonstrates that any or all remedies meet or shall meet applicable standards in accordance with paragraph (E) of rule 3745-300-11 of the Administrative Code.

(4) For any no further action letter that is not to be submitted to Ohio EPA for a covenant not to sue, the institutional controls needed to restrict the use of the property to comply with applicable standards include a demonstration that all institutional controls for the property are established. The demonstration shall consist of a deed or declaration of the institutional controls that are recorded in the office of the county recorder of the county in which the property is located, or are entered as a memorial in the appropriate register for "registered land" as defined in section 5309.01 of the Revised Code, in compliance with section 3746.14 of the Revised Code. This requirement shall not apply to any no further action letter submitted to Ohio EPA with a request for a covenant not to sue, as provided by paragraphs (B)(5) and (E)(8)(e) of this rule.

(5) For any no further action letter that is to be submitted to Ohio EPA for a covenant not to sue, the activity and use limitations needed to comply with applicable standards include a demonstration that the activity and use limitations were

developed in accordance with this chapter and are in a proposed environmental covenant that complies with section 5301.82 of the Revised Code. This requirement applies when the volunteer intends to request from the director a covenant not to sue, or when the volunteer does not intend to request a covenant not to sue but Ohio EPA is obligated to review the no further action letter pursuant to division (C) of section 122.654 of the Revised Code.

(6) An operation and maintenance plan and a proposed operation and maintenance agreement, for the remedies that require such documents in accordance with rule 3745-300-11 of the Administrative Code.

(7) The affidavits required by paragraphs (O) and (P) of this rule.

(C) Prohibition on withholding information. A person, with the purpose to deceive a certified professional, certified laboratory, accredited laboratory, or a contractor thereof, or Ohio EPA or a contractor thereof, may not withhold, conceal, or destroy any data, information, records, or documents relating to a voluntary action.

(D) Certified professional review of information. After receipt of the information that is required to be submitted by a volunteer under paragraph (B) of this rule, a certified professional shall do the following:

(1) Review the information to determine whether or not the property complies with the applicable standards.

(2) Ensure that the information is reviewed by persons with experience and competence in areas other than that of the certified professional, as necessary for the issuance of the no further action letter.

(3) Verify the data to ensure that the data supports the issuance of the no further action letter.

~~(3)~~(4) Determine that the property meets all eligibility requirements in accordance with rule 3745-300-02 of the Administrative Code.

~~(4)~~(5) Based on evaluation of the phase I property assessment, complete the following tasks:

(a) The certified professional shall use best professional judgment to decide which requirements in paragraphs (C) and (E) of rule 3745-300-06 of the Administrative Code shall be re-evaluated to determine whether or not phase II property assessment is required.

(b) If any requirements in paragraphs (C) and (E) of rule 3745-300-06 of the Administrative Code require re-evaluation, documentation of the additional information gathered to comply with this paragraph shall be included in an updated phase I property assessment report.

~~(5)~~(6) The following activities shall be performed or completed within one hundred eighty days prior to the issuance of the no further action letter:

(a) All requirements in paragraphs (C) and (E) of rule 3745-300-06 of the Administrative Code pursuant to a phase I property assessment, unless paragraph (D)(4)(b) of this rule applies.

(b) A walk-over of the property by the certified professional.

~~(6)~~(7) If, in the best professional judgment of the certified professional, no change in environmental conditions at the property has occurred since the requirements in paragraphs (C) and (E) of rule 3745-300-06 of the Administrative Code were performed, such requirements need not be repeated within one hundred-eighty days prior to the issuance of the no further action letter. For purposes of this rule, a change in environmental conditions means new information about known or suspected releases to environmental media that results in one or both of the following:

(a) Additional identified areas at the property that are subject to phase II property assessment.

(b) Previously identified areas at the property that need further phase II property assessment due to the new information.

(E) No further action letter preparation and issuance. After performing a review of documents and completion of other activities in accordance with paragraph (D) of this rule, if the certified professional concludes on the basis of best available knowledge, information, and belief that a property meets or shall meet applicable standards, a certified professional may prepare a no further action letter for the property. For any no further action letter prepared, the certified professional shall prepare the no further action letter in the format prescribed by Ohio EPA, and electronic copies of the document shall be indexed appropriately in a format prescribed by Ohio EPA. At a minimum, the no further action letter shall include the following information:

[Comment: In this rule, when "prescribed by Ohio EPA" is used, information about the format and submittal requirements are available on the voluntary action program's web site.]

(1) A statement that the property is eligible to participate in the voluntary action program pursuant to rule 3745-300-02 of the Administrative Code.

(2) A statement of whether or not a risk assessment was performed pursuant to rule 3745-300-09 of the Administrative Code.

(3) The name, title, and employer of each person who performed work, other than the certified professional, to support the no further action letter, and the nature and scope of the work performed by that person.

(4) A list of all documents and affidavits prepared in accordance with paragraphs (O) and (P) of this rule, and the date such documents and affidavits were prepared, which were reviewed by the certified professional as described in paragraph (B) of this rule in preparing the no further action letter.

(5) An executive summary, to be filed with deed records, of the information required to be submitted by the volunteer to the certified professional. The executive summary shall do the following:

(a) Reflect the content and demonstrations by which the property complies with the applicable standards.

(b) Meet the recording requirement of paragraph (L) of this rule.

(c) Reference the legal description and surveyed acreage of the property.

(6) A detailed executive summary, not to be filed with deed records, of the information required to be submitted by the volunteer to the certified professional. The detailed executive summary shall do the following:

(a) Reflect the content and demonstrations by which the property complies with the applicable standards.

(b) Identify the applicable standards for the property that reflect the certified professional's conclusion that the property complies with the applicable standards for each complete exposure pathway identified under paragraph (F)(1) of rule 3745-300-07 of the Administrative Code.

(c) Verify that the demonstration of compliance with the applicable standards is based on ~~certified~~ data that is generated by ~~a~~an accredited or certified laboratory pursuant to rule 3745-300-04 of the Administrative Code, if such data is required by rule 3745-300-07 of the Administrative Code.

(d) Provide a description of all COCs identified in the environmental media on or from the property, the source of the COCs, if known, and the locations and concentration levels of the COCs prior to any remediation. (The no further action letter also shall provide this information in a summary table format.)

(7) Summary of figures and maps. The no further action letter shall include an electronic file as available which includes the map data formatted in a manner prescribed by Ohio EPA. The property maps shall include, but are not limited to, the following:

(a) Property location map, as required by paragraph (G)(5)(a) of rule 3745-300-06 of the Administrative Code, in a format that maintains readability even if reproduced without color. Include a version scaled for printing on "8.5 x 11" inch-sized paper.

(b) A boundary survey plat or plats completed (signed and sealed) by a professional surveyor licensed under Ohio law that includes a version scaled for printing on "8.5 x 11" inch-sized paper. Provide a simplified plat of the boundary survey that maintains readability when printed on "8.5 x 11" inch-sized paper. Such plat shall depict the following:

(i) The boundary of the property that is the subject of the no further action letter.

(ii) The acreage of the property.

(iii) Each current tax parcel number that applies to the property. For any portion of the property that includes less than an entire tax parcel, the plat shall indicate the affected tax parcel numbers and shall depict the included and excluded portions.

[Comment: No highly detailed survey plat, such as an "American Land Title Association/American Congress on Surveying and Mapping" (ALTA/ACSM) survey, fulfills this rule. Instead, this rule requires a simple boundary survey that presents the specified information in a reducible and reproducible plat format.]

(c) Site maps that show the property boundary, buildings, roads, utilities, surface waters, geologic cross-section locations, and other site features, as applicable.

(d) Geologic cross-sections, which include water level and saturated zone thickness if applicable.

(e) Ground water flow maps, which include water level measurements if applicable.

(f) The location of each identified area and exposure unit, if any, which were evaluated in making the determination that the property complies with applicable standards.

(g) The locations of all borings, monitoring wells, and other sampling locations, as required by paragraph (J)(14)(a) of rule 3745-300-07 of the Administrative Code, if applicable.

(h) Conceptual site model figure or diagram, if applicable.

(i) Site maps that show the location of remedial activities performed, if applicable.

(j) The locations where remedial activities were or are being implemented pursuant to rule 3745-300-11 of the Administrative Code.

(k) A survey plat or plats, completed (signed and sealed) by a professional surveyor licensed under Ohio law, that delineates the portions of the property that are subject to engineering controls or any activity and use limitations, as required by paragraph (J)(14)(e) of rule 3745-300-07 of the Administrative Code. The plat shall be scaled for printing on "8.5 x 11" inch-sized paper~~. The plat shall~~ and maintain readability when printed as an attachment to the plan.

(l) All maps required by this rule shall include the following:

(i) A citation that indicates accuracy including the author, and date of current source.

(ii) Scale. The scale shall maintain readability even if reproduced without color.

(8) Summary tables which provide the following:

(a) Regarding all COCs identified in environmental media on or from the property, the summary tables shall include the following:

(i) A description of the COCs by name or type.

(ii) The source of such COCs, if known.

(iii) The locations and concentration levels in affected media prior to any remediation.

(iv) The concentration levels at the time of issuance of the no further action letter.

(b) Summary exposure point concentrations for current and reasonable anticipated post-remedy pathways, if applicable, in soil, ground water, and vapor intrusion pathways.

(9) When institutional controls (use restrictions or activity and use limitations) are relied upon for the property to comply with applicable standards, provide a demonstration as applicable.

(a) When the volunteer does not intend to request a covenant not to sue from the director, and Ohio EPA is not obligated to review the no further action letter pursuant to division (C) of section 122.654 of the Revised Code, the following document is required:

(i) A copy of the institutional controls (use restrictions), that is one of the following:

(a) Bearing the mark of recordation of the county recorder's office of the county in which the property is located.

(b) Entered in the appropriated register for "registered land," as defined in section 5309.01 of the Revised Code.

(ii) The institutional controls shall be consistent with rule 3745-300-11 of the Administrative Code and other applicable laws.

(b) When the volunteer intends to either request a covenant not to sue from the director, or to request that the director make a determination pursuant to division (C) of section 122.654 of the Revised Code, the following document is required:

(i) A copy of the proposed environmental covenant for the property that is both of the following:

(a) In compliance with section 5301.82 of the Revised Code.

(b) Includes the activity and use limitations developed in accordance with rule 3745-300-11 of the Administrative Code and other applicable laws.

(ii) If only a portion of the property is the subject to the activity and use limitations (i.e., the activity and use limitations do not apply to the entire property), the environmental covenant shall include additional legal description and survey plat of the portion of the property that is subject to the activity and use limitations. The survey plat shall be completed by a professional surveyor under Ohio law. The plat shall be scaled for printing on "8.5 x 11" inch-sized paper~~. The plat shall~~ and maintain readability when printed as an attachment to the environmental covenant.

(10) A legal description of the property that is subject to the no further action letter.

(11) A copy of the operation and maintenance plan and a copy of the proposed operation and maintenance agreement prepared in accordance with rule 3745-300-11 of the Administrative Code, if the documents are required by that rule.

(12) A copy of the risk mitigation plan prepared in accordance with rule 3745-300-11 of the Administrative Code, if the plan is required by that rule.

(13) A copy of the consolidated standards permit and supporting documents issued pursuant to section 3746.15 of the Revised Code, if any.

(14) A copy of the approval of a variance or case-by-case determination obtained pursuant to rule 3745-300-12 of the Administrative Code, if any.

(15) A copy of the affidavit prepared in connection with the voluntary action by which the certified professional issued the no further action letter in accordance with paragraph (Q) of this rule and rule 3745-300-05 of the Administrative Code.

(16) Any other information the certified professional considers relevant.

(F) Certified professional's request to the volunteer. Upon issuance of a no further action letter, the certified professional shall send a copy of the no further action letter to the volunteer. The no further action letter shall be accompanied by the following:

(1) A written request that the volunteer notify the certified professional as to whether or not the volunteer directs the certified professional to submit the no further action letter to Ohio EPA.

(2) A written notice informing the volunteer of the following:

(a) The no further action letter may be submitted to Ohio EPA only by a certified professional.

(b) The volunteer may receive a covenant not to sue in connection with the voluntary action only if the certified professional submits the no further action letter to Ohio EPA on behalf of the volunteer.

(3) An affidavit, prepared in accordance with paragraph (Q) of this rule, by the certified professional who issued the no further action letter.

(G) Volunteer's notice to certified professional. Promptly after receipt of the no further action letter and the request described in paragraph (F)(1) of this rule, the volunteer shall do the following:

(1) Provide notice to the certified professional which indicates whether or not the volunteer directs the certified professional to submit the no further action letter to Ohio EPA in a manner prescribed by Ohio EPA.

(2) Provide notice to Ohio EPA which indicates whether or not the volunteer directs the certified professional to submit the no further action letter to Ohio EPA.

(H) Certified professional's response to volunteer's notice. Promptly after receipt of the written notice pursuant to paragraph (G) of this rule, the certified professional shall do either of the following:

(1) Submit an electronic version of the no further action letter to Ohio EPA, in a manner prescribed by Ohio EPA, on behalf of the volunteer, if the volunteer's notice indicates that the volunteer directs the certified professional to submit the no further action letter to Ohio EPA. The no further action letter shall include the following:

(a) The certified professional's original affidavit executed in accordance with paragraph (Q) of this rule.

(b) Administrative information, in accordance with paragraph (I) of this rule.

(c) A transmittal letter, in accordance with paragraph (F) of this rule.

(d) Volunteer notification to the certified professional, in accordance with paragraph (G) of this rule.

(2) Send the original no further action letter to the volunteer promptly after receipt of the notice, if the notice indicates that the volunteer does not direct the certified professional to submit the no further action letter to Ohio EPA.

(I) Request for a covenant not to sue. When the certified professional submits the no further action letter to Ohio EPA, in accordance with paragraph (G) of this rule, the certified

professional shall submit the no further action letter in the format prescribed by Ohio EPA and described in paragraph (E) of this rule, and shall provide administrative information for Ohio EPA to process the request. The administrative information shall include the following:

(1) Identification of the tax parcel numbers and the taxing districts for the property. If any portion of the property includes less than an entire tax parcel, the no further action letter shall include a map that indicates the affected tax parcel numbers, and the included and excluded portions, as described in paragraph (E)(7) of this rule.

(2) Payment and fees information based on the current fee structure defined by Ohio EPA.

(3) Eligibility determination of class C releases and non-class C releases of underground storage tank systems regulated by the bureau of underground storage tank regulations.

(4) Property information including the name and contact information of the volunteer, the certified professional, and the property owner.

(5) Remedy information, including whether or not the no further action letter includes a proposed environmental covenant, an operation and maintenance plan, or a risk mitigation plan.

(6) The date that remedial activities began for the property, and a description of the remedial activities that began on that date.

(J) [Reserved.]

(K) Withdrawal of request for a covenant not to sue. The volunteer may, through the certified professional, withdraw from Ohio EPA the submittal of a no further action letter for the property and the request for a covenant not to sue.

(L) Recording of documents by the volunteer. If a covenant not to sue is issued by the director, the volunteer who is issued the covenant not to sue shall ensure that the certified professional's executive summary of the no further action letter, in the format described in paragraph (E) of this rule, the covenant not to sue, and the environmental covenant for the property, if any, are recorded, in the same manner as a deed to the property, in the office of the county recorder of the county in which the property is located.

(M) Submittal of supporting documentation. Upon receipt of the covenant not to sue by the volunteer, the certified professional shall provide, at a minimum, the following

supporting documentation evaluated by the certified professional in accordance with paragraph (D) of this rule to determine that the property meets or shall meet applicable standards and that the property was eligible to participate in the voluntary action program, as applicable:

(1) The phase I property assessment report completed in accordance with rule 3745-300-06 of the Administrative Code, and any updates to the phase I property assessment report.

(2) Any sampling plans, remediation reports, closure reports, laboratory reports with dates, and compliance reports.

(3) The phase II property assessment report completed in accordance with rule 3745-300-07 of the Administrative Code.

(4) A description of all COCs identified in environmental media, the source of such COCs, if known, and the locations and concentration levels of such COCs prior to and after any remediation.

(5) A property-specific risk assessment report completed in accordance with rule 3745-300-09 of the Administrative Code, if such a property-specific assessment was used in lieu of, or in addition to, generic numerical standards established in rule 3745-300-08 of the Administrative Code.

(6) Information that demonstrates that the property conforms with each of the exposure assumptions used to calculate the applicable standards for the property, including all exposure assumptions used to calculate the generic numerical standards established in rule 3745-300-08 of the Administrative Code and all exposure assumptions used to determine the applicable standards under rule 3745-300-09 of the Administrative Code, as applicable to the property.

(7) All affidavits prepared in connection with the voluntary action in accordance with paragraphs (O) to (Q) of this rule, and as required by rules 3745-300-04 and 3745-300-05 of the Administrative Code.

(8) Documentation of the measures completed to justify a pathway deferral, if a pathway deferral was completed in accordance with rule 3745-300-11 of the Administrative Code.

(9) Any other information the certified professional considers relevant.

(N) Transfers. A no further action letter, a covenant not to sue, and any agreement authorized to be entered into under Chapter 3746. of the Revised Code and this

chapter may be transferred by the recipient to any other person by assignment or in conjunction with the acquisition of title to the property to which such document applies.

(O) Affidavit requirement for volunteers and persons who performed work to support a request for issuance of a no further action letter. When a volunteer or a person who performed work to support a request for the issuance of a no further action letter submits information, data, documents, or reports to a certified professional, accredited laboratory, a certified laboratory, or Ohio EPA, the volunteer or person shall provide the submittal under affidavit. The affidavit shall be based on the knowledge, information, and belief of that volunteer or person, and shall include the following:

(1) The name of the affiant.

(2) A statement that the affiant is authorized to submit the affidavit on behalf of the volunteer, with the name of the entity with whom the affiant is employed or retained if the affiant is not employed or retained by the volunteer.

(3) The name and address of the property subject to the voluntary action.

(4) The purpose for which the information, data, documents, or reports are submitted.

[Comment: For example, when a person performs work to support a request for issuance of a no further action letter, such as a consultant who completes a phase I property assessment or a property-specific risk assessment report, the consultant's affidavit identifies the submittal purpose and the report name.]

(5) An identification of all information, data, documents, or reports submitted with the affidavit.

(6) When information, data, documents, or reports are submitted to a certified professional to support a request for issuance of a no further action letter, a statement that the work indicated by the submittal was conducted in compliance with all applicable local, state, and federal laws and regulations.

(7) A statement attesting that all information, data, documents, or reports submitted by the affiant are true, accurate, and complete.

[Comment: Paragraph (O) of this rule does not apply to information, data, documents, or reports provided by any federal, state, or local governmental entity in response to a public records request.]

(P) Affidavit requirement for accredited and certified laboratories. The information, data, documents, or reports submitted by ~~a~~an accredited or certified laboratory to a volunteer, a certified professional, Ohio EPA, or any other person to support a request for issuance of a no further action letter shall be submitted by affidavit. ~~Each~~

(1) Each time that information, data, documents, or reports are submitted by a certified laboratory in order to conduct or complete a voluntary action, an authorized representative of the certified laboratory shall submit an affidavit based upon the certified laboratory's knowledge, information, and belief, that includes the following:

~~(1)~~(a) The name of the affiant.

~~(2)~~(b) A statement attesting that the affiant is authorized to submit the affidavit on behalf of the certified laboratory.

~~(3)~~(c) Name and address of the property that is the subject of the voluntary action.

~~(4)~~(d) A statement attesting that the purpose for which the information, data, documents, or reports are submitted is to support a request for issuance of a no further action letter.

~~(5)~~(e) An identification of all information, data, documents, or reports submitted with the affidavit.

~~(6)~~(f) A statement attesting that the certified laboratory performed the analyses documented in the submittal in accordance with the laboratory's current certificate issued under the voluntary action program, and that the laboratory was certified for each analyte, parameter group, and method used at the time the laboratory performed the analyses.

~~(7)~~(g) A statement attesting that, at the time of analysis, the analyses were performed pursuant to the certified laboratory's standard operating procedures and quality assurance program plan in accordance with rule 3745-300-04 of the Administrative Code.

~~(8)~~(h) A statement attesting that all information, data, documents, or reports submitted by the certified laboratory in support of the request for issuance of a no further action letter are true, accurate, and complete.

(2) Affidavit requirements for accredited laboratories. Each time that information, data, documents, or reports are submitted by an accredited laboratory in order to conduct or complete a voluntary action, an authorized representative of

the accredited laboratory shall submit an affidavit based upon the accredited laboratory's knowledge, information, and belief, that includes the following:

(a) The name of the affiant.

(b) A statement attesting that the affiant is authorized to submit the affidavit on behalf of the accredited laboratory.

(c) Name and address of the property that is the subject of the voluntary action.

(d) A statement attesting that the purpose for which the information, data, documents, or reports are submitted is to support a request for issuance of a no further action letter.

(e) An identification of all information, data, documents, or reports submitted with the affidavit.

(f) A statement attesting that the accredited laboratory performed the analyses documented in the submittal in accordance with the laboratory's current accreditation and that the laboratory was accredited for each analyte, parameter group, and method used at the time the laboratory performed the analyses.

(g) A statement attesting that, at the time of analysis, the analyses were performed pursuant to the accredited laboratory's standard operating procedures and quality assurance program plan.

(h) A statement attesting that all information, data, documents, or reports submitted by the accredited laboratory in support of the request for issuance of a no further action letter are true, accurate, and complete.

(Q) Affidavit requirement for the certified professional. For each no further action letter issued to a volunteer or submitted to Ohio EPA that requests a covenant not to sue from the director, the certified professional shall submit an affidavit with the no further action letter. Each affidavit shall be issued based upon the certified professional's knowledge, information, and belief, and shall include the following:

(1) The name of the certified professional.

(2) The name and address of the property that is the subject of the no further action letter, each volunteer, and the property owner.

(3) A statement attesting that the certified professional read all standards of conduct in paragraph (E) of rule 3745-300-05 of the Administrative Code and met

the standards of conduct while the certified professional rendered professional services regarding the voluntary action at the property.

(4) A statement attesting that the property is eligible for the voluntary action program pursuant to rule 3745-300-02 of the Administrative Code and section 3746.02 of the Revised Code.

(5) A statement attesting that the voluntary action was conducted, and that the no further action letter was issued in accordance with this chapter and Chapter 3746. of the Revised Code.

(6) A statement attesting that the voluntary action was conducted in compliance with all applicable local, state, and federal laws and regulations and any previous noncompliance was addressed in accordance with such laws and regulations.

(7) A statement attesting that the no further action letter, and any information, data, documents, or reports submitted with the no further action letter are true, accurate, and complete.

[Comment: To assist in compliance with this rule, Ohio EPA provides example affidavit language on Ohio EPA’s voluntary action program web site.]

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Five Year Review (FYR) Dates: 10/17/2024

CERTIFIED ELECTRONICALLY

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05/24/2023

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3745-300-14 **Audits.**

(A) The director shall conduct audits in connection with no further action letters issued under section 3746.11 of the Revised Code for any of the following purposes:

(1) To determine whether, after completion of voluntary actions conducted pursuant to this chapter and Chapter 3746. of the Revised Code, the properties upon which the voluntary actions were conducted meet applicable standards.

(2) To review the qualifications of and work performed by certified professionals under this chapter and Chapter 3746. of the Revised Code to determine whether the certified professionals possess the qualifications required for certification pursuant to rule 3745-300-05 of the Administrative Code and whether the certified professionals' performance in the voluntary action program has resulted in the issuance of no further action letters that are not consistent with applicable standards.

(3) To review the qualifications of and work performed by ~~certified~~ laboratories to determine whether the ~~certified~~ laboratories possess the qualifications required for certification pursuant to rule 3745-300-04 of the Administrative Code and whether the ~~certified~~ laboratories' performance under this chapter and Chapter 3746. of the Revised Code has resulted in the issuance of no further action letters that are not consistent with applicable standards.

(B) Audits selected from the random audit pool shall be conducted in accordance with paragraph (F) of this rule. The director shall select no further action letters for audit from the random audit pool by any method the director deems necessary.

(C) The director may select no further action letters for audit from the discretionary audit pool by any method the director deems necessary. Audits of no further action letters selected from the discretionary audit pool may be conducted by the director in accordance with paragraph (F) of this rule, or by any other means. The director may conduct a discretionary audit for any reason including, but not limited to, any no further action letters that meet any of the following criteria:

~~(1) Was prepared by an individual who was certified under division (D) of section 3746.07 of the Revised Code, but not certified pursuant to rule 3745-300-05 of the Administrative Code.~~

~~(2) Relied upon analyses by a laboratory certified under division (E) of section 3746.07 of the Revised Code, but not certified under rule 3745-300-04 of the Administrative Code for the analyte, parameter group, and method used in support of the no further action letter.~~

~~(3)~~(1) The director has reason to believe the no further action letter was submitted fraudulently.

~~(4)~~(2) Was prepared by a certified professional whose certification was subsequently revoked in accordance with rule 3745-300-05 of the Administrative Code.

~~(5)~~(3) Relied upon analyses by a certified laboratory whose certification was subsequently revoked in accordance with rule 3745-300-04 of the Administrative Code or whose accreditation was subsequently revoked.

~~(6)~~(4) Was the basis for a covenant not to sue which was subsequently revoked under this chapter and Chapter 3746. of the Revised Code.

~~(7)~~(5) The certified professional, volunteer, or owner of the property has notified the director, in compliance with paragraph (E)(2)(f) of rule 3745-300-05 of the Administrative Code, that relevant facts, data, or other information existed at the time the no further action letter was issued which indicates applicable standards were not met.

~~(8)~~(6) Pertains to a voluntary action for which a risk assessment was conducted in accordance with rule 3745-300-09 of the Administrative Code.

~~(9)~~(7) Pertains to a voluntary action that included, as a remedial activity, either an engineering control as described in rule 3745-300-11 of the Administrative Code or institutional control which restricts access to or use of the property pursuant to rule 3745-300-11 of the Administrative Code.

(D) At a minimum, the director shall select no further action letters to be audited such that the total number of no further action letters selected for audit from both the random audit pool and discretionary audit pool result in the following:

(1) The selection of no less than twenty-five per cent of all no further action letters involving remedial activities that were submitted to the director during the previous calendar year.

(2) The selection of no less than twenty-five per cent of all no further action letters not involving remedial activities that were submitted to the director during the preceding calendar year.

(E) Compliance audits may be conducted in accordance with paragraph (F) of this rule, or by any other means selected by the director. The director may conduct a compliance audit for any purpose or combination of purposes described in paragraph (A) of this rule.

(F) Audits of a no further action letter may be conducted for any purpose or combination of purposes described in paragraph (A) of this rule in accordance with one or both of the following procedures:

(1) Tier I audit.

(a) Prior to commencing a tier I audit of a no further action letter, the director shall provide reasonable advance notice of the audit to the volunteer for whom the no further action letter was prepared, the certified professional who prepared the no further action letter, the current owner of the property, if different from the volunteer and, as appropriate, any ~~certified~~ laboratory which performed analyses which formed the basis for the no further action letter, and any other parties deemed necessary. The notice shall include a request that the certified professional who prepared the no further action letter make available all documents relied upon by the certified professional and required to be itemized on the document list in the no further action letter pursuant to rule 3745-300-13 of the Administrative Code, and any other documents which the director determines are necessary to perform an audit pursuant to this rule.

(b) When a certified professional receives a notice as described in paragraph (F)(1)(a) of this rule, the certified professional shall deliver the requested documentation to Ohio EPA not more than thirty days after the certified professional's receipt of the request.

(c) When conducting a tier I audit, the director may do the following:

(i) Request that a certified professional, a ~~certified~~ laboratory, a volunteer, or a person responsible for maintaining compliance with applicable standards at a property submit any or all documents pertaining to the no further action letter being audited.

(ii) Visit a property or place of business, after reasonable advance notice and during the normal operating hours of the business, to perform a review of the documents stored at that property or place of business.

(iii) Conduct a site walkover of the property upon which the voluntary action was conducted.

(d) All documents requested pursuant to paragraph (F)(1)(c)(i) of this rule shall be submitted to the director not later than thirty days after receipt of the request.

(2) Tier II audit.

(a) If the documents produced and reviewed pursuant to paragraph (F)(1) of this rule are inadequate to substantiate that applicable standards are met as described in the no further action letter, or if the director has a reasonable belief that the no further action letter has been based on fraudulent or inaccurate information or documentation, the director may do the following:

(i) Inspect a property, after reasonable advance notice, investigate or inspect conditions, equipment, or practices, and conduct sampling to determine compliance with applicable standards, this chapter, or Chapter 3746. of the Revised Code.

(ii) Take any other action the director deems necessary to determine whether the no further action letter was prepared in compliance with applicable standards, this chapter, or Chapter 3746. of the Revised Code.

(b) In addition to tier II audits conducted pursuant to paragraph (F)(2)(a) of this rule, the director may, at the director's discretion, randomly perform tier II audits on any no further action letter selected for audit.

(c) Nothing in this rule shall diminish the director's ability to conduct criminal or other investigations under Chapter 3704., 3714., 3734., 3746., 3750., 3753., 6109., or 6111. of the Revised Code.

(G) The director shall complete all investigatory auditing activities by December thirty-first of the year in which an audit is conducted pursuant to paragraphs (B) to (E) of this rule and division (B) of section 3746.17 of the Revised Code, and the director shall issue all audit findings by March first of the year after that in which an audit is conducted.

(H) The person responsible for maintaining compliance with applicable standards at a property subject to an audit may request one informal meeting with Ohio EPA to discuss the technical aspects of that audit. Ohio EPA shall be available for such meeting after the conclusion of all investigatory auditing activities and prior to the issuance of audit findings.

(I) The time limits required by this rule shall not prevent the director, at the director's discretion, from granting one thirty-day extension to any person subject to this rule. The director may extend any time limits imposed upon the director under this rule for a period not to exceed thirty days.

(J) If requested by the director, upon proper identification and stating the necessity and purpose of the inspection, the volunteer or current owner of a property shall allow the director access to the property to conduct all audit activities pursuant to this rule. Nothing in this rule shall limit the authority of the director provided in section 3746.21 of the Revised Code.

(K) Ohio EPA shall provide the person responsible for maintaining compliance with applicable standards at a property with a split sample of any soil, water, or sediment sample obtained or removed from a property, if prior to sampling, a written request is made by the person responsible for maintaining compliance with applicable standards at a property. With sufficient prior notice, Ohio EPA shall provide, at cost, appropriate sampling containers to the person who makes such a request.

(L) The director shall issue audit findings pursuant to this rule which include a determination of whether applicable standards, and all other requirements established under this chapter or Chapter 3746. of the Revised Code have been met, and whether additional actions are required to attain compliance. After an audit is completed:

(1) If the director finds that a certified professional or certified laboratory either did not possess the required qualifications for certification or that work performed by the certified professional or certified laboratory in connection with a voluntary action resulted in the issuance of a no further action letter that is not consistent with the applicable standards, the director may either suspend or revoke the certification of the certified professional or the certified laboratory.

(2) If the director finds that the performance of a certified professional or certified laboratory has resulted in the issuance of no further action letters that are not consistent with applicable standards, the director shall notify persons for whom the certified professional or certified laboratory has performed work in connection with a voluntary action of the audit findings.

(3) If the director finds that a property no longer complies with the applicable standards upon which issuance of a covenant was based, the director, by certified mail, return receipt requested, shall notify the person responsible for maintaining compliance with those standards of that finding, and of the requirements of division (B)(3) of section 3746.12 of the Revised Code.

(4) The recipient of a notice provided under paragraph (L)(3) of this rule and division (B)(2) of section 3746.12 of the Revised Code, within thirty days after the notice was mailed, shall notify the director of the recipient's intention to return the property to compliance with the applicable standards upon which the covenant was based, and shall enter into a compliance schedule agreement with the director. The compliance schedule agreement shall establish a reasonable

period of time to return to compliance with those applicable standards. If the recipient of the notice fails to take both of these actions in the required time frame, the director, by issuance of an order as a final action under Chapter 3745. of the Revised Code, shall revoke the covenant not to sue issued for the property.

(5) If the director finds that a person with whom the director entered into a compliance schedule agreement under this rule and division (B)(3) of section 3746.12 of the Revised Code failed to return the property to which the agreement pertains to compliance with the applicable standards within the time established in the agreement, the director, by issuance of an order as a final action under Chapter 3745. of the Revised Code, shall revoke the covenant not to sue issued for the property.

(M) Nothing in this rule shall diminish the director's ability to conduct criminal or other investigations under Chapter 3704., 3714., 3734., 3745., 3746., 3750., 3751., 3752., 3753., 6109., or 6111. of the Revised Code.

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3745-300-15 **Incorporated by reference - voluntary action program.**

This chapter includes references to certain matter or material. The text of the incorporated materials is not included in the rules in this chapter. The materials are hereby made part of these rules in this chapter. For materials subject to change, only the specific version specified in this rule is incorporated. Any amendment or revision to a referenced document is not incorporated unless and until this rule is amended to specify the new dates.

(A) Code of Federal Regulations (CFR) reference, 40 CFR 122.26. This regulation can generally be found in most Ohio public libraries, the state library of Ohio, and electronically at http://www.ecfr.gov. This regulation may be purchased from "U.S. Government Printing, Superintendent of Documents, Mail Stop SSOP, Washington DC" 20402-9328. As published in the July 1, 2018 CFR.

(B) Federal statute references. These laws may generally be found in most Ohio public libraries, or electronically at http://www.gpo.gov/fdsys. Information and copies may be obtained by writing to "U.S. Government Bookstore, 732 N. Capitol Street NW, Washington, DC" 20401. The federal laws listed in this rule are those versions of the laws amended through July 1, 2018.

(1) Atomic Energy Act of 1954, 42 U.S.C. 2011.

(2) Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA), 42 U.S.C. 9601.

(3) Occupational Health and Safety Act, 84 stat. 1590, 29 U.S.C. 651.

(4) Resource Conservation and Recovery Act of 1976 (RCRA) or Solid Waste Disposal Act, 42 U.S.C. 6901.

(5) Safe Drinking Water Act, 42 U.S.C. 300f.

(6) Water Pollution Control Act, 33 U.S.C. 1251.

(C) Government literature. The availability of these documents is provided with each paragraph. The documents listed in this paragraph are those versions amended through July 1, 2018 unless otherwise specified.

(1) Ohio governmental literature from sources other than Ohio EPA.

(a) Ohio department of commerce, division of state fire marshal, bureau of underground storage ~~tanks~~tank regulations documents.

(i) Bureau of underground storage tank regulations. ~~https://www.com.ohio.gov/fire/BUSTRAdministrativeRules.aspx.~~

https://fireacademy.com.ohio.gov/fire/BUSTRAdministrativeRules.aspx.

(ii) Leaking underground storage tank list. ~~https://com.ohio.gov/fire/BUSTRResources.aspx.~~ https://fireacademy.com.ohio.gov/fire/BUSTRResources.aspx.

(iii) Registered underground storage tank list. August 2018. https://apps.com.ohio.gov/fire/OTTER/.

(iv) "Technical Guidance Manual for the 2017 Closure, Corrective Action, and Petroleum Contaminated Soil Rules." 2017. ~~https://www.com.ohio.gov/documents/fire_2017_Technical_Guidance_Manual.pdf~~ https://fireacademy.com.ohio.gov/documents/fire_2017_Technical_Guidance_Manual.pdf.

(b) Ohio department of natural resources documents.

(i) Ohio department of natural resources, including ground water resources maps. ~~http://www2.ohiodnr.gov/.~~https://ohiodnr.gov/discover-and-learn/land-water/ohio-river-watershed/groundwater-maps-publications.

(ii) Ohio department of natural resources "search file well logs." ~~http://water.ohiodnr.gov/search-file-well-logs.~~ https://ohiodnr.gov/business-and-industry/services-to-business-industry/gis-mapping-services/water-well-locator-gis-mapping-service.

(2) Ohio EPA technical documents. These documents are generally available in most Ohio public libraries and the state library of Ohio. Information and copies may be obtained by writing to "Voluntary Action Program, Lazarus Government Center, P.O. Box 1049, Columbus, OH" 43216-1049.

(a) Ohio EPA. "Biological Criteria for the Protection of Aquatic Life: Volume II: User's Manual for Biological Field Assessment of Ohio Surface Waters." Electronic pdfs are as follows:

(i) October 1987, updated January 1988 version at ~~http://www.epa.ohio.gov/Portals/35/documents/Vol2.pdf.~~ http://wwwapp.epa.state.oh.us/dsw/bioassess/Volume2.pdf.

(ii) November 2006 version at ~~http://epa.ohio.gov/Portals/35/documents/BioCrit88Vol2-Updates2006.pdf.~~ https://epa.ohio.gov/static/Portals/35/documents/BioCrit88_Vol2 Updates2006.pdf.

(b) Ohio EPA. "Biological Criteria for the Protection of Aquatic Life: Volume III: Standardized Biological Field Sampling and Laboratory Methods for Assessing Fish and Macroinvertebrate Communities. Division of Surface Water." October 1989, as amended through June 2015. ~~https://www.epa.ohio.gov/portals/35/documents/BioCrit15_Vol3.pdf.~~ https://epa.ohio.gov/static/Portals/35/documents/BioCrit15_Vol3.pdf.

(c) Ohio EPA. "Biocriteria manual" means collectively, unless specified otherwise, "Biological Criteria for the Protection of Aquatic Life: Volume II" and "Biological Criteria for the Protection of Aquatic Life: Volume III."

(d) Ohio EPA. Division of environmental response and revitalization database. ~~http://epa.ohio.gov/derr/Database-Request.~~ https://epa.ohio.gov/divisions-and-offices/environmental-response- revitalization/reports-and-data/database-request.

(e) Ohio EPA. "Ecological Risk Assessment Guidance Document." Division of Environmental Response and Revitalization. February 2003, as amended through August 2018. ~~https://epa.ohio.gov/portals/30/rules/RR-031.pdf~~ https://epa.ohio.gov/static/Portals/30/rules/RR-031.pdf.

(f) Ohio EPA. "Evaluation of Background Metal Soil Concentrations" 2013 through July 2019 updates. Electronic pdf: ~~https://epa.ohio.gov/portals/30/vap/docs/Evaluation%20of%20Background%20Metal%20Soil%20Concentrations.pdf.~~ https://epa.ohio.gov/static/Portals/30/vap/docs/Evaluation%20 of %20Background%20Metal%20Soil%20Concentrations.pdf.

(g) Ohio EPA. "Manual of Ohio EPA Surveillance Methods and Quality Assurance Practices. Division of Surface Water." 2006, amended in 2012. Electronic pdf: ~~http://www.epa.ohio.gov/portals/35/documents/Field_Manual_4_13_12_revision.pdf.~~ https://epa.ohio.gov/static/Portals/35/bioasses/2021-DSW-FieldSampling Manual-Main.pdf.

(h) Ohio EPA. "Sample Collection and Evaluation of Vapor Intrusion to Indoor Air for the Remedial Response, Resource Conservation and Recovery Act and Voluntary Action Programs." March 2020. Electronic pdf: ~~https://epa.ohio.gov/portals/30/rules/Vapor~~

%20Intrusion%20to%20Indoor%20Air.pdf. https://epa.ohio.gov/static/Portals/30/vap/docs/VI+Strategy+Final+3-4-20.pdf.

(i) Ohio EPA. "Sediment Sampling Guide and Methodologies, 2nd3rd edition. Division of Surface Water." November 2001.March 2012. https://www.epa.ohio.gov/portals/35/guidance/sedman2001.pdf. https://epa.ohio.gov/static/Portals/35/guidance/sedman2012.pdf.

(j) Ohio EPA Spill Database. June 2018.August 2021. http://ohioepa.custhelp.com/app/answers/detail/a_id/281/~/getting-a-copy-of-ohio-epas-recordsabout-a-spill. https://data-oepa.opendata.arcgis.com/datasets/5684b8ecaf014901be58e8f ca593050c 1/explore?location=40.154150%2C-82.667150%2C7.49.

(k) Ohio EPA. State emergency response commission (SERC). https://epa.ohio.gov/dapc/serc. https://epa.ohio.gov/divisions-and-offices/air-pollution-control/state-emergency -response-commission.

(l) Ohio EPA. "Support Document for the Development of Generic Numerical Standards and Risk Assessment Procedures. Division of Environmental Response and Revitalization." July 2019. Electronic pdf: https://epa.ohio.gov/Portals/30/rules/2014/Risk%20Support%20Document.pdf. https://epa.ohio.gov/static/Portals/30/rules/July+2019+VAP+Support +Document.pdf.

(m) Ohio EPA. "Technical Guidance Manual for Hydrogeologic Investigations and Ground Water Monitoring." February 1995 and as amended through February 2018. http://www.epa.ohio.gov/ddagw/gw_ support. https://epa.ohio.gov/divisions-and-offices/environmental-response- revitalization/guides-and-manuals/derr-ground-water-and-geology- support#TechnicalGuidanceManual.

(n) Ohio EPA. Voluntary action program web site. https://www.epa.ohio.gov/derr/volunt/volunt. https://epa.ohio.gov/divisions-and-offices/environmental-response- revitalization/derr-programs/voluntary-action-program.

(o) Ohio EPA. "Voluntary Action Program Memorandum of Agreement Between the United States Environmental Protection Agency and the Ohio Environmental Protection Agency." http://epa.ohio.gov/portals/30/vap/docs/OH_MOA.pdf. https://epa.ohio.gov/static/Portals/30/vap/MOA%20redline%20-%20 March 2017.pdf.

(3) U.S. environmental protection agency (U.S. EPA) technical documents. These documents are generally available in Ohio public libraries and the state library of Ohio. Documents listed without an address may be ordered by calling 800/490-9198. These documents may also be obtained by writing to "U.S. EPA/ NSCEP, P.O. Box 42419, Cincinnati, OH" 45242-0419. Documents listed with an address may also be obtained at that address. Many of these documents may be obtained via online ordering at www.epa.gov/ nscep. Some documents may be available for purchase, not free of charge.

(a) U.S. EPA. "Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites." December 2002. https://www.epa.gov/sites/production/files/2016-03/documents/ upper-conf-limits.pdf.

(b) U.S. EPA. "Comprehensive Environmental Response, Compensation, and Liability Information System" list. http://www.epa.gov/enviro/html/ cerclis/cerclis_query.html.

(c) U.S. EPA. "Exposure Factors Handbook. Office of Research and Development, National Center for Environmental Assessment." Washington, DC. EPA/600/P-95/002F. 2011 edition. http:// cfpub.epa.gov/ncea/efp/recordisplay.cfm?deid=236252

(d) U.S. EPA. "Exposure Factors Handbook. 2017 Chapter 5 Update. http:// cfpub.epa.gov/ncea/efp/recordisplay.cfm?deid=337521.

(e) U.S. EPA. "Federal Emergency Release Notification System List." https:// nepis.epa.gov/Exe/ZyPURL.cgi?Dockey=910165XB.txt.

(f) U.S. EPA. Federal Resource Conservation and Recovery Act corrective action facilities list. https://www.epa.gov/hw/lists-facilities-resource-conservation-and-recovery-act-rcra-2020-corrective-action-baseline.

(g) U.S. EPA. Federal Resource and Conservation Recovery Act generators list. August 2018. https://www3.epa.gov/enviro/facts/rcrainfo/search.html.

(h) U.S. EPA. Federal Resource Conservation and Recovery Act information database. August 2018. https://www3.epa.gov/enviro/facts/rcrainfo/ search.html.

(i) U.S. EPA. Federal Resource Conservation and Recovery Act treatment, storage, and disposal facility list. ~~https://yosemite.epa.gov/osw/rcra.nsf/how+to+use?~~

~~OpenForm.~~https://nepis.epa.gov/Exe/ZyPDF.cgi/P100C7DP.PDF?Dockey=P100C7DP.PDF.

(j) U.S. EPA. "Guidance for Comparing Background and Chemical Concentrations in Soil for CERCLA Sites." September 2002. Electronic pdf: https://www.epa.gov/sites/production/files/2015-11/documents/background.pdf.

(k) U.S. EPA. Gerlach, R. W., and J. M. Nocerino. "Guidance for Obtaining Representative Analytical Laboratory Subsamples from Particulate Laboratory Samples." U.S. EPA, Washington, DC, EPA/600/R-03/027. November 2003. https://nepis.epa.gov/Exe/ZyPURL.cgi?Dockey=2000GTWM.txt.

(l) U.S. EPA. "Guidance on Systematic Planning Using the Data Quality Objectives Process" Date: February 2006. Electronic pdf: https://www.epa.gov/sites/production/files/2015-06/documents/g4-final.pdf.

(m) U.S. EPA. "Human Health Evaluation Manual, Supplemental Guidance: Standard Default Exposure Factors. Office of Remedial Response. Office of Solid Waste and Emergency Response Directive." 9285.6 -03. 1991. http://Rais.ornl.gov/documents/OSWERdirective9285.6-03.pdf.

(n) U.S. EPA. "Methods for Measuring the Toxicity and Bioaccumulation of Sediment-Associated Contaminants with Freshwater Invertebrates, March 2000, Second Edition. Office of Science and Technology, Office of Water, Washington, DC." EPA 600R-99/064. https://nepis.epa.gov/Exe/ZyPURL.cgi?Dockey=30003SBA.txt.

This is also referred to as the "U.S. EPA sediment toxicity test."

(o) U.S. EPA. National Emission Standards for Hazardous Air Pollutants, or "NESHAPs." January 2018. https://www.epa.gov/compliance/national-emission-standards-hazardous-air-pollutants-compliance-monitoring.

(p) U.S. EPA. Mason, B. "Preparation of Soil Sampling Protocols: Sampling Techniques and Strategies." U.S. EPA, Washington, DC. July 1992. https://nepis.epa.gov/Exe/ZyPURL.cgi?Dockey=20008O5T.txt.

(q) U.S. EPA. "National Priorities List." June 2018. ~~http://www.epa.gov/superfund/sites/index.htm.~~https://www.epa.gov/superfund/superfund-national-priorities-list-npl.

(r) U.S. EPA. "Risk Assessment Guidance for Superfund (RAGS), Volume I: Human Health Evaluation manual (Part A)." December 1989. Electronic pdf: https://www.epa.gov/sites/production/files/2015-09/documents/ rags_a.pdf. Web site: https://www.epa.gov/risk/risk-assessment-guidance-superfund-rags-part.

(s) U.S. EPA. "Risk Assessment Guidance for Superfund (RAGS), Volume I: Human Health Evaluation manual (Part E, Supplemental Guidance for Dermal Risk Assessment)." 1989, updates 1994. Electronic pdf: https://www.epa.gov/sites/production/files/2015-09/documents/rags_a.pdf.

(t) U.S. EPA. "Risk Assessment Guidance for Superfund (RAGS), Volume I: Human Health Evaluation manual (Part F, Supplemental Guidance for Inhalation Risk Assessment)." 2009. Electronic pdf: https://www.epa.gov/sites/production/files/2015-09/documents/rags_a.pdf.

(u) U.S. EPA. "Risk Assessment Guidance for Superfund (RAGS), Volume III: Process For Conducting Probabilistic Risk Assessment (Part A)." EPA/540/R-02/002. 2001. https://www.epa.gov/risk/risk-assessment- guidance-superfund-rags-part.

(v) U.S. EPA. "Statistical Analysis of Ground Water Monitoring Data at RCRA Facilities. Unified Guidance. EPA/R-09-007. Office of Resource Conservation and Recovery Program Implementation and Information Division. U.S. Environmental Protection Agency." 2009. https://nepis.epa.gov/Exe/ZyPURL.cgi?Dockey=P10055GQ.txt.

(w) U.S. EPA. "Statistical Methods for Evaluating the Attainment of Cleanup Standards. Volume 3: Reference-Based Standards for Soil and Solid Media. Office of Policy, Planning and Evaluation." 1994. https://nepis.epa.gov/Exe/ZyPURL.cgi?Dockey=200082GP.txt.

(x) U.S. EPA. "Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites. Office of Solid Waste and Emergency Response." Washington, DC. OSWER 9355.4 -24. December 2002. https://semspub.epa.gov/work/HQ/175878.pdf.

(y) U.S. EPA. "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods," U.S. EPA publication SW 846 [third edition (November 1986), as amended by "Update I" in 1993, "Update II" in 1995, "Update IIA" in 1994, "Updated IIB" in 1995, "Update III" in 1997, "Update IIIA" in 1999, "Updated IIIB" in 2005, "Update IV" in 2008, "Updated V" in 2015, and "Updated V" in 2018], is available from the "National

Technical Information Service, U.S. Department of Commerce, 5301 Shawnee Road, Alexandria, VA," 22312 or at ~~http://www.epa.gov/waste/hazard/testmethods/sw846/index.htm.~~https://www.epa.gov/hw-sw846.

The following updates and methods as published in the test methods compendium known as "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods," U.S. EPA publication SW 846, and are available for purchase from the "National Technical Information Service, 5285 Port Royal Road, Springfield, VA" 22161. A suffix of "A" in the method number indicates revision one (the method has been revised once); a suffix of "B" in the method number indicates revision two (the method has been revised twice); and so on:

(i) Method 5035. December 1996. Electronic pdf: https://www.epa.gov/sites/production/files/2015-12/documents/5035.pdf. Web site: https://www.epa.gov/hw-sw846/sw-846-test- method-5035-closed-system-purge-and-trap-and-extraction- volatile-organics-soil.

(ii) Method 5035A. July 2002. Electronic pdf: https://www.epa.gov/sites/production/files/2015-07/documents/epa-5035a.pdf.

(z) U.S. EPA. Underground injection control program. https://www.epa.gov/uic.

(D) Private publications. These publications are generally available at Ohio public libraries and the state library of Ohio. The documents listed in this paragraph are those versions amended through July 1, 2018 unless otherwise specified.

(1) "American Industrial Hygiene Association, Asbestos Analysts Registry, 3141 Fairview Park Drive, Suite 777, Falls Church, VA" 22042. September 2018. http://www.aiha.org.

(2) "American Land Title Association/American Congress on Surveying and Mapping" (ALTA/ACSM). August 2018. https://www.alta.org/.

(3) "ASTM International" ASTM international documents are generally available at Ohio public libraries and the state library of Ohio. Information and copies may be obtained by writing to "ASTM International, 100 Bar Harbor Drive, P.O. Box C700, West Conshohocken, PA" 19428-2959. These documents are available for purchase at http://www.astm.org. The following method may be available for purchase at the ASTM web site. Some of the methods may be no longer available on the web site and may be found in libraries: "ASTM

E1527-13. Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process ASTM International / 2013."

(4) MacDonald, D.D., Ingersoll, C.G. and Berger, T.A. "Development and Evaluation of Consensus-based Sediment Quality Guidelines for Freshwater Ecosystems. Archives of Environmental Contamination and Toxicology 39, 20-3." 2000. Electronic pdf: https://semspub.epa.gov/work/07/40168746.pdf.

(5) Interstate Technology Regulatory Council, "Incremental Sampling Methodology." February 2012. Electronic pdf: ~~https://www.itrcweb.org/ISM-1/pdfs/ISM-1_021512_Final.pdf. Web site:~~ https://www.itrcweb.org/ISM-1/.

(6) "National Institute of Standards Technology. National Voluntary Laboratory Accreditation Program for Asbestos Fiber Analysis, 100 Bureau Drive, M/S 2140, Gaithersburg, MD" 20899-2140. https://www.nist.gov/nvlap.

(7) "National Library of Medicine's" document. "Integrated Risk Information System (IRIS). Toxicology data file on the National Library of Medicine's Toxicology Data Network." https://www.epa.gov/iris.

(8) "The NELAC Institute National Environmental Laboratory Accreditation Program, P.O. Box 2439, Weatherford, TX" 76086. September 2018. http://www.nelac-institute.org.

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