3745-27-79 Soil, surface water, and ground water contamination characterization and remediation caused by open burning of scrap tires.

[Comment: The purpose of this rule is to provide guidelines and self-implementing characterization and remediation procedures after the open burning of scrap tires has caused contamination or degradation of soil, surface water, ground water, or other natural resources. This includes areas where open burning of scrap tires leaches chemicals into soil or ground water, or into a stream or wetland which causes water quality and habitat degradation.]

(A) Applicability.

(1) This rule is applicable to any site or facility where the open burning of scrap tires has occurred including, but not limited to, all licensed scrap tire facilities, all premises where scrap tires are beneficially used, and all other sites where scrap tires are managed, collected, stored, recovered, disposed, or beneficially used regardless of whether it is specifically exempted from the registration or permitting, and licensing, requirements for scrap tire facilities, and to any associated areas affected by the scrap tire fire, including soil, surface water, and ground water.

(2) This rule is applicable to the "responsible individual" which includes, but is not limited to, the owner, operator, registrant, permittee, licensee, and/or person who conducted or allowed the accumulation or open burning of scrap tires.

(3) All actions required to be taken pursuant to this rule shall be undertaken in accordance with the requirements of all applicable local, state, and federal laws and regulations. This rule shall not be construed to prevent the director from seeking legal or equitable relief to enforce the terms of this rule or from taking other administrative, legal or equitable action as deemed appropriate and necessary, including penalties for noncompliance. This rule shall not be construed to prevent the director from exercising the director's authority to enforce or require additional activities pursuant to Chapter 3704., 3714., 3734., or 6111. of the Revised Code or any other state or federal law, including the "Comprehensive Environmental Response, Compensation and Liability Act" (CERCLA), (July 1, 2007) (www.gpoaccess.gov/uscode/index.html).

(4) Except as specified in section 3746.02 of the Revised Code and any rules adopted under Chapter 3746. of the Revised Code, nothing in this rule shall be construed to prevent participation in the voluntary action program established under Chapter 3746. of the Revised Code.

(5) For a scrap tire fire involving less than ten thousand passenger tire equivalents (PTEs), as defined in appendix I of rule 3745-27-61 of the Administrative Code, paragraphs (D) to (H) of this rule do not apply unless otherwise required by the director, an approved board of health, or a court of law.

(6) The terms "fire" and "scrap tire fire" as used in this rule means the "open burning" of scrap tires as "open burning" is defined in rule 3745-27-01 of the Administrative Code. The terms "fire," "scrap tire fire," and "open burning" as used in this rule do not refer to the controlled combustion of tires or tire material at a facility with a permit that includes the use of tires or tire material as fuel.

(B) General requirements.

(1) The responsible individual shall characterize and, if necessary, remediate areas of contamination resulting from the open burning of scrap tires in accordance with this rule as follows:

(a) After the occurrence of a fire at a site or facility.

(b) After the open burning of scrap tires at any site or facility.

(c) Whenever the responsible individual is ordered by the director, an approved board of health, or a court of law, to comply with this rule or other applicable laws.

(2) Subject to paragraphs (A)(3) and (A)(4) of this rule, unless otherwise specified by the director, an approved board of health, or a court of law, any work performed by the responsible individual to characterize and/or remediate contamination shall accurately and completely characterize the rate, source, and extent of contamination, and to remediate the contamination in a manner that is protective of human health and the environment and, to the extent technically and economically feasible, provides for the restoration of the contaminated site or facility to its pre-existing condition.

(3) Whenever there is a fire at a site or facility, the responsible individual shall immediately do the following:

(a) Notify local police and fire agencies.

(b) Notify the Ohio EPA emergency response team using their twenty-four hour toll-free number [800-282-9378].

(c) Take all reasonable actions necessary to suppress the fire and to protect human health and safety and the environment.

(d) Take all reasonable measures necessary to contain any residuals including but not limited to pyrolytic oil and water that result from suppressing a fire at the site or facility. These measures shall include establishing berms, dikes or other containment devices where necessary.

(e) Take all reasonable measures necessary to ensure that fires do not occur, recur, or spread to other areas of the site or facility. These measures shall include removing or isolating tires and/or portable containers.

(C) Priorities for remediation of scrap tire fire sites.

(1) After the occurrence of a fire at a site or facility, the responsible individual shall complete the following actions, as prioritized:

(a) Priority 1: Within seven days of the occurrence of a fire at a site or facility, notify, in writing, the Ohio EPA district office in which the site or facility is located, the local solid waste management district, the Ohio EPA central office, and the local health department. The responsible individual shall include in the notification the name and telephone number of the contact person reporting the fire; the address or location of the scrap tire fire; the date and duration of the fire; and the quantity of tires involved, to the extent known.

(b) Priority 2: Remove all whole and partially burned tires as soon as possible to reduce the possibility of additional fires. Partially burnt tires shall be disposed of as solid waste. Whole tires with melted or charred surfaces and partially burnt tires shall not be used in civil engineering projects or disposed of in a scrap tire monofill or monocell per ASTM, "Standard Practice for Use of Scrap Tires in Civil Engineering Applications," (D6270-98) (www.astm.org) paragraph 6.10.2: "In no case shall the tire shreds contain the remains of tires that have been subjected to a fire because the heat of a fire may liberate liquid petroleum products from the tire that could create a fire hazard when the shreds are placed in a fill." Whole tires that can not be recycled due to exposure to high temperatures shall be disposed of as solid waste.

(c) Priority 3: Containerize all visible fire residue to avoid further migration of contaminants by wind and precipitation.

(d) Priority 4: Characterize the containerized fire residual to determine if the material meets the definition of a hazardous waste, as defined in Chapters 3745-51 and 3745-52 of the Administrative Code.

(e) Priority 5: Remove all containerized fire residue from the site or facility and dispose of this residue in a licensed sanitary landfill if characterized as a solid waste; or manage and dispose in accordance with applicable state and federal laws.

(2) The actions described in paragraphs (C)(1)(b), (C)(1)(c), (C)(1)(d), and (C)(1)(e) of this rule shall be:

(a) Completed within ninety days at any site or facility where less than ten thousand passenger tire equivalents (PTEs) are involved in a fire or at any site or facility where a scrap tire fire occurs within the limits of an approved wellhead protection/source water assessment and protection program area.

(b) Begun within forty-five days at any site or facility where more than ten thousand PTEs are involved in a fire.

(c) Implemented as otherwise required by the director, an approved board of health, or a court of law.

(D) Characterization and remediation plan.

(1) The responsible individual identified in paragraph (A) of this rule shall submit to Ohio EPA a "characterization and remediation plan" within forty-five days after the start of any scrap tire fire involving more than ten thousand PTEs or if the fire occurs within the limits of an approved wellhead protection/source water assessment and protection program area, unless either of the following occurs:

(a) Ohio EPA concurs in writing that a plan is unnecessary or that the plan may be submitted later than forty-five days after the start of a scrap tire fire.

(b) As otherwise required by the director, an approved board of health, or a court of law.

(2) The "characterization and remediation plan" shall consist of all of the following:

(a) A map and a description of the site or facility which includes detailed drawings of the area affected by the fire including lateral extent.

(b) A description of action already taken.

(c) Actions to be taken which will prevent further fire at the site or facility.

(d) A schedule and detailed description of activities required for contamination characterization, remediation, and/or restoration.

(e) A site sampling plan and analytical procedures including quality assurance and quality control protocols for laboratory analyses, field methods, and chain of custody for sample collection and transportation.

(f) Cost estimates for contamination characterization.

(g) A certification statement signed by the owner or operator and an independent registered professional engineer stating that the information in the document is true and accurate.

(h) A schedule for implementation and completion.

(3) Ohio EPA may review the "characterization and remediation plan" and require changes or additional submissions if the plan does not satisfy the requirements of this rule. Within fifteen days of receipt of notification that the plan does not comply with the requirements of this rule, the responsible individual shall revise the plan to attain compliance with this rule.

(4) The responsible individual, unless otherwise required by the director or his authorized representative, an approved board of health, or a court of law do the following:

(a) Shall begin implementation of the "characterization and remediation plan" within ninety days after the start of any scrap tire fire involving more than ten thousand PTEs or if the fire occurs within the limits of an approved wellhead protection/source water assessment and protection program area.

(b) Complete the remedial work within the time frame specified in the schedule submitted as required in paragraph (D)(2)(d) of this rule.

(E) Soil contamination.

Contamination of soil shall be characterized and remediated as specified in this paragraph, unless prior written concurrence is obtained from Ohio EPA, or unless other or different requirements are specified by the director, an approved board of health, or a court of law.

(1) Material including but not limited to soil, pyrolytic oil, or partially burned scrap tires and wastes may be removed before the procedures required by paragraph (D)(2) of this rule are initiated. If material is removed, the material shall be managed according to either of the following guidelines, whichever is applicable:

(a) Material shall be disposed of at a licensed sanitary landfill unless the material is a hazardous waste as defined in Chapter 3745-51 of the Administrative Code, or the material is otherwise prohibited from being disposed of at a licensed solid waste disposal facility, in which case it shall be managed or disposed in accordance with applicable state and federal laws.

(b) The appropriate authorizations to treat, store, or dispose of the material on-site are obtained.

(2) Soil contamination characterization.

(a) The full extent of vertical and horizontal soil contamination shall be adequately defined by determining the contaminant concentrations for the parameters listed in appendix I of this rule and for any other parameter(s) required by the director or his authorized representative, an approved board of health, or a court of law. If pyrolytic oil generated by the scrap tire fire is present, it shall be sampled within seven days from the start of the fire and analyzed for all chemical constituents. Any chemical constituents found in the pyrolytic oil samples that are not listed in appendix I of this rule are to be added to the parameters for soil sample analysis.

(b) Quality assurance/quality control protocols shall be established for laboratory analyses, field methods, and chain-of-custody for sample collection and transportation.

(c) Field sampling methods of soils and wastes should be consistent with U.S. EPA publication SW-846, "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, Third Edition", (2005) (www.epa.gov/epaoswer/hazwaste/test/main.htm), including "Volume II, Field Manual," unless no SW-846 method exists in which case the responsible individual shall propose and justify a method.

(d) Analytical methods and data reporting procedures should be consistent with U.S. EPA publication SW-846 "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, Third Edition", (2005) (www.epa.gov/epaoswer/hazwaste/test/main.htm), unless no SW-846 method exists in which case the responsible individual shall propose and justify a method. Methods shall be capable of achieving the lowest possible analytical detection limit. All concentration data shall be reported, even if it is estimated, for compounds or elements that have been positively identified in the sample.

(e) Analytical results shall include a certification statement signed by the responsible individual and an independent registered professional engineer stating that sampling and analysis of contaminated soils and wastes was performed in accordance with this rule.

(3) Remediation.

(a) Unless the appropriate authorizations to treat, store, or dispose of material on-site is obtained, all residuals including, but not limited to, pyrolytic oil, partially burned scrap tires, and other solid wastes shall be removed from the site or facility in accordance with paragraph (E)(1) of this rule.

(b) Contaminated soils shall be removed, unless appropriate authorizations to treat, store, or dispose of the soil on-site is obtained, if considered contaminated by one of the following standards:

(i) For naturally occurring elements or compounds, soils in the affected area containing constituents listed in appendix I of this rule, which are demonstrated to occur in nearby background soils unaffected by the scrap tire fire, shall be considered contaminated if the concentration of any constituent in the soils circumscribing the site exceeds the upper confidence limit (i.e., the mean concentration plus two standard deviations) for the background concentration of the constituent. Background concentrations shall be adequately determined by taking samples from an area not affected by the fire, but which is made of the same type of soil horizon material as the comparison samples and shall be analyzed using total constituent analysis. Background samples need not be analyzed using the toxicity characteristic leachate procedure.

(ii) For compounds not naturally occurring, soil at the site shall be considered contaminated if the presence of synthetic or non-naturally occurring elements or compounds are detected (although not necessarily quantifiable) using the most sensitive methods available in U.S. EPA publication SW-846 "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, Third Edition", (2005) (www.epa.gov/epaoswer/hazwaste/test/main.htm), unless it is demonstrated that these compounds occur in nearby background soils unaffected by the scrap tire fire. Soil at the site or facility shall be considered contamination if the concentration of any constituent in the soils circumscribing the site exceeds the upper confidence limit (i.e., the mean concentration plus two standard deviations) for the background concentration of the constituent. Background concentrations shall be appropriately determined by taking samples from an area not affected by the fire, but which is comprised of the same type of soil horizon material as the comparison samples and shall be analyzed using total constituent analysis. The detection limits developed by the analytical laboratory at the time the sample is analyzed shall be used. "Detection limit" is defined as the minimum concentration of a substance that can be measured and reported with

ninety-nine percent confidence that the value is above zero.

(iii) Other standards approved in writing by Ohio EPA.

[Comment: For the purposes of paragraph (E)(3)(b)(ii) of this rule, background contamination for synthetic or non-naturally occurring elements or compounds will typically be the result of a previous use of the site or facility. The prior contamination, including the probable cause, should be documented, along with sample analysis results.]

(c) Excavated or collected material shall not be stored on site or facility for longer than sixty days and shall be stored in covered containers unless a longer period of storage is approved in writing by Ohio EPA.

(d) Other remediation methods may be implemented with prior written approval of Ohio EPA.

(F) Surface water.

Contamination or degradation of surface waters of the state shall be characterized and remediated as specified in this paragraph, unless prior written concurrence is obtained from or unless other or different requirements are specified by the director, the approved board of health, or a court of law.

(1) The responsible individual shall comply with this paragraph when the open burning of scrap tires has caused or may have caused solid wastes or other pollutants, such as pyrolytic oil, to enter surface waters of the state. This is to include, but is not limited to, the investigation of potential drainage pathways to surface water such as floor drains, field tiles, or combined sewers.

(2) Analysis and general procedures. The extent of contamination or degradation of surface waters shall be adequately defined using, as necessary, the following:

(a) A bioassay toxicity instream evaluation.

(b) Chemical analytical evaluations of selected matrices including water column, sediment, and fish tissue using the parameters specified in appendix I of this rule.

(c) A biological survey evaluation which may include fish community, macrobenthos, plant/animal community, or habitat assessments.

(d) A surface water/habitat restoration plan.

(e) All physical and biological field, laboratory, data processing, sample collection, and data analysis methods should be consistent with those specified in the following: "Manual of Ohio EPA Surveillance Methods and Quality Assurance Practices (Ohio Environmental Protection Agency 1989)"; "Biological Criteria for the Protection of Aquatic Life, Volumes I, II, and III (Ohio Environmental Protection Agency 1988, 1989)" (www.epa.state.oh.us); "Qualitative Habitat Evaluation Index (QHEI): Rationale, Methods, and Application (Rankin 1989)" (www.epa.state.oh.us); and sample collection methods and analytic procedures specified in 40 C.F.R. Part 136 (July 1, 2007) (www.gpoaccess.gov/cfr/index.html).

(f) Analytical and survey results shall include a certification statement signed by the responsible individual and an independent professional engineer stating that sample collection and analysis was performed in accordance with this rule.

(3) Remediation and restoration.

(a) Material including but not limited to pyrolytic oil, partially burned scrap tires, and other solid wastes shall be removed from the surface waters of the state and managed and disposed in accordance with paragraph (E)(1) of this rule, unless authorization to treat, store, or dispose of material on-site is obtained.

(b) The responsible individual shall perform such actions as may be necessary to restore the surface waters to their pre-existing condition.

(G) Ground water.

[Comment: Per paragraph (A)(5) of this rule, this paragraph does not apply to a scrap tire fire involving less than ten thousand passenger tire equivalents (PTEs), unless otherwise required by the director, an approved board of health, or a court of law.]

(1) General applicability. The responsible individual shall implement a "ground water monitoring program" capable of determining the impact of open burning of scrap tires on the quality of ground water occurring within the first continuous significant zone of saturation underlying the scrap tire fire site.

(a) A "ground water quality assessment monitoring program" will be required when ten thousand or more PTEs, as defined in appendix I of rule 3745-27-61 of the Administrative Code) have caught fire, unless otherwise directed by the director or his authorized representative, an approved board of health, or a court of law. A "ground water quality assessment monitoring program" includes, but is not limited to:

(i) A ground water monitoring system in accordance with paragraph (G)(2) of this rule.

(ii) Sampling and analysis procedures in accordance with paragraph (G)(3) of this rule.

(iii) A "ground water quality assessment monitoring plan" in accordance with paragraph (G)(4) of this rule.

(iv) Determinations of rate, extent, and concentration of contaminants caused by open burning of scrap tires and detected in the ground water in accordance with paragraph (G)(4)(e) of this rule.

(v) Notification to persons residing on or owning land above the contaminant plume in accordance with paragraph (G)(4)(i) of this rule.

(vi) Submission of a "ground water quality assessment report" in accordance with paragraph (G)(4)(f) of this rule.

(b) A "corrective measures program" will be required to remediate ground water contamination when contaminants due to open burning of scrap tires have entered the ground water. A "corrective measures program" includes, but is not limited to:

(i) A ground water monitoring system in accordance with paragraph (G)(2) of this rule.

(ii) Sampling and analysis procedures in accordance with paragraph (G)(3) of this rule.

(iii) A "corrective measures plan" in accordance with paragraph (G)(5) of this rule.

(iv) Proposed concentration levels in accordance with paragraph (G)(5)(g) of this rule.

(v) A public meeting held to discuss the results of the "ground water quality assessment report" and "corrective measures plan" with interested persons in accordance with paragraph (G)(5)(d) of this rule.

(vi) Selection and implementation of a corrective measure in accordance with paragraph (G)(5)(j) of this rule.

(c) Implementation of "ground water quality assessment monitoring program" and "corrective measures program." The responsible individual shall implement a "ground water quality assessment monitoring program" and/or a "corrective measures program" when required by paragraph (G)(4) or (G)(5) of this rule to implement these programs. Implementation shall be in accordance with the time frames specified in paragraphs (G)(4) and (G)(5) of this rule.

(d) For the purposes of this rule, the assessment monitoring and corrective measures programs are implemented upon the commencement of sampling of ground water monitoring wells in accordance with paragraph (G)(3), (G)(4), or (G)(5) of this rule.

(e) A qualified ground water scientist shall certify, in accordance with rule 3745-27-09 of the Administrative Code, the "ground water monitoring plan," the "ground water quality assessment plan," and the "corrective measures plan," and any revisions thereof, submitted in accordance with this rule.

(2) Ground water monitoring system.

(a) The ground water monitoring system, for assessment monitoring or corrective measures shall consist of a sufficient number of wells installed at appropriate locations and depths to yield ground water samples from the first continuous significant zone of saturation and all significant zones of saturation that exist above the first continuous significant zone of saturation underlying the scrap tire fire site that include both of the following:

(i) Represent the quality of the background ground water that has not been affected by past or present operations at the site or facility.

(ii) Represent the quality of the ground water passing directly downgradient of the area affected by the open burning of scrap tires.

(b) The responsible individual shall establish background ground water quality, unless the exception in paragraph (G)(2)(c) of this rule applies, by analyzing ground water samples collected from hydraulically upgradient well(s) for each of the parameters required to be sampled in accordance with paragraph (G)(4)(d) of this rule.

(c) Background ground water quality at a site or facility may be based on sampling of wells that are not hydraulically upgradient where both of the following apply:

(i) Hydrogeologic conditions do not allow the responsible individual to determine which wells are upgradient.

(ii) Sampling of other wells will provide an indication of background ground water quality that is as

representative or more representative than that provided by upgradient wells.

(d) All monitoring wells shall be designed, installed, and developed in a manner that allows the collection of ground water samples that are representative of ground water quality in the geologic unit being monitored and at a minimum, do all of the following:

(i) Monitoring wells shall be cased in a manner that maintains the integrity of the monitoring well boreholes.

(ii) The annular space (i.e., the space between the borehole and the well casing) above the sampling depth shall be sealed to prevent the contamination of the samples and the ground water.

(iii) The casing shall be screened or perforated and surrounded by sand or gravel in such a way that allows all of the following:

(a) For the minimization of the passage of formation materials into the well.

(b) For the monitoring of discrete portions of the first continuous significant zone of saturation.

(c) The monitoring wells, piezometers, and other measurement, sampling, and analytical devices shall be operated and maintained to perform to design specifications throughout the life of the monitoring program.

(e) The number, spacing, and depth of ground water monitoring wells shall be based on site-specific hydrogeologic information including, but not limited to, that information listed in paragraphs (C)(3)(a) to (C)(3)(e) of rule 3745-27-06 of the Administrative Code.

(f) The responsible individual shall, at least annually, evaluate the ground water surface elevation data obtained in accordance with paragraph (G)(3)(c) of this rule to determine whether the requirements of paragraph (G)(2) of this rule for locating the monitoring wells continue to be satisfied. If the evaluation shows that paragraph (G)(2) of this rule is no longer satisfied, the responsible individual shall immediately revise the number, location, and/or depth of the monitoring wells to bring the ground water monitoring system into compliance with this requirement.

(3) Ground water sampling, analysis, and data evaluation methods.

(a) General requirements. The assessment monitoring program and corrective measures program shall include consistent sampling and analysis procedures that are protective of human health and the environment and that are designed to ensure monitoring results that provide an accurate representation of ground water quality at the background and downgradient wells installed in accordance with paragraphs (G)(2), (G)(3), (G)(4) and (G)(5) of this rule. The "ground water quality assessment monitoring plan," and "corrective measures plan" shall include both of the following:

(i) A written sampling and analysis plan which documents the sampling and analysis procedures employed in the "ground water quality assessment monitoring program," and the "corrective measures program."

(ii) Submission of ground water analysis shall be in accordance with paragraph (G)(3)(e) of this rule.

(b) A sampling and analysis plan shall, at a minimum, include a detailed description of the equipment, procedures, and techniques to be used for all of the following:

(i) Measurement of ground water elevations.

(ii) Detection of immiscible layers.

(iii) Collection of ground water samples, including all of the following:

(a) Well evacuation.

(b) Sample withdrawal.

(c) Sample containers and handling.

(d) Sample preservation.

(iv) Performance of field analysis, including procedures and form for recording data and the exact location, time, and site-specific conditions associated with the data acquisition.

(v) Decontamination of equipment.

(vi) Methods for ground water sample analysis for all constituents due to open burning of tires at the site or facility, including all constituents listed in appendix I of this rule.

(vii) Chain of custody control consisting of both of the following:

(a) Standardized field tracking reporting forms to record sample custody in the field prior to and during shipment.

(b) Prepared sample labels containing all information necessary for effective sample tracking.

(viii) Field and laboratory quality assurance and quality control including all of the following:

(a) Collection of duplicate samples.

(b) Submission of field-bias blanks.

(c) Potential interferences.

(c) Measurement of ground water elevations. Ground water elevations shall be measured in all wells prior to any purging and sampling. The responsible individual shall determine, for the significant zone of saturation monitored, the direction of ground water flow each time ground water elevation measurements are performed. Ground water elevations in wells monitoring this unit shall be measured within a period of time short enough to avoid temporal variations in ground water flow which could preclude an accurate determination of ground water flow rate and direction. The responsible individual shall annually evaluate the ground water elevation data collected pursuant to this paragraph in accordance with paragraph (G)(2)(d) of this rule.

(d) The responsible individual shall determine whether or not there is an increase from background values for each parameter in appendix I of this rule. The responsible individual shall make this determination each time they assess ground water quality. To determine whether a significant increase has occurred, the responsible individual shall compare the ground water quality of each parameter in appendix I of this rule at each downgradient ground water monitoring well to the background value of that parameter. The responsible individual may use any one or more of the data

evaluation procedures specified in paragraph (G)(4)(c)(iv) of this rule.

(e) Submission of results. All ground water elevation, sample analysis results and ground water quality evaluation data generated in accordance with paragraphs (G)(2), (G)(3), (G)(4), and (G)(5) of this rule shall be submitted to the appropriate Ohio EPA district office not later than seventy-five days after sampling the well. All ground water data and an accompanying text shall be submitted to the appropriate Ohio EPA district office in a form specified by Ohio EPA.

(4) Ground water quality assessment monitoring program.

(a) General requirements. Ground water quality assessment monitoring is required if ten thousand or more PTEs have caught fire. Additionally, assessment monitoring may be required in the event that the results from an initial screening conducted by the field inspector indicate a possible release to the ground water underlying the site or facility. If ten thousand or more PTEs have caught fire, or a release to ground water is indicated, unless otherwise required by the director, an approved board of health, or a court of law, the responsible individual for a site or facility shall implement a "ground water quality assessment monitoring program" capable of determining the concentration, rate, and extent of migration of contaminants in the ground water due to open burning of tires at the site or facility. The responsible individual shall implement the "ground water quality assessment monitoring program" in accordance with the "ground water quality assessment plan" and any other requirements identified by the director.

(b) Within ninety days of the start of the fire, the responsible individual shall submit to the director a "ground water quality assessment plan" for implementing the "ground water quality assessment program" at the site or facility.

(c) The "ground water quality assessment plan" shall include, at a minimum, detailed descriptions of the following:

(i) Hydrogeologic conditions at the site or facility.

(ii) The investigatory approach to be followed during the assessment, including but not limited to the all of the following:

(a) The proposed number, location, depth, installation method, and construction of any assessment monitoring wells deemed necessary.

(b) The proposed method(s) for gathering additional hydrogeologic information.

(c) The planned use of supporting methodology (i.e., soil gas or geophysical surveys).

(iii) A sampling and analysis plan as required in paragraph (G)(3)(b) of this rule.

(iv) Data evaluation procedures, including but not limited to all of the following:

(a) Planned use of computer models.

(b) Planned use of previously gathered information.

(c) Planned use of statistical methods.

(d) Planned use of data display (e.g., stiff or piper) diagrams.

(e) Criteria which will be utilized to determine if additional assessment activities are warranted.

(v) Schedule of implementation which incorporates the requirements specified by the director.

(vi) Provisions for installing additional wells, as necessary, for determining the nature and extent of any release of contaminants due to open burning of tires.

(d) Assessment monitoring schedule, frequency, and parameters. Not later than two hundred seventy days after the start of the fire, the responsible individual shall sample all wells on-site. The responsible individual shall continue to sample all wells at least quarterly after this initial sampling and analyze the samples for all constituents listed in appendix I of this rule or any other constituents required by the director.

(e) First determination of rate, extent, and concentration. The responsible individual shall implement the "ground water quality assessment plan" which satisfies the requirements of paragraphs (G)(4)(b) and (G)(4)(c) of this rule and, at a minimum, determine the rate, concentration and extent of migration of any parameters required to be sampled for by paragraph (G)(4)(d) of this rule in the ground water.

(f) Ground water assessment report. The responsible individual shall make a determination according to paragraph (G)(4)(e) of this rule within the time frame specified in the submitted "ground water quality assessment plan." The responsible individual shall submit to the appropriate Ohio EPA district office, not later than fifteen days after making a determination, a written "ground water quality assessment report" containing an assessment of the ground water quality including all data generated as part of implementation of the "ground water quality assessment plan."

(g) Cessation of ground water monitoring.

(i) The responsible individual may demonstrate that a source other than the scrap tire fire caused the contamination, or that the elevated constituent concentration resulted from error in sampling, analysis, or natural variation in ground water quality. A report documenting this demonstration must be submitted to the appropriate Ohio EPA district office along with a request that the director approve cessation of the ground water monitoring program described in paragraphs (G)(3) and (G)(4) of this rule.

(ii) Until the appropriate Ohio EPA district office receives notice of approval of cessation of the ground water monitoring program from the director, the responsible individual shall comply with paragraphs (G)(4)(h) and (G)(5) of this rule.

(h) Semiannual determination of rate, extent, and concentration. If the responsible individual determines, based on the determination made according to paragraph (G)(4)(e) of this rule, that parameters required to be sampled for by paragraph (G)(4)(d) of this rule from the site or facility have entered the ground water, then the responsible individual shall continue to make this determination on a semiannual basis until released from this obligation by the director or unless an alternate time interval is established by the director or his authorized representative. The responsible individual shall submit documentation of the semiannual determination of rate, extent, and concentration with the reports required to be submitted in accordance with paragraph (G)(4)(j) of this rule.

(i) Notification of adjacent landowners. After the determination of rate, extent, and concentration in accordance with paragraph (G)(4)(e) of this rule, the responsible individual shall notify, by certified mail or any other form of mail accompanied by a receipt, all persons who own land or reside on the

land that directly overlies any part of the plume of the contamination, as determined in accordance with paragraph (G)(4)(e) of this rule, of the rate, extent, and concentration of the parameters required to be sampled for by paragraph (G)(4)(d) of this rule in the ground water. The responsible individual shall submit copies of the return receipts or other evidence of notification to the appropriate Ohio EPA district office. The responsible individual shall re-notify persons or notify additional persons, as necessary, but no more than annually, based on the results of the determinations of rate, extent, and concentration.

(j) Semi-annual assessment activities report. The responsible individual shall submit to the appropriate Ohio EPA district office and to the approved health department, upon implementation of the "ground water quality assessment plan" submitted under paragraph (G)(4)(c) of this rule, a report on the activities being conducted at the site or facility as part of implementation of the "ground water quality assessment plan." This report shall be submitted semi-annually and contain the following:

(i) A narrative description of all assessment activities that have occurred since the previous report.

(ii) All data generated as part of the assessment program since the previous report.

(5) Corrective measures program.

(a) General requirements. Unless the director approves cessation of the ground water monitoring program in accordance with paragraph (G)(4)(g) of this rule, the responsible individual shall implement a "corrective measures program" capable of evaluating all practical ground water remediation procedures, attaining the concentration level for parameters required to be sampled for by paragraph (G)(4)(d) of this rule detected in the ground water, controlling the source of the release, and eliminating further releases. The responsible individual shall implement the "corrective measures program" in accordance with the "corrective measures plan" and the requirements of this rule.

(b) Submission of corrective measures plan. Within one hundred eighty days after making a determination in accordance with paragraph (G)(4)(e) of this rule, the responsible individual shall submit a "corrective measures plan" to the director. The "corrective measures plan" shall evaluate all practical remediation procedures which are available for remediating any contamination discovered during assessment monitoring program." The evaluated remediation procedures shall, at a minimum, do all of the following:

(i) Be protective of human health and the environment.

(ii) Attain the proposed ground water concentration levels specified in accordance with paragraph (G)(5)(g) of this rule.

(iii) Control the source(s) of releases to reduce or eliminate, to the maximum extent practical, further releases of parameters required to be sampled for by paragraph (G)(4)(d) of this rule into the environment.

(iv) Comply with standards for management of wastes as specified in paragraph (G)(5)(m) of this rule.

(c) The responsible individual shall evaluate each proposed remediation procedure within the corrective measures plan. This evaluation shall, at a minimum, consider:

(i) Any potential remediation procedure, which shall be assessed for the long-term and short-term

effectiveness and the protection it affords. This shall include the degree of certainty that the remediation procedure will prove successful. Factors to be considered include all of the following:

(a) Magnitude of reduction of existing risks.

(b) Magnitude of residual risks in terms of likelihood of further releases due to waste remaining following implementation of a remediation procedure.

(c) The type and degree of long-term management required, including monitoring, operation, and maintenance.

(d) Short-term risks that may affect the community, workers, or the environment during implementation of such a remediation procedure, including potential threats to human health and the environment associated with excavation, transportation, disposal, or containment.

(e) Potential for human and environmental receptor exposure to remaining wastes, considering the potential threat to human health and the environment associated with excavation, transportation, disposal, or containment.

(f) Long-term reliability of the engineering and institutional controls.

(g) Potential need for replacement of the remediation procedure.

(h) Time until full protection is achieved.

(ii) The effectiveness of the remediation procedure in controlling the source in order to reduce further releases, including both of the following:

(a) The extent to which containment practices will reduce further releases.

(b) The extent to which treatment technologies may be used.

(iii) The need to coordinate with, and obtain necessary approvals and permits from other agencies.

(iv) The available capacity and location of needed treatment, storage, and disposal services.

(v) The ease or difficulty of implementing a potential remedy(s) based on consideration of all of the following types of factors:

(a) Degree of difficulty associated with constructing the technologies.

(b) Expected operational reliability of the technologies.

(c) Availability of necessary equipment and specialists.

(vi) The degree to which community concerns are addressed by a potential corrective measure; the performance, reliability, ease of implementation, and potential impacts of the potential remediation procedures, including safety impacts, cross-media impacts, and control of exposure to any residual contamination.

(vii) A schedule for initiating and completing each remediation procedure discussed in the plan. In

establishing this schedule, the responsible individual shall consider at a minimum all of the following:

(a) The extent and nature of any contamination.

(b) The practical capability of remedial technologies to achieve compliance with ground water concentration levels established in accordance with paragraph (G)(5)(g) of this rule and other objectives of the remediation procedure.

(c) The availability of treatment or disposal capacity for wastes managed during implementation of the remediation procedure.

(d) The desirability of utilizing technologies that are not currently available, but which may offer significant advantages over currently available technologies in terms of protection. Reliability, safety, or the ability to achieve remedial objectives.

(e) Potential risks to human health and the environment from contaminant exposure prior to completion of the remediation procedure.

(f) Practical capability of the responsible individual.

(g) Other relevant factors.

(viii) Resource value of the ground water system, including all of the following:

(a) Current and future uses.

(b) Proximity and withdrawal rate of users.

(c) Ground water quantity and quality.

(d) The potential damage to wildlife, crops, vegetation, and physical structures resulting from exposure to waste constituents.

(e) The hydrogeologic characteristics of the site or facility and surrounding area.

(f) Ground water removal and treatment costs.

(g) The cost and availability of alternate water supplies.

(ix) Practical capability of the responsible individual.

(x) Other relevant factors.

(d) Public meeting. The responsible individual shall do all of the following:

(i) Not later than thirty days after submitting the "corrective measures plan" to the director, place copies of the "ground water quality assessment report" and the "corrective measures plan" in the nearest public library or other publicly accessible equivalent location to the affected site or facility. The responsible individual shall periodically revise and update the copies, but not later than annually. The copies shall be made available to the public until a remedy is selected by the director.

(ii) Within sixty days of submitting the corrective measures plan to the director, discuss the results and content of the "ground water quality assessment report" and the "corrective measures plan" in a public meeting with interested and affected parties. The responsible individual shall provide adequate and reasonable public notice of the meeting, and the public meeting must be held at a place and time reasonably convenient to the interested and affected parties.

(iii) Solicit public comment on the proposed "corrective measures plan." Any public comments received shall be submitted to the appropriate Ohio EPA district office and the approved health department.

(e) The director may require the responsible individual to evaluate, as part of the corrective measures study, one or more specific potential remediation procedures.

(f) Interim corrective measures. If, at any time during the assessment described in paragraph (G)(4) of this rule, the director determines that the site or facility threatens human health or the environment, the director may require the responsible individual to implement the following measures:

(i) Notify all persons, by certified mail or any other form of mail accompanied by a receipt, who own the land or reside on the land that directly overlies or lies adjacent to any part of the plume of contamination.

(ii) Take any interim measures deemed necessary by the director to ensure the protection of human health and the environment. Interim measures should, to the extent practical, be consistent with the objectives of and contribute to the performance of any remediation procedure that may be required pursuant to paragraphs (G)(5)(a), (G)(5)(b), (G)(5)(c), (G)(5)(d), and (G)(5)(g) of this rule. The following factors may be considered by the director in determining whether interim measures are necessary:

(a) The amount of time required to develop and implement a final remediation procedure.

(b) Actual or potential exposure of nearby populations or environmental receptors to parameters required to be sampled for by paragraph (G)(4)(d) of this rule.

(c) Actual or potential contamination of drinking water supplies or sensitive ecosystems.

(d) Any further degradation of the ground water that may occur if remedial action is not initiated expeditiously.

(e) Weather conditions that may cause parameters required to be sampled for by paragraph (G)(4)(d) of this rule to migrate or be released.

(f) Risks of fire, explosion, or potential for exposure to parameters required to be sampled for by paragraph (G)(4)(d) of this rule as a result of an accident or failure of a container or handling system.

(g) Other situations that threaten human health and the environment.

(g) Concentration levels for contaminants. The corrective measures plan shall propose a concentration level for each scrap tire-derived constituent which has been detected in the ground water at a statistically significant level. These shall be established as follows:

(i) The proposed concentration levels in the ground water shall be protective of human health and the environment.

(ii) Unless an alternate level is deemed necessary to protect environmental receptors, then:

(a) For constituents for which a maximum contaminant level has been promulgated under the "National Primary Drinking Water Regulations," title 40 Code of Federal Regulations, part 141, (July 1, 2007) (www.gpoaccess.gov/cfr/index.html), the maximum contaminant level for that constituent.

(b) For constituents for which maximum contaminant levels have not been promulgated, the background concentration for the constituent collected from hydraulically upgradient wells.

(c) If the responsible individual can demonstrate to the director that a scrap tire-derived constituent found on appendix I of this rule is already present in the ground water at a background level, then the proposed concentration levels shall not be set below background levels unless the director or his authorized representative determines that cleanup to levels below background levels is necessary to protect human health and the environment and such cleanup is in connection with an area-wide remedial action under other authorities.

(iii) In establishing the proposed concentration levels that meet the requirements of paragraph (G)(5)(g)(ii) of this rule, the responsible individual shall consider all of the following:

(a) Multiple contaminants in the ground water.

(b) Exposure threat to sensitive environmental receptors.

(c) Other site-specific exposure or potential exposure to ground water.

(d) The reliability, effectiveness, practicality, and other relevant factors of the remediation procedure.

(iv) The director may establish an alternative ground water protection standard for constituents for which maximum contaminant levels have not been established. These ground water protection standards shall be appropriate health-based levels that satisfy any of the following criteria:

(a) The level is derived in a manner consistent with federal guidelines for assessing the health risks of environmental pollutants.

(b) The level is based on scientifically valid studies conducted in accordance with the "Good Laboratory Practice Standards," title 40 Code of Federal Regulations, part 792, (2007) (www.gpoaccess.gov/cfr/index.html) or equivalent standards.

(c) For known or suspected carcinogens, the proposed concentration levels shall be established at concentration levels below those that represent a cumulative (due to lifetime exposure) excess upperbound lifetime cancer risk to an individual within the 1×10^{-4} to 1×10^{-6} range.

(d) For systemic toxicants, the proposed concentration levels shall be reduced to levels to which the human population (including sensitive subgroups) could be exposed on a daily basis without appreciable risk of deleterious effects during a lifetime. For the purposes of this

rule, "systemic toxicants" include toxic chemicals that cause effects other than cancer or mutation.

(h) Determination that remediation is not necessary. The director may determine that remediation of a release of parameters required to be sampled for by paragraph (G)(4)(d) of this rule from the site or facility is not necessary if the responsible individual demonstrates any of the following:

(i) The ground water is additionally contaminated by substances that have originated from a source other than the site or facility and those substances are present in concentrations such that cleanup of the release from the site or facility would provide no significant reduction in risk to actual or potential receptors.

(ii) The constituent is present in ground water that applies to the following:

(a) Is not currently or reasonably expected to be a source of drinking water.

(b) Is not hydraulically connected with waters to which the scrap tire-derived constituent(s) are migrating or are likely to migrate in a concentration(s) that would exceed the ground water concentration levels established under paragraph (G)(5)(g) of this rule.

(iii) Remediation of release(s) is technically impractical.

(iv) Remediation results in unacceptable cross-media impacts.

(i) A determination by the director pursuant to paragraph (G)(5)(h) of this rule shall not affect the director's authority to require the responsible individual to undertake source control measures or other measures that may be necessary to eliminate or minimize further releases to ground water, to prevent exposure to ground water, or to remediate ground water to concentrations that are technically practical and significantly reduce threats to human health and the environment.

(j) Selection of corrective measure. The director shall select from the corrective measures plan, or designate according to paragraph (G)(5)(f) of this rule, the corrective measure which best meets the criteria listed in paragraphs (G)(5)(b), (G)(5)(c), and (G)(5)(g) of this rule. The responsible individual shall implement the corrective measure designated by the director in accordance with the schedule of implementation selected by the director.

(k) Determination that corrective measure not technically practical. The director may determine, based on information developed by the responsible individual after implementation of the remediation procedure has begun, or from other information, that compliance with the requirement(s) for the remediation procedure selected under paragraphs (G)(5)(g) of this rule is not technically practical. In making such a determination, the director shall consider both of the following:

(i) The responsible party's efforts to achieve compliance with the requirement(s).

(ii) Whether other currently available or new methods or techniques could practicably achieve compliance with the requirements.

(l) Alternative measures. If the director determines that compliance with a remediation procedure requirement is not technically practical, then the director may require that the responsible individual do all of the following:

(i) Implement alternate measures to control human or environmental receptor exposure to residual contamination, as necessary, to protect human health and the environment.

(ii) Implement alternate measures for control of the sources of contamination, or for removal or decontamination of equipment, units, devices, or structures required to implement the remediation procedure(s), that are as follows:

(a) Technically practical.

(b) Consistent with the overall objective of the remediation procedure.

(m) All solid wastes that are managed pursuant to a remediation procedure required under paragraph (G)(5)(f) of this rule, or an interim measure required under paragraph (G)(5)(f) of this rule, shall be managed in the following manner:

(i) That is protective of human health and the environment.

(ii) That complies with applicable laws and regulations.

(n) Quarterly corrective measures activities report. The responsible individual shall submit to the appropriate Ohio EPA district office and the approved health department, upon implementation of the remediation procedure chosen under paragraph (G)(5)(i) of this rule, a report of the activities being conducted at the site or facility as part of implementation of the corrective measures program. This report shall be submitted quarterly and contain the following:

(i) A narrative description of all remedial activities that have occurred since the previous report.

(ii) All data generated as part of the remedial activities at the site or facility.

(o) Completion of corrective measures. The corrective measures selected pursuant to paragraph (G)(5)(j) of this rule shall be considered complete when all of the following are done:

(i) The responsible individual complies with the ground water protection standards established under paragraph (G)(5)(g) of this rule at all points within the plume of contamination that lie beyond the limits of the scrap tire fire site or facility.

(ii) Compliance with the ground water protection standards established under paragraph (G)(5)(g) of this rule has been achieved by demonstrating semiannually via ground water monitoring that the contamination has not exceeded the ground water protection standards for a period of three years using the procedures in paragraph (G)(3)(d) of this rule. The director may specify an alternative length of time during which the responsible individual shall demonstrate that the contamination has not exceeded the ground water protection standards taking into account all of the following considerations:

(a) Extent and concentration of the contamination.

(b) Behavior characteristics of the contamination in the ground water.

(c) Accuracy of monitoring or modeling techniques, including any seasonal, meteorological, or other environmental variabilities that may affect the accuracy.

(d) Characteristics of the ground water.

(iii) All actions required to complete the corrective measure have been satisfied.

(6) Certification corrective measures completed. Upon completion of the corrective measure, the responsible individual shall certify within fourteen days to the director or his authorized representative that the corrective measure has been completed in compliance with paragraph (G)(5)(o) of this rule. The certification shall be signed by the responsible individual and a qualified ground water scientist.

(H) Certification.

A certification report shall be submitted to Ohio EPA following remediation of the area. The certification document shall include all of the following:

(1) A certification statement signed by the responsible individual and an independent registered professional engineer stating that sampling and all remedial activities were performed in accordance with this rule.

(2) The volume of contaminated soils and other wastes removed and waste receipts from the facilities where soils or other wastes were disposed.

(3) Details of the sampling and analysis methods.

(4) Laboratory records.

(5) A narrative description of all activities performed, including surface water or ground water remediation activities.

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CERTIFIED ELECTRONICALLY

Certification

11/21/2014

Date

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