STATE OF OHIO

IMPLEMENTATION OF WATER QUALITY STANDARDS

Chapter 3745-2 of the ADMINISTRATIVE CODE

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Ohio Environmental Protection Agency
Division of Surface Water
Modeling & Assessement Section

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3745-2-01 **Purpose and applicability.**

The purpose of this chapter is to provide for the attainment and protection of the surface water quality standards (WQS) established in Chapter 3745-1 of the Administrative Code. It sets forth rules for developing water quality based effluent limitations for point sources and total maximum daily loads (TMDLs) for discharges of any pollutant requiring control, including toxic, carcinogenic, and organoleptic pollutants. This chapter specifies how to determine when a wasteload allocation is necessary, how to calculate a wasteload allocation, how to determine the reasonable potential of a pollutant to cause or contribute to an excursion of the WQS, and how to develop a TMDL for a pollutant. Except as provided in paragraph (M) of rule 3745-2-12 of the Administrative Code, this chapter does not apply to establishing controls on the discharge of any pollutant by a wet weather point source.

Effective: 10/31/1997

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3745-2-02 **Definitions.**

(A) Acronyms and abbreviations used in Chapter 3745-2 of the Administrative Code are defined as listed below.

AIM	Area of initial mixing
BAF	Bioaccumulation factor
BCC	Bioaccumulative chemical of concern
BCF	Bioconcentration factor
BSAF	Bioto-sediment accumulation factor
C.F.R.	Code of federal regulations
D.O.	Dissolved oxygen
DMT	Dissolved metal translator
FAV	Final acute value
HMQ	Harmonic mean flow
IC	Inhibition concentration
IMZM	Inside mixing zone maximum
LAMP	Lakewide management plan
LOEC	Lowest observed effect concentration
LA	Load allocation
LC	Lethal concentration
NOEC	No observed effect concentration
NPDES	National pollutant discharge elimination system
OMZM	Outside mixing zone maximum
PQL	Practical quantification level
PEL	Preliminary effluent limit
PEQ	Projected effluent quality
POTW	Publicly owned treatment works
Q	Flow, as in 7Q10
RAP	Remedial action plan
SDR	Stream-to-discharge ratio
TCDD	Tetrachloro-dibenzo dioxin
TMDL	Total maximum daily load
TU_a	Acute toxic unit
TU_c	Chronic toxic unit
U.S.C.	United States Code
USEPA	United States environmental protection agency
WLA	Wasteload allocation
WQBEL	Water quality based effluent limit
WET	Whole effluent toxicity

(B) Technical words used in Chapter 3745-2 of the Administrative Code shall be defined as listed below.

(1) "1Q10", see stream design flow.

(2) "30Q10", see stream design flow.

(3) "7Q10", see stream design flow.

(4) "90Q10", see stream design flow.

(5) "Act" means the federal Water Pollution Control Act (commonly referred to as the "Clean Water Act"), 33 U.S.C. sections 1251 to 1387 as amended through July 2010.

(6) "Acute mixing zone" means the mixture of receiving water and effluent adjacent to a treated or untreated discharge within which the acute aquatic life criteria may be exceeded but the inside mixing zone maximum criteria may not be exceeded. The acute aquatic life criteria shall be met on the downstream perimeter of the acute mixing zone.

(7) "Ambient water temperature" means the spatial (longitudinal, lateral and vertical) and temporal water temperature measured in the receiving body of water prior to a specific waste heat discharge, and is outside the influence of any thermal mixing zone.

(8) "Ambient screening values" mean numbers that estimate the concentration of a pollutant in a receiving water required to protect humans from non-carcinogenic health effects and aquatic life from acute and chronic effects. These numbers are used to determine the necessity of developing a tier II value for a pollutant.

(9) "Analytical detection limit" means the detection limit applied during the laboratory analyses for a specific measurement or set of measurements.

(10) "Area of initial mixing" or "AIM" means the limited zone where discharge-induced mixing causes the effluent to rapidly mix with the receiving water such that the area may not be physically inhabitable to aquatic life. The inside mixing zone maximum criteria may be exceeded within the AIM but shall be met on the perimeter of the AIM.

(11) "Average criteria" means all numeric criteria and tier II values expressed on an average basis contained in Chapter 3745-1 of the Administrative Code.

(12) "Background" means all pollutants that flow from waters into the water body segment for which a TMDL, or a PEL determined in the absence of a TMDL, is being developed unless a load allocation is established for that source.

(13) "Bioaccumulation" means the net accumulation of a substance by an organism as a result of uptake from all environmental sources.

(14) "Bioaccumulative chemical of concern" or "BCC" has the same meaning as in rule 3745-1-02 of the Administrative Code.

(15) "Carcinogen" means a substance, for the purpose of calculating additivity, for which a cancer criterion exists as identified in or calculated pursuant to, Chapter 3745-1 of the Administrative Code.

(16) "Chronic mixing zone" means the mixture of receiving water and effluent adjacent to a treated or untreated discharge within which the chronic aquatic life, human health, wildlife and agricultural water supply criteria may be exceeded. The chronic aquatic life, human health, wildlife and agricultural water supply criteria shall be met on the downstream perimeter of the chronic mixing zone.

(17) "Conservative pollutant" means a persistent pollutant for which a TMDL, or a PEL determined in the absence of a TMDL, is being developed that is assumed to not decay or transform within the water body segment.

(18) "Criteria" means numeric criteria and tier II values established pursuant to Chapter 3745-1 of the Administrative Code.

(19) "Critical low depth for lakes" means the minimum depth reasonably expected for the lake at the discharge point based on historical records, release schedules, or other pertinent information.

(20) "Daily average temperature" means the arithmetic mean of multiple temperature measurements to be taken at least once per hour during a twenty-four hour day.

(21) "Design conditions" means the receiving water and effluent conditions applied in the determination of a TMDL, or a WLA in the absence of a TMDL, that represent the conditions most critical to protection of the applicable use designations. These conditions include, but are not limited to, stream design flow, effluent design flow, temperature, hardness, and pH.

(22) "Dilution ratio" means the ratio of receiving water to effluent for a given volume of water.

(23) "Director" means the director of Ohio environmental protection agency.

(24) "Discharge port" means the final outlet for effluent in a discharge pipe. This terminology is usually associated with outfall structures with multiple outlets designed to mix effluent rapidly with the receiving water.

(25) "Discharge induced mixing" means the state of mixing between the receiving water and effluent where the processes causing the mixing are induced primarily by the momentum of the effluent as it enters the receiving water.

(26) "Discharge" means the addition of any pollutant to a receiving water from a point source.

(27) "Dissolved metal translator" or "DMT" means the ratio between the total recoverable and dissolved concentrations of a metal in a receiving water, discharge, or a mixture of both that is expected to occur under the design conditions applicable to that metal.

(28) "Endangered or threatened species", see threatened or endangered species.

(29) "Endangered Species Act" means Endangered Species Act, 16 U.S.C. sections 1531 to 1544, as amended through July 1, 2010.

(30) "Flowing receiving water" means a body of water that exhibits a primarily unidirectional flow at the point of discharge.

(31) "Group X", see reasonable potential.

(32) "HMQ", see stream design flow.

(33) "IC25" means the inhibition concentration twenty-five; the toxicant concentration that would cause a twenty-five per cent reduction in a non-quantal biological measurement such as reproduction or growth in the test population (as opposed to lethality which is a quantal or "all-or-none" response).

(34) "Inside mixing zone maximum criteria" means the criteria that cannot be exceeded within the mixing zone. It is identical to final acute value (FAV), as defined in Chapter 3745-1 of the Administrative Code.

(35) "Lake Erie drainage basin" means all the streams, rivers, lakes, and other bodies of water within the drainage basin of lake Erie and within the United States.

(36) "Lake Erie Lakewide Management Plan" or "Lake Erie LAMP" means the management plan to restore and protect the beneficial uses of lake Erie developed in accordance with the Great Lakes Water Quality Agreement as amended in 1987, and the Great Lakes Critical Programs Act of 1990, Pub. L. No. 101-596, 104 Stat. 3000 (Nov. 16, 1990). The geographic scope of the lake Erie LAMP includes the open lake waters, the near shore area, embayments, river mouths and the lake effect zone of lake Erie tributaries.

(37) "LC50", for whole effluent toxicity tests, means the median lethal concentration; the per cent by volume effluent concentration that kills fifty per cent of exposed organisms during a specified exposure period.

(38) "Lowest observed effect concentration" or "LOEC" means the lowest measured concentration (expressed as a per cent by volume) of an effluent or a toxicant that causes a statistically significant effect on a test organism during a specified exposure period.

(39) "Load allocation" or "LA" is the portion of a receiving water's loading capacity that is attributed to one of its existing or future nonpoint sources.

(40) "Loading capacity" is the greatest loading of a pollutant that a water body can receive without violating water quality standards under specific flow conditions; also referred to as assimilative capacity.

(41) "Maximum criteria" means all numeric criteria and tier II values expressed as maximum pursuant to Chapter 3745-1 of the Administrative Code.

(42) "Method 1669: Sampling Ambient Water for Trace Metals at EPA Water Quality Criteria Levels" means "Method 1669: Sampling Ambient Water for Trace Metals at EPA Water Quality Criteria Levels, USEPA 821R96011, 1996". This document is available on the internet at http://yosemite.epa.gov/water/owrccatalog.nsf.

(43) "Mixing zone" means an area of a water body contiguous to a discharge. This discharge is in transit and progressively diluted from the source concentration to the receiving system concentration. The mixing zone shall be considered a place where wastewater and receiving water mix and not as a place where wastes are treated.

(44) "Natural conditions" mean those conditions that are measured outside the influence of human activities.

(45) "New discharge", for the purposes of implementing the bioaccumulative chemical of concern provisions in this chapter, means:

(a) A discharge of pollutants to a water body from a building, structure, facility or installation, the construction of which commences after December 30, 2002;

(b) A new discharge from an existing discharger that commences after December 30, 2002; or

(c) An expanded discharge from an existing discharger that commences after December 30, 2002, except for those expanded discharges resulting from changes in loadings of any BCC within the existing capacity and processes (e.g., normal operational variability, changes in intake water pollutants, increasing the production hours of the facility or adding additional shifts, or increasing the rate of production), and that are covered by the existing Ohio NPDES permit.

Not included within the definition of "new discharge" are new or expanded discharges of BCCs from a publicly owned treatment works when such discharges are necessary to prevent a public health threat to the community (e.g., a situation where a community with failing septic systems is connected to a POTW to avert a potential public health threat from these failing systems). These and all other discharges of BCCs are defined as existing discharges.

(46) "No observed effect concentration" or "NOEC" means the highest tested concentration (expressed as a per cent by volume) of an effluent or a toxicant that causes no statistically significant observed effects on a test organism during a specified exposure period.

(47) "Non-flowing waters" means water bodies that do not exhibit a natural unidirectional flow at the point of discharge.

(48) "Nonpoint source" means any source of pollutants other than those defined or designated as point sources.

(49) "Ohio river drainage basin" means all the streams, rivers, lakes, and other bodies of water within the drainage basin of the Ohio river.

(50) "Point source" means any discernible, confined or discrete conveyance from which a pollutant is or may be discharged to the surface waters of the state.

(51) "Pollutant" means sewage, industrial waste, or other waste as defined by divisions (B) to (D) of section 6111.01 of the Revised Code.

(52) "Pollution prevention alternatives assessment" means an analysis that identifies any cost-effective pollution prevention alternatives and techniques that are available to the discharger, and that would reduce the extent to which the increased loading results in a lowering of water quality. A pollution prevention alternatives analysis shall demonstrate a good faith effort by the discharger to review equipment or technology modifications, process or procedure modifications, reformulation or redesign of products, substitution of raw materials and improvements to housekeeping. The discharger is not required to implement a pollution prevention alternative if it is not technically or economically feasible.

(53) "Practical quantification level" or "PQL" means a concentration of a pollutant that is five times the method detection limit for the most sensitive available analytical procedure currently approved under 40 C.F.R. 136 for a pollutant, unless the director, by rules adopted in accordance with Chapter 119. of the Revised Code, establishes a different practical quantification level for the pollutant that is consistent with and no more stringent than the appropriate national consensus standard or other generally accepted standard.

(54) "Preliminary effluent limit" or "PEL" means the most stringent applicable WLA expressed as both an average and a maximum. The average PEL is the lowest WLA to maintain chronic criteria and the maximum PEL is the lowest WLA to maintain acute criteria.

(55) "Projected effluent quality" or "PEQ" means the estimated level of a pollutant in an effluent.

(56) "Publicly owned treatment works" or "POTW" means any device or system used in the treatment (including recycling and reclamation) of domestic sewage or industrial waste of a liquid nature that is owned by a municipality, county, or state entity or any public body created under state law that has authority over disposal of sewage.

(57) "Ranked ninety-fifth percentile" means the data value in a set of data that is greater than ninety-five per cent of the other data values as determined by ranking the data values from lowest to highest.

(58) "Reasonable potential" means the likelihood of a pollutant to cause or contribute to an excursion of a water quality standard. For chemical-specific determinations, a grouping system for assessing whether to establish WQBELs as limits in NPDES permits consists of five categories that rank the reasonable potential.

(a) "Group one" pollutants have no applicable criteria and the director has determined that data is insufficient to calculate criteria or values. The reasonable potential for pollutants in this group cannot be determined.

(b) "Group two" pollutants have little potential based on water quality data to cause or contribute to a water quality excursion; permit requirements may not be warranted based solely on water quality considerations.

(c) "Group three" pollutants have some potential based on water quality data to cause or contribute to a water quality excursion; permit requirements may not be warranted based solely on water quality considerations.

(d) "Group four" pollutants have significant potential based on water quality data to cause or contribute to a water quality excursion; permit monitoring requirements are generally warranted based solely on water quality considerations.

(e) "Group five" pollutants have the highest potential based on water quality data to cause or contribute to a water quality excursion; permit limitations are generally warranted based solely on water quality considerations.

(59) "Receiving water" means the water body into which point and nonpoint sources flow.

(60) "Remedial action plan" or "RAP" means a management plan to restore and protect beneficial uses in the Great Lakes areas of concern. The areas of concern were identified by state and federal government agencies with the international joint commission as the most polluted sites around the Great Lakes. A RAP is prepared in accordance with the Great Lakes Water Quality Agreement as amended in 1987, and the Great Lakes Critical Programs Act of 1990, Public Law Number 101-596, 104 Stat. 3000 (Nov. 16, 1990). A RAP is prepared from a broad ecosystem perspective and with considerable public involvement.

(61) "Representative aquatic species" mean those organisms, either natural or introduced, which presently exist or have existed in the surface waters of the state prior to July 1, 1977, with the exception of those banned species outlined in rule 1501:31-19-01 of the Administrative Code. In addition, it may include any species that are introduced into the surface waters of the state. Aquatic species designated as representative shall satisfy one or more of the following:

(a) Species that are particularly vulnerable to the existing or proposed environmental impact in question;

(b) Species that are commercially or recreationally valuable;

(c) Species that are threatened, rare, or endangered;

(d) Species that are critical to the structure and function of the aquatic community;

(e) Species whose presence is causally related to the existing or proposed environmental impact under examination;

(f) Species that are potentially capable of becoming localized nuisance species; or

(g) Species that are representative of the ecological, behavioral, and physiological requirements and characteristics of species determined in paragraphs (B)(61)(a) to (B)(61)(f) of this rule, but which themselves may not be representative.

(62) "Stream design flow" means the flow in a receiving water upstream from a discharge or nonpoint source that represents the flow conditions that are critical for protection of an aquatic life, human health, wildlife, or agricultural water supply use. Stream design flows may be calculated using annual or seasonal data; where seasonal data is appropriate, the applicable months are specified. The following statistical quantities based on stream flow data are used as stream design flows for various use designations in accordance with the rules of this chapter.

(a) "1Q10" or "one-day, ten-year low flow" means the lowest one-day average flow expected to occur once every ten years.

(b) "7Q10" or "seven-day, ten-year low flow" means the lowest seven-consecutive-day average flow expected to occur once every ten years.

(c) "30Q10" or "thirty-day, ten-year low flow" means the lowest thirty-consecutive-day average flow expected to occur once every ten years.

(d) "90Q10" or "ninety-day, ten-year low flow" means the lowest ninety-consecutive-day average flow expected to occur once every ten years.

(e) "HMQ" or "harmonic mean flow" is calculated as the reciprocal of the arithmetic mean of the reciprocals of the individual daily flows. The HMQ is determined from a continuous record of daily average flow measurements.

(63) "Technical Support Document for Water Quality-based Toxics Control" means "Technical Support Document for Water Quality-based Toxics Control, USEPA 505/2-90-001, 1991." This document is available on the internet at http://www.epa.gov/waterscience/methods/det/faca/mtg20051208/excerpt-detectionlimits.html.

(64) "The Metals Translator: Guidance For Calculating A Total Recoverable Permit Limit From A Dissolved Criterion" means "The Metals Translator: Guidance For Calculating A Total Recoverable Permit Limit From A Dissolved Criterion, USEPA 823-B-96-007, 1996." This document is available on the internet at http://www.epa.gov/waterscience/models/mtrans.html.

(65) "Thermal mixing zone" means that portion of a water body into which waste heat is discharged and assimilated, and within which the average and maximum daily average temperatures do not apply, except as prescribed by this chapter.

(66) "Threatened or endangered species" mean those species of the state's biota that are threatened with statewide extirpation or national extinction, as listed in rule 1501:31-23-01 of the Administrative Code or 50 C.F.R. 17 or that are listed as endangered or threatened under section 4 of the Endangered Species Act, 16 U.S.C. 1531 et seq. as amended through July 1, 2010.

(67) "Total maximum daily load" or "TMDL" means the sum of the existing and/or projected point source, nonpoint source, and background loads for a pollutant to a specified watershed, water body, or water body segment. A TMDL sets and allocates the maximum amount of a pollutant that may be introduced into the water and still ensures attainment and maintenance of water quality standards.

(68) "Waste heat discharge" means a point source discharge through which excess heat is discharged into the surface waters of the state.

(69) "Wasteload allocation" or "WLA" means the portion of a receiving water's loading capacity that is allocated to one of its existing or future point sources of pollution. In the absence of a TMDL or TMDL assessment and remediation plan, a WLA is the allocation for an individual point source that ensures that the level of water quality to be achieved by the point source is derived from and complies with all applicable water quality standards.

(70) "Water bodies" or "waters of the state" mean all streams, lakes, ponds, marshes, watercourses, waterways, wells, springs, irrigation systems, drainage systems, and all other bodies or accumulations of water, surface and underground, natural or artificial, that are situated wholly or partly within, or border upon, this state, or are within its jurisdiction, except those private waters that do not combine or effect a junction with natural surface or underground waters.

(71) "Water quality based effluent limit" or "WQBEL" means an effluent limitation determined on the basis of water quality standards set forth in Chapter 3745-1 of the Administrative Code or wasteload allocation procedures contained in this chapter.

(72) "Water quality standards" means the standards set forth in Chapter 3745-1 of the Administrative Code.

(73) "Wet weather point source" means any discernible, confined and discrete conveyance from which pollutants are, or may be, discharged as the result of a wet weather event. Discharges from wet weather point sources include only: discharges of storm water from a municipal separate storm sewer as defined in 40 C.F.R. 122.26 (b)(8); storm water discharges associated with industrial activity as defined in 40 C.F.R. 122.26 (b)(14); discharges of storm water and sanitary wastewaters (domestic, commercial, and industrial) from a combined sewer overflow; or any other storm water discharge for which a permit is required under section 402 (p) of the act. All storm water discharges associated

with industrial activity that are mixed with process wastewater shall not be considered a wet weather point source.

(74) "Whole effluent toxicity" or "WET" means the total toxic effect of an effluent measured directly with a toxicity test.

(75) As used in this chapter "40 C.F.R." means Title 40 of the Code of Federal Regulations effective July 1, 2010 and "50 C.F.R." means Title 50 of the Code of Federal Regulations effective July 1, 2010.

[Comment: The Code of Federal Regulations can generally be found in public libraries, and can be viewed electronically online at http://www.gpo.gov/fdsys/ and purchased by writing to "Superintendent of Documents. Attn: New Orders, PO Box 371954, Pittsburg, PA 15250-7954."]

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3745-2-04 **Determinations preliminary to development of water quality-based effluent limitations.**

[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 3745-2-02 of the Administrative Code.]

(A) For each discharge that may require the development of water quality-based effluent limitations (WQBELs), Ohio EPA shall develop wasteload allocations (WLAs) for pollutants if:

(1) The maximum projected effluent quality (PEQ) determined for that discharge and pollutant is greater than or equal to twenty-five per cent of the smallest of the applicable maximum criteria, where the maximum PEQ is determined in accordance with paragraph (D) of this rule and the criteria are determined in accordance with paragraph (E) of this rule; or

(2) The average PEQ determined for that discharge and pollutant is greater than or equal to twenty-five per cent of the smallest of the applicable average criteria, where the average PEQ is determined in accordance with paragraph (D) of this rule and the criteria are determined in accordance with paragraph (E) of this rule; or

(3) The discharge is considered by Ohio EPA to be interactive with one or more other discharges to the receiving water for this pollutant and one or more of the discharges will require WLAs for this pollutant based on conditions other than this condition; or

(4) The pollutant has the potential to threaten or impair the designated used of the receiving waters and is known or expected to occur in the discharge during the applicable permit period; or

(5) A WQBEL is required to meet other federal, state, or local regulations or as may be necessary to implement surface water or NPDES permit programs.

(B) The following exceptions apply to paragraph (A) of this rule.

(1) If all available effluent data for a pollutant are below the analytical detection levels applied to that data, then a maximum PEQ and an average PEQ cannot be calculated for that pollutant and a determination of WLAs will not be required unless one or more of the conditions in paragraphs (A)(3) to (A)(5) of this rule apply.

(2) If Ohio EPA determines that a WLA is required for a pollutant based on any one of the conditions listed in paragraph (A) of this rule, Ohio EPA is not required to evaluate the applicability of the other conditions.

(3) For pollutants that include both dissolved and total recoverable numeric aquatic life criteria in Chapter 3745-1 of the Administrative Code, Ohio EPA may use the total recoverable criteria alone to determine the applicability of conditions in paragraphs (A)(1) and (A)(2) of this rule.

(C) For discharges in the lake Erie basin: For pollutants that require WLA determination based on paragraph (A)(4) or (A)(5) of this rule, but do not have established numeric criteria in Chapter 3745-1 of the Administrative Code, Ohio EPA shall evaluate available data to determine applicable numeric criteria. Ohio EPA shall also take the following actions.

(1) If available data are insufficient to determine numeric criteria and the pollutant is included in table 6 of the "Final Water Quality Guidance for the Great Lakes System" (40 C.F.R. 132), Ohio EPA shall use all available and relevant information to estimate ambient screening values that will protect humans from health effects other than cancer, and aquatic life from acute and chronic effects.

(2) If the maximum PEQ is greater than or equal to twenty-five per cent of the ambient screening value for protection of aquatic life from acute effects, or the average PEQ is greater than or equal to twenty-five per cent of the lowest of the ambient screening values for protection of human health or aquatic life from chronic effects, Ohio EPA shall develop WLAs based upon the ambient screening values that are consistent with rule 3745-2-05 of the Administrative Code.

(3) In accordance with paragraph (B)(6) of rule 3745-2-06 of the Administrative Code, Ohio EPA shall use the WLAs based on ambient screening values to determine if data must be generated to develop numeric criteria for that pollutant.

(4) Ohio EPA shall not use the WLAs based on ambient screening values to develop WQBELs.

(D) For each pollutant for which discharge-specific effluent data is available and one or more data values equal or exceed the analytical detection levels applied to that data, Ohio EPA shall determine the maximum PEQ and the average PEQ to meet the following requirements, unless otherwise exempt from determination by paragraph (B) of this rule.

(1) The discharge-specific effluent monitoring data shall be selected to best represent the magnitude and variability of that pollutant in the discharge as projected for the applicable period of the permit.

(a) The most recent five years of data shall be used unless an alternate period of record better represents the projected effluent quality. Such alternative periods of record may include, but are not limited to, shorter time periods that reflect changes in discharge characteristics that result from changes in manufacturing processes or wastewater treatment systems or their operation.

(b) Extreme outliers and other data anomalies that result from collection, analysis, or recording errors or non-repeatable plant operation or discharge conditions may be eliminated from the data.

(c) The data shall be based on independent grab or twenty-four hour composite effluent samples. If such data are unavailable, other discharge-specific effluent data may be used if the discharger demonstrates that the data properly represent the long-term daily variability of the pollutant in the effluent, or Ohio EPA can adjust the data by a scientifically defensible procedure to represent independent daily values.

(d) If available data do not adequately represent the projected magnitude and variability of the pollutant, Ohio EPA may adjust the available data or the PEQ calculation procedures to approximate the projected changes in effluent quality provided these adjustments are scientifically defensible.

(2) The maximum PEQ shall be determined as the ninety-fifth percentile of the projected population of daily values of the discharge-specific effluent monitoring data using a scientifically defensible statistical method that accounts for and captures the long-term daily variability of the effluent quality, accounts for limitations associated with sparse data sets, and assumes a log-normal distribution of the discharge-specific effluent data (unless another distribution can be demonstrated to be more appropriate).

(3) The average PEQ shall be determined as the ninety-fifth percentile of the projected population of monthly averages of the discharge-specific effluent monitoring data using a scientifically defensible statistical method that accounts for and captures the long-term variability of the monthly average effluent quality, accounts for limitations associated with sparse data sets, and assumes a log-normal distribution of the discharge-specific effluent data (unless another distribution can be demonstrated to be more appropriate).

(4) For pollutants with numeric criteria representing the sum of two or more isomers or metabolites (such as but not limited to halomethanes, polyaromatic hydrocarbons, and DDT), the PEQ may be estimated as the sum of the PEQs determined for the individual isomers or metabolites.

(5) In the absence of reliable effluent data for a new or expanded discharge, the requested discharge level will be used as the PEQ for use in reasonable potential determinations.

(E) The numeric water quality criteria applicable to the receiving waters are determined in Chapter 3745-1 of the Administrative Code.

(1) For numeric criteria that vary with water hardness, Ohio EPA shall calculate the applicable numeric criteria based on a water hardness concentration that meets the following requirements.

(a) If water hardness data are available that represent the concentration in the receiving water downstream of the mixing zone under the applicable design conditions:

(i) The median of the water hardness values shall be used if ten or more values are available; or

(ii) The arithmetic mean of the water hardness values shall be used if less than ten values are available.

(b) If water hardness data are not available that represent the concentration in the receiving water downstream of the mixing zone under the applicable design conditions, the annual twenty-fifth percentile of water hardness data considered by Ohio EPA to be representative of the natural background conditions for that receiving water shall be used.

(c) If discharge-specific data are available that adequately represent the projected water hardness of the effluent over the applicable permit period, a water hardness concentration based on the effluent data and determined in accordance with paragraph (E)(1)(a) of this rule may be used to determine the inside mixing zone maximum (IMZM) numeric criterion applicable to that discharge provided that an area of initial mixing (AIM) is not applied to this discharge.

(d) If an AIM is applied to the discharge, a concentration representing the water hardness at the edge of the AIM may be used to determine IMZM numeric criteria applicable to that discharge if it meets the following conditions:

(i) The concentration is based on receiving water and discharge water hardness data that meet the conditions specified in paragraphs (E)(1)(a) and (E)(1)(c) of this rule, respectively;

(ii) The concentration is calculated based on the dilution applicable at the edge of the AIM; and

(iii) Other factors that may affect water hardness are accounted for, such as, but not limited to, effluent and receiving water variability and chemical interactions.

(2) For numeric criteria that vary with pH (other than for ammonia), Ohio EPA shall calculate the applicable numeric criteria based on a pH that meets the following requirements.

(a) If pH data are available that represent the long term daily variation in the receiving water downstream of the mixing zone under the applicable design conditions, the median of the pH values shall be used.

(b) If pH data are not available that represent the long term daily variation in the receiving water downstream of the mixing zone under the applicable design conditions, the annual twenty-fifth percentile or seventy-fifth percentile (whichever value results in the more stringent numeric criterion) of pH data considered by Ohio EPA to be representative of the natural background conditions for that receiving water shall be used.

(c) If discharge-specific data is available that adequately represents the projected pH of the effluent over the applicable permit period, the median pH based on the effluent data may be used to determine the IMZM numeric criterion applicable to that discharge provided that an AIM is not applied to this discharge.

(d) If an AIM is applied to the discharge, a value representing the pH in the receiving water at the edge of the AIM may be used to determine IMZM numeric criteria applicable to that discharge if it meets the following conditions:

(i) The pH is based on receiving water and discharge water pH data that meet the conditions specified in paragraphs (E)(2)(a) and (E)(2)(c) of this rule, respectively;

(ii) The pH is calculated based on the dilution applicable at the edge of the AIM; and

(iii) Other factors that may affect pH are accounted for, such as, but not limited to, effluent and receiving water variability and chemical interactions.

(3) For ammonia, unless alternative periods are found to be necessary or appropriate in order to maintain water quality criteria, Ohio EPA shall determine numeric criteria for two seasonal periods, summer and winter. Ohio EPA shall calculate numeric criteria for ammonia based on temperature and pH values that meet the following requirements.

(a) Temperature and pH shall be based on data collected during the following periods:

(i) June through September for the summer season;

(ii) December through February for the winter season; and

(iii) The period of data that best represents the season for alternative seasonal periods.

(b) For each applicable season, temperature and pH statistics shall be determined based on the available ambient data that best represents the long-term daily variation in the receiving water downstream of the mixing zone. The following statistics shall be used to determine the applicable ammonia criteria:

(i) Seventy-fifth percentile for temperature; and

(ii) Seventy-fifth percentile for pH.

(c) If data are not available for the receiving water, data from another water body may be used if it can be demonstrated that the other water body has similar temperature and pH related characteristics. If data are not available for a similar water body, data considered by Ohio EPA to be representative of the natural background conditions for that receiving water may be used.

(4) Other methods for determining the applicable water hardness, pH, and temperature may be allowed by Ohio EPA provided the methods are scientifically defensible and can be demonstrated to maintain all applicable water quality criteria.

(5) For WLA determinations based on probabilistic analysis, as allowed by rule 3745-2-05 of the Administrative Code, Ohio EPA shall consider the numeric water quality criteria applicable to the receiving water to be maintained if the allowable duration and frequency of exceedance recommended in the USEPA "Technical Support Document for Water Quality-based Toxics Control" are met. Ohio EPA may allow an alternative duration and frequency of exceedance if it is scientifically defensible and can be demonstrated to provide sufficient protection of the designated water quality uses of the receiving water.

(F) For metals that have both dissolved and total recoverable aquatic life criteria in Chapter 3745-1 of the Administrative Code and for which paragraph (A) of this rule applies, Ohio EPA shall determine the appropriate criteria applicable to determining WLAs using the following conditions.

(1) Except for hexavalent chromium, Ohio EPA shall convert the dissolved aquatic life criteria to effective total recoverable criteria by multiplying the applicable dissolved criteria by the dissolved metal translator (DMT) applicable to that metal, receiving water, and discharge, as defined in paragraphs (F)(4) to (F)(8) of this rule.

(2) In the absence of an applicable DMT, Ohio EPA shall apply the total recoverable aquatic life criteria to determine WLAs for that metal as provided in Chapter 3745-1 of the Administrative Code and determined in accordance with paragraph (E) of this rule.

(3) For hexavalent chromium, Ohio EPA shall apply the dissolved aquatic life criteria to develop and express WLAs in dissolved form.

(4) For acute and chronic aquatic life criteria, an applicable DMT shall represent the receiving waters downstream of the chronic mixing zone under design conditions.

(5) For the IMZM criterion, the DMT applicable to the acute aquatic life criterion shall be applied, with the following exceptions.

(a) When the effluent is known or suspected to have a DMT significantly lower than that applied to the acute aquatic life criterion:

(i) An effluent DMT may be determined and applied if it meets the protocol provided in paragraph (G) of this rule; or

(ii) If an applicable effluent DMT is not determined, the total recoverable IMZM criteria shall be applied in accordance with paragraph (F)(2) of this rule.

(b) When the effluent is known to have a DMT higher than that applied to the acute aquatic life criterion, an alternative DMT of up to the effluent DMT may be applied if the discharger can demonstrate that it maintains all applicable dissolved aquatic life criteria in the receiving water and the effluent DMT is determined in accordance with paragraph (G) of this rule.

(6) A discharge-specific DMT for a metal may be determined by the discharger or Ohio EPA in accordance with paragraph (G) of this rule. The discharge-specific DMT shall be applied by Ohio EPA to determine the effective total recoverable criteria applicable to that metal.

(7) Ohio EPA may determine a DMT for a specific water body segment. If a water-body-segment-specific DMT is available and applicable to the discharge and receiving water and an acceptable discharge-specific DMT is not available, Ohio

EPA shall apply that water-body-segment-specific DMT to determine the effective total recoverable criteria applicable to that metal.

(8) Ohio EPA may determine a DMT applicable to water bodies in a specific region of the state of Ohio. If a region-specific DMT is available and applicable to the discharge and receiving water and an acceptable discharge-specific or water-body-segment-specific DMT is not available, Ohio EPA shall apply the region-specific DMT in determining effective total recoverable criteria applicable to that metal.

(G) A discharge-specific DMT shall be determined in accordance with the USEPA document, "The Metals Translator: Guidance For Calculating A Total Recoverable Permit Limit From A Dissolved Criterion" (translator document) except as otherwise provided in this rule.

(1) Only those procedures in the translator document which are intended for determination of site-specific translators and are based on direct measurement of dissolved and total recoverable metal concentrations may be applied in the determination of discharge-specific DMTs.

(2) The discharge-specific DMT shall be determined to represent the receiving water downstream of the applicable mixing zone under the more restrictive of the following conditions:

(a) The stream design flow and other receiving water and effluent conditions applicable to the determination of WLAs for aquatic life criteria pursuant to rule 3745-2-05 of the Administrative Code and paragraph (E) of this rule; or

(b) Other receiving water or effluent conditions that are determined by Ohio EPA to be more critical in regard to the impact of dissolved metals on aquatic life.

(3) The discharge-specific DMT shall represent the ratio of the total recoverable concentration of a metal to the dissolved concentration. An individual DMT measurement shall be determined as the ratio of the total recoverable concentration of a metal in a water sample to the dissolved concentration of that metal in the same water sample or a separate sample collected at the same time and location.

(4) Clean sampling and analytical procedures in accordance with the USEPA document "Method 1669: Sampling Ambient Water for Trace Metals at EPA Water Quality Criteria Levels" shall be applied in the collection and analysis of the metals concentrations used to determine a DMT measurement. Alternative sampling and analytical procedures may be applied if the procedures can be shown to provide sufficient protection from contamination, such that any

contamination of the samples that may occur will not be significant relative to the DMT measurement.

(5) At a minimum, the following measurements shall also be made at the same time and location as each of the DMT measurements:

(a) Total suspended solids concentration;

(b) Water hardness;

(c) Water pH;

(d) Water temperature; and

(e) Receiving water flow and effluent flow.

(6) If either or both of the total recoverable and dissolved concentrations on which a DMT measurement is based are less than the applicable practical quantification level (PQL), then the DMT measurement shall not be used in determining the discharge-specific DMT unless the inaccuracies associated with concentrations less than PQL can be demonstrated to be insignificant or are accounted for through application of scientifically defensible conservative measures. Additionally, if either or both of the total recoverable and dissolved concentrations on which a DMT measurement is based are less than the applicable analytical detection level, the following requirements apply:

(a) If the total recoverable concentration, or both the total recoverable and dissolved concentrations, are below the applicable detection level, then the DMT measurement shall not be used in determining the discharge-specific DMT;

(b) If only the dissolved concentration is below the applicable detection level, then the DMT measurement may be used in determining the discharge-specific DMT if the dissolved concentration is assumed to equal a concentration no less than the applicable analytical detection level.

(7) All DMT measurements applicable to the discharge and receiving water shall be used in determining the discharge-specific DMT, unless the DMT measurements are eliminated in accordance with paragraph (G)(6) of this rule or the DMT measurements can be demonstrated to be inaccurate or unrepresentative of the conditions applicable under paragraph (G)(2) of this rule. A DMT measurement less than one, where the observed dissolved metal concentration exceeds the total recoverable concentration, shall not be eliminated unless the individual concentration measurements can otherwise be demonstrated to be inaccurate.

(8) If the DMT measurements were collected during receiving water and effluent conditions approximating the conditions applicable under paragraph (G)(2) of this rule, the following requirements apply to the determination of a discharge-specific DMT.

(a) The discharge-specific DMT shall be calculated as the geometric mean of the measured translators if all of the following conditions are met:

(i) At least ten DMT measurements are available and used in that calculation;

(ii) All DMT measurements used in the calculation adequately represent the conditions applicable under paragraph (G)(2) of this rule; and

(iii) The observed variation of the DMT measurements about the geometric mean will not result in significant exceedances of the applicable aquatic life criteria if the geometric mean is applied as the discharge-specific DMT.

(b) If the conditions in paragraph (G)(8)(a) of this rule are not met, but sufficient data are available to accurately estimate the variability of DMT measurements, the discharge-specific DMT shall be calculated by a scientifically defensible method that accounts for the inaccuracies associated with small data sets or data that may not represent the conditions applicable under paragraph (G)(2) of this rule. Such methods may include, but are not limited to, selection of a statistic that produces a DMT sufficiently lower than the geometric mean in order to provide reasonable assurance that possible inaccuracies in the discharge-specific DMT will not result in exceedance of applicable aquatic life criteria.

(9) If DMT measurements were collected over a range of receiving water and effluent conditions, including conditions outside those applicable under paragraph (G)(2) of this rule, a scientifically defensible method shall be applied to determine the mathematical relationships between the DMT measurements and the other measured factors, separately and in combination, including but not limited to stream flow and total suspended solids concentrations. Scientifically defensible methods shall also be used to determine the values for each measured factor that will occur during the receiving water and effluent conditions applicable under paragraph (G)(2) of this rule. The discharge-specific DMT shall be determined based on the most significant of these relationships and values to represent the conditions applicable under paragraph (G)(2) of this rule. These methods shall account for any inaccuracies or uncertainties associated with the data or the derived relationships so as to provide reasonable assurance that possible inaccuracies in the discharge-specific DMT will not result in exceedance of applicable aquatic life criteria.

(10) Before conducting a discharge-specific DMT study, the discharger may complete a plan of study in accordance with Chapter 5 of the translator document, as referenced in paragraph (G) of this rule, and submit the study to Ohio EPA for review and comment.

(11) After completion of the discharge-specific DMT study, the discharger shall submit a final report to Ohio EPA, including at a minimum the following information:

(a) A description of the field activities and, as applicable, any variations from the plan of study;

(b) All data collected during the study;

(c) A discharge-specific DMT for each metal evaluated, calculated based on the study and in accordance with paragraph (G) of this rule; and

(d) Descriptions and justifications for all analyses, calculations, and assumptions made in the determination of the discharge-specific DMT.

(12) Each discharge-specific DMT calculated pursuant to the requirements of paragraph (G) of this rule shall be used in determination of WLAs for that discharge in accordance with paragraph (F) of this rule. If a discharge-specific DMT for a metal was not calculated in accordance with the requirements of paragraph (G) of this rule, Ohio EPA shall not apply that DMT in determination of WLAs, but may take one of the following actions:

(a) Based on the discharge-specific DMT study and other available information, Ohio EPA may determine and apply a discharge-specific DMT for that metal, in accordance with this rule; or

(b) Ohio EPA may allow the discharger to revise the study and discharge-specific DMT for that metal to meet the requirements of this rule and resubmit the final report.

(13) All studies and reports required under paragraph (G) of this rule shall be in compliance with a schedule agreed upon between Ohio EPA and the discharger such that the discharge-based DMTs will be completed prior to the scheduled determination of WLAs for that discharge.

(14) If sampling is required as a condition of an NPDES permit to verify the continued validity of an applied discharge-specific DMT for a metal (in accordance with paragraph (C) of rule 3745-33-05 of the Administrative Code), the following requirements shall apply:

(a) At least one DMT measurement shall be made during the permit period that, in Ohio EPA's determination, adequately represents the receiving water downstream of the mixing zone for the discharge under the applicable design conditions and meets the requirements of paragraph (G) of this rule; and

(b) The DMT measurements shall be collected in accordance with a schedule in the NPDES permit such that the results of the measurement will be available prior to the next scheduled determination of WLAs for that discharge.

(15) If Ohio EPA determines, based on DMT measurements collected in accordance with paragraph (G)(14) of this rule, that a discharge-specific DMT is still valid, Ohio EPA may apply that discharge-specific DMT in determination of WLAs required for NPDES permit renewal for that discharge.

(16) If Ohio EPA determines, based on DMT measurements collected in accordance with paragraph (G)(14) of this rule, that the applied discharge-specific DMT may no longer be valid for that discharge, Ohio EPA may take one of the following actions.

(a) Ohio EPA may require the discharger to collect additional DMT measurements and redetermine an applicable discharge-specific DMT, in accordance with this rule. Data from the original discharge-specific DMT study may be included if the discharger demonstrates that it is applicable.

(b) Based on the new DMT measurements, the original DMT study, and other available information, Ohio EPA may determine an appropriate discharge-specific DMT in accordance with this rule.

(c) Ohio EPA may apply a discharge-specific DMT determined under paragraph (G)(16)(a) or (G)(16)(b) of this rule to determine WLAs for that discharge as required for renewal or a modification of an NPDES permit.

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3745-2-05 **Calculating wasteload allocations.**

[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 3745-2-02 of the Administrative Code.]

(A) For discharges of toxic and carcinogenic pollutants to flowing receiving waters, a wasteload allocation (WLA) for a pollutant shall be calculated for each water quality criterion applicable in accordance with rule 3745-2-04 of the Administrative Code using the following mass balance equation:

$$\frac{WQC\,(Q_{eff} + Q_{up}) - Q_{up}\,(WQ_{up})}{Q_{eff}}$$

Where:

WQC = water quality criterion as established in rule 3745-2-04 of the Administrative Code;

Q_{eff} = effluent flow as established in paragraph (A)(4) of this rule;

Q_{up} = per cent of the stream design flow as established in paragraphs (A)(1) and (A)(2) of this rule; and

WQ_{up} = background water quality as established in paragraph (A)(3) of this rule.

Alternative modeling methods (including, but not limited to, continuous simulation or probabilistic analyses) may be used at the discretion of the director if they are demonstrated to be appropriate and protective of applicable water quality criteria.

(1) The following stream design flows shall be used to determine WLAs for discharges to flowing receiving waters, unless otherwise specified in this rule.

(a) 7Q10 for average aquatic life criteria (except for ammonia-nitrogen).

(b) 1Q10 for maximum aquatic life criteria (except for ammonia-nitrogen).

(c) HMQ for agricultural water supply, human health, and aesthetic criteria.

(d) 90Q10 for wildlife criteria.

(e) The per cent of stream design flow contained in paragraph (A)(2) of this rule shall be used in all WLAs, except as specifically provided by paragraph (A)(2)(f) of this rule. The per cent of stream design flow used for conducting WLAs to achieve maximum and average water quality criteria

shall be the same, except as provided in paragraphs (A)(2)(d) and (A)(2)(e) of this rule.

(f) Stream design flows for streams that are impacted by reservoirs or other physical alterations which impact stream flow shall be determined on a case-by-case basis, taking into account relevant site-specific factors. Stream design flows for such impacted stream segments shall be established at levels to ensure protection of designated uses.

(g) Alternative flows may be used at the director's discretion if the flow is as protective as those listed in this paragraph.

(2) The stream/discharge flow ratio (SDR) is the ratio of annual 7Q10 to effluent design flow.

(a) If the annual 7Q10 is less than or equal to 1.0 cubic feet per second, or if the SDR is equal to or less than 10.0, one hundred per cent of the applicable stream design flow shall be used in the WLA.

(b) If the SDR is equal to or greater than 252.0, the WLA shall be calculated using twenty-five per cent of the applicable stream design flow.

(c) If the SDR is greater than 10.0 but less than 252.0, the WLA shall be calculated using the per cent of the applicable stream design flow determined by the following equation:

Per cent = 103.1 - 0.31 (SDR)

(d) Exceptions for discharges to flowing streams in the lake Erie basin:

(i) WLAs to maintain average criteria shall be calculated using twenty-five per cent of the applicable stream design flow; and

(ii) WLAs to maintain maximum criteria shall be calculated using the SDR to determine the applicable percentage of the stream design flow, as established in paragraphs (A)(2)(a) to (A)(2)(c) of this rule.

(iii) No new discharges of bioaccumulative chemicals of concern (BCCs) shall be allowed a mixing zone after December 30, 2002; and

(iv) For existing discharges of BCCs, mixing zones shall be phased out. No mixing zone shall be available after November 15, 2010, unless the discharger demonstrates to the satisfaction of the director, that a mixing zone is necessary for technical, economic, or water conservation reasons.

(e) Exceptions for discharges to flowing streams in the Ohio river basin:

(i) No new discharges of bioaccumulative chemicals of concern (BCCs) shall be allowed a mixing zone after December 30, 2002; and

(ii) For existing discharges of BCCs, mixing zones shall be phased out. No mixing zone shall be available after November 15, 2010, unless the discharger demonstrates to the satisfaction of the director, that a mixing zone is necessary for technical, economic, or water conservation reasons.

(f) Exceptions for direct discharges to the Ohio river. The following stream design flows and percentages of stream design flows shall be used for WLAs for direct discharges to the Ohio river:

(i) WLAs to maintain average aquatic life criteria shall use ten per cent of the 7Q10;

(ii) WLAs to maintain maximum aquatic life criteria shall use one per cent of the 7Q10; and

(iii) WLAs for human health criteria for carcinogens, agricultural water supply criteria, and aesthetic criteria shall use ten per cent of the HMQ.

(iv) WLAs for human health criteria for non-carcinogens shall use one hundred per cent of the 7Q10.

(g) A mixing demonstration may be conducted to justify the use of alternate percentages of stream design flow, in accordance with rule 3745-2-08 of the Administrative Code.

(3) Background water quality shall be determined using the following methods.

(a) If representative ambient data are available:

(i) The arithmetic mean shall be used if the number of observations is less than ten;

(ii) The median shall be used if the number of observations is greater than or equal to ten; and

(iii) Values reported as less than the reported analytical detection level shall be replaced with one-half of the applied detection level in the calculation of the mean or median. If the analytical detection level for a pollutant is not reported and is not available, the analytical detection level for the most sensitive analytical method approved under 40 C.F.R.

136, or other analytical method detection level deemed acceptable by the director, shall be used.

(b) If all representative ambient data are below detection:

(i) Zero shall be used as the background water quality if default mixing assumptions are being applied and if the pollutant is not reasonably suspected of causing or contributing to the impairment or threatening of the designated use in the receiving water. Background water quality may be determined as part of any study designed to increase the default mixing levels established in paragraph (A)(2) of this rule; and

(ii) One-half of the reported analytical detection level for the pollutant or one-half of the lowest water quality criteria, whichever is lower, shall be used as the background water quality if the pollutant is reasonably suspected of causing or contributing to the impairment or threatening of the designated use in the receiving water. Studies such as those listed in paragraph (A)(3)(b)(ii)(a) or (A)(3)(b)(ii)(b) of this rule may be substituted for the values of background water quality in this paragraph if Ohio EPA determines that the study is scientifically defensible.

(a) The pollutant shall be quantified through additional monitoring of background water quality with more sensitive analytical methods.

(b) The pollutant shall be quantified by another method, such as caged fish or native fish data.

(c) If no representative ambient data are available, data considered by the director to be representative of the natural background conditions for that receiving water shall be used. Such data shall be evaluated in accordance with paragraphs (A)(3)(a) and (A)(3)(b) of this rule.

(d) If no representative ambient data are available and there is no other representative information available, background water quality shall be determined using the procedures in paragraphs (A)(3)(b)(i) and (A)(3)(b)(ii) of this rule. Any study designed to increase the effluent mixing levels established in paragraph (A)(2) of this rule shall include determination of background water quality.

(4) Effluent design flow. The effluent design flow used in the WLAs shall be:

(a) The average design flow for publicly owned treatment works (POTW), unless the director reasonably believes that the actual effluent flow will differ significantly from the design flow during the life of the permit. In such a case, the effluent flow shall represent a reasonable estimate of the projected flow for the POTW during the applicable permit period;

(b) A reasonable measure of average wastewater flow for dischargers other than publicly owned treatment works. This flow shall represent a reasonable measure of actual production, projected to occur during the next NPDES permit period;

(c) The projected average design flow for proposed sources; or

(d) If no effluent flow is available, the WLA will be calculated using not more than twenty-five per cent of the stream design flow.

(5) WLA results shall not exceed the inside mixing zone maximum (IMZM) unless a mixing demonstration is completed in accordance with rule 3745-2-08 of the Administrative Code that justifies an alternate value.

(6) If the background water quality exceeds an applicable average criterion, the WLA for that criterion shall equal the applicable average criterion.

(7) If the background water quality exceeds the maximum criterion, the WLA for that criterion shall equal the maximum criterion.

(8) Multiple discharges. When it is necessary to consider multiple discharges in a WLA, the loading capacity may be distributed among discharges using a method considered appropriate by the director, based on site-specific considerations.

(9) When determining a WLA for multiple discharges, the stream/discharge flow ratio shall be calculated as the total flow at the end of the modeled segment under 7Q10 design conditions minus all effluent flow, divided by the total effluent flow to the segment. This SDR shall then be used to calculate the applicable percentage of stream design flow, using the equation listed in paragraph (A)(2) of this rule. The same percentage of stream design flow shall be used for each discharge in the segment.

(B) WLAs for direct discharges to lakes.

(1) WLAs to maintain average criteria for direct discharges to non-flowing receiving waters shall be determined using the following equation:

11(WQC) - 10(BACK)

Where:

WQC = water quality criterion as established in rule 3745-2-04 of the Administrative Code; and

BACK = background water quality as established in paragraph (A)(3) of this rule.

(2) Exceptions for bioaccumulative chemicals of concern (BCCs).

(a) No new discharges of BCCs shall be allowed a mixing zone after December 30, 2002.

(b) For existing discharges of BCCs, mixing zones shall be phased out. No mixing zone shall be available after November 15, 2010, unless the discharger demonstrates to the satisfaction of the director, that a mixing zone is necessary for technical, economic, or water conservation reasons.

(3) WLAs for the maximum criteria shall be set equal to the IMZM. WLA results shall not exceed the IMZM unless a mixing demonstration is completed in accordance with rule 3745-2-08 of the Administrative Code that justifies an alternate value.

(4) If the background water quality exceeds an applicable average criterion, the WLA for that criterion shall equal the applicable average criterion.

(5) A mixing demonstration may be conducted in accordance with rule 3745-2-08 of the Administrative Code to justify a different quantity of receiving water in the WLA for average criteria or limits that exceed the IMZM.

(6) At the director's discretion, alternate modeling methods may be used if they are demonstrated to be appropriate and protective of water quality criteria.

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3745-2-06 **Application of preliminary effluent limitations.**

(A) General provisions.

(1) The average preliminary effluent limitation (PEL) is the lowest wasteload allocation (WLA) based on chronic criteria, and the maximum PEL is the lowest WLA based on acute criteria, calculated pursuant to rule 3745-2-05 of the Administrative Code.

(2) A water quality-based effluent limitation (WQBEL) or monitoring requirement for a pollutant shall be determined by the reasonable potential of that pollutant to cause or contribute to an excursion of any applicable water quality standard established in or developed under Chapter 3745-1 of the Administrative Code.

(3) Except as provided in paragraph (C) of this rule, the determination of reasonable potential shall be based on the comparison of the average or the maximum projected effluent quality (PEQ) to the average or the maximum PEL, respectively, and on other site-specific factors in accordance with paragraph (B) of this rule. This comparison will result in the assignment of the pollutant to a group with an associated water quality-based permit condition recommendation. Final permit conditions shall be established by Ohio EPA in accordance with rule 3745-33-07 of the Administrative Code.

(B) Pollutant assessment.

(1) WQBELs shall be recommended for any group five pollutant. A pollutant shall be assigned to group five if any of the following conditions apply:

(a) The average PEQ is greater than or equal to the average PEL or the maximum PEQ is greater than or equal to the maximum PEL; or

(b) The average or maximum PEQ is greater than or equal to seventy-five per cent of the average or maximum PEL, respectively, and any of the following conditions apply:

(i) The total load of a pollutant in the receiving water at a point downstream of the discharge is greater than or equal to seventy-five per cent of the loading capacity of the receiving water at that point, where, for the purpose of this determination:

(a) The total load of a pollutant is determined as the sum of the background load and the load associated with the PEL for that discharge. If multiple discharges were included in determination of the PEL, the load associated with the PEL for each upstream

discharge shall also be added. Other upstream pollutant loads included in determination of the PEL shall also be included;

(b) The loading capacity is determined as the highest pollutant load in the receiving water that will maintain the numeric criteria applied in determination of the PEL at a receiving water flow equal to the sum of effluent flow and one hundred per cent of the stream design flow used in determination of the PEL. If other upstream pollutant sources were included in determination of the PEL, the flows applied to those sources in determination of the PEL shall also be included; and

(c) Background load is the load based on the background concentration and one hundred per cent of the stream design flow used in determination of the PEL;

(ii) The PEQ value is believed to be an underestimation of effluent quality due to factors such as, but not limited to, a small data set, data inaccuracies, or projected changes in effluent quality that are not accounted for in current effluent data;

(iii) It is uncertain whether a PEL will be sufficient to achieve or maintain the designated uses of the receiving water for reasons such as, but not limited to:

(a) The PEL is based on alternative modeling methods pursuant to rule 3745-2-05 of the Administrative Code;

(b) Discharge-specific or project-area dissolved metal translators were used in determination of the PEL;

(c) The PEL exceeds the applicable inside mixing zone maximum criteria; or

(d) Ohio EPA determines that the PEL will achieve or maintain the designated uses;

(iv) Evidence suggests that the designated use of the receiving water is impaired or threatened, or that there is bioaccumulation of the pollutant or pollutants of concern in aquatic organisms.

(2) A monitoring requirement shall be recommended for any group four pollutant. A pollutant shall be assigned to group four if any of the following conditions apply:

(a) The average PEQ is greater than or equal to fifty per cent of the average PEL and paragraph (B)(1) of this rule does not apply;

(b) The maximum PEQ is greater than or equal to fifty per cent of the maximum PEL and paragraph (B)(1) of this rule does not apply; or

(c) The pollutant is expected to be present but has not been adequately quantified.

(3) A tracking requirement in accordance with rule 3745-33-07 of the Administrative Code shall be recommended for any pollutant for which the average PEQ is more than seventy-five per cent of the average PEL or the maximum PEQ is more than seventy-five per cent of the maximum PEL and paragraph (B)(2) of this rule applies.

(4) A monitoring requirement evaluation shall be recommended for any group three pollutant. A pollutant shall be assigned to group three if the average PEQ is less than fifty per cent of the average PEL and the maximum PEQ is less than fifty per cent of the maximum PEL and paragraph (B)(5) of this rule does not apply.

(5) A monitoring requirement shall not be recommended for any group two pollutant. A pollutant shall be assigned to group two if a WLA was not required for one of the following reasons:

(a) Because the maximum PEQ is less than twenty-five per cent of the lowest applicable maximum criteria and the average PEQ is less than twenty-five per cent of the lowest applicable average criteria, in accordance with paragraphs (A)(1) and (A)(2) of rule 3745-2-04 of the Administrative Code; or

(b) Because all available effluent data for the pollutant are below the analytical detection levels applied to that data, in accordance with paragraph (B)(1) of rule 3745-2-04 of the Administrative Code.

(6) A pollutant shall be assigned to group one if a WLA could not be calculated because available data is insufficient to develop numeric criteria.

(a) For discharges in the lake Erie basin, if WLAs are determined based on ambient screening values as required by paragraph (C)(2) of rule 3745-2-04 of the Administrative Code, Ohio EPA shall generate or require the discharger to generate the data necessary to derive numeric criteria under the following conditions.

(i) If the maximum PEQ is greater than or equal to the WLA based on the ambient screening value to protect aquatic life from acute effects, data

shall be generated to derive an acute aquatic life criterion for that pollutant.

(ii) If the average PEQ is greater than or equal to the WLA based on the ambient screening value to protect aquatic life from chronic effects, data shall be generated to derive a chronic aquatic life criterion for that pollutant.

(iii) If the average PEQ is greater than or equal to the WLA based on the ambient screening value to project humans from health effects other than cancer, data shall be generated to derive a human health criterion for that pollutant.

(b) After data has been generated, as required by paragraph (B)(6)(a) of this rule, Ohio EPA shall develop numeric criteria for that pollutant in accordance with Chapter 3745-1 of the Administrative Code. Ohio EPA shall then reevaluate WLAs for that pollutant in accordance with Chapter 3745-2 of the Administrative Code.

(c) Ohio EPA shall establish any requirements for the discharger to collect the data required by paragraph (B)(6)(a) of this rule in the discharger's permit, in accordance with Chapter 3745-33 of the Administrative Code.

(7) Ohio EPA may exclude design parameters indicative of treatment plant performance from paragraphs (A) and (B) of this rule.

(C) Pollutants in the intake water. The determination of reasonable potential of intake pollutants shall be made on a pollutant-specific and an outfall-specific basis. An intake pollutant is a pollutant that is present in waters of the state at the time it is withdrawn from such waters by a discharger or other facility (e.g., public water supply) supplying the discharger with intake water.

(1) Paragraph (C) of this rule applies only in the absence of a TMDL implementation plan applicable to the discharge developed pursuant to rule 3745-2-12 of the Administrative Code. Paragraph (C) of this rule does not alter the conditions established in paragraph (A) of rule 3745-2-04 of the Administrative Code for determining the necessity of calculating WLAs.

(2) The director may determine that an intake pollutant does not have reasonable potential where a discharger demonstrates to the director's satisfaction that:

(a) The discharger withdraws one hundred per cent of the intake water containing the pollutant from the same body of water into which the discharge is made;

(b) The discharger does not contribute any additional mass of the identified intake pollutant to its wastewater. In cases where the discharge is a combination of process wastewater and noncontact cooling water, and the process wastewater is limited separately from the noncontact cooling water, the director may consider application of paragraph (C) of this rule to the discharge of process wastewater and noncontact cooling water separately;

(c) The discharge does not alter the identified intake pollutant chemically or physically in a manner that would cause adverse water quality impacts to occur that would not occur if the pollutants were left instream;

(d) The discharge does not increase the identified intake pollutant concentration at the edge of the mixing zone, or at the point of discharge if a mixing zone is not allowed, as compared to the pollutant concentration in the intake water, unless the increased concentration does not cause or contribute to an excursion of an applicable water quality standard; and

(e) The timing and location of the discharge would not cause adverse water quality impacts to occur that would not occur if the identified intake pollutant were left instream.

(3) Upon a finding by the director under paragraph (C)(2) of this rule that a pollutant in the discharge does not have reasonable potential, the director shall not be required to include a WQBEL for the identified intake pollutants in the discharger's NPDES permit, provided that:

(a) The NPDES permit fact sheet or statement of basis includes a specific determination that there is no reasonable potential for the discharge of an identified intake pollutant and the fact sheet or statement of basis references appropriate supporting documentation included in the administrative record;

(b) The NPDES permit requires all influent, effluent and ambient monitoring deemed necessary by the director to demonstrate that the conditions that led to the determination under paragraph (C)(2) of this rule are maintained during the term of the NPDES permit; and

(c) The NPDES permit contains a reopener clause authorizing modification or revocation and reissuance of the NPDES permit if new information demonstrates changes in the conditions that led to the determination under paragraph (C)(2) of this rule.

(4) Absent a finding by the director that an intake pollutant in the discharge does not have reasonable potential in accordance with paragraph (C)(2) of this rule, the director shall use the procedures set forth in paragraphs (A) and (B) of this rule to determine the reasonable potential of that pollutant.

(5) Same body of water. An intake pollutant is considered to be from the same body of water as the discharge if the intake pollutant would have reached the vicinity of the outfall in the receiving water within a reasonable period of time had it not been removed by the discharger. This finding may be established if all of the following conditions apply:

(a) The background concentration of the pollutant in the receiving water is similar to that in the intake water;

(b) There is a direct hydrological connection between the intake and discharge points; and

(c) Water quality characteristics (e.g., temperature, pH, hardness) are similar in the intake and receiving waters.

(6) The director may also consider other site-specific factors relevant to the transport and fate of the pollutant to make the finding in a particular case that a pollutant would or would not have reached the vicinity of the outfall in the receiving water within a reasonable period of time had it not been removed by the discharger.

(7) The director may consider an intake pollutant from groundwater to be from the same body of water if the pollutant would have reached the vicinity of the outfall in the receiving water within a reasonable period of time had it not been removed by the discharger. Such a pollutant shall not be considered to be from the same body of water if the groundwater contains the pollutant partially or entirely due to human activity, such as industrial, commercial, or municipal operations, disposal actions, or treatment processes.

(D) Other applicable conditions.

In the lake Erie drainage basin, if the geometric mean of a pollutant in fish tissue samples collected from a waterbody exceeds the tissue basis of a tier I criterion or tier II value, after consideration of the variability of the pollutant's bioconcentration and bioaccumulation in fish, each facility that discharges detectable levels of such pollutant to that water has the reasonable potential to cause or contribute to an excursion above a tier I criteria or a tier II value and the director shall establish a WQBEL for such pollutant in the NPDES permit for such facility.

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3745-2-07 **Additive effects of pollutants.**

(A) Carcinogens.

(1) The incremental risk of each known or suspected carcinogen present in a discharge shall be considered additive in accordance with this rule. A known or suspected carcinogen is considered present if its preliminary effluent limitation (PEL) falls within group three, four or five of the reasonable potential procedures contained in rule 3745-2-06 of the Administrative Code.

(2) Except as provided in paragraphs (A)(3) and (A)(4) of this rule, the following equation shall be used to protect against additive effects associated with simultaneous human exposure to multiple chemicals.

$$MAC_1/HHWLA_1 + MAC_2/HHWLA_2 + \ldots + MAC_n/HHWLA_n \leq 1$$

Where:

MAC = average concentration of all samples collected within the month for each limited or monitored carcinogen; and

HHWLA = wasteload allocation (WLA) to meet human health criteria determined in accordance with rule 3745-2-05 of the Administrative Code.

(3) If the discharger demonstrates to the director's satisfaction that the carcinogenic risk is not additive for a pollutant, the director shall exclude that pollutant from paragraph (A)(2) of this rule.

(4) Adjustments to the equation in paragraph (A)(2) of this rule to account for the interaction among discharges to the same receiving water may be made on a case-by-case basis by the director.

(5) Carcinogens shall be considered to be conservative pollutants in the absence of other information.

(B) Noncarcinogens.

(1) Noncarcinogenic effects of individual pollutants shall not be considered to be additive unless available scientific information supports a reasonable assumption that the pollutants produce additive effects through the same mechanism of action.

(2) For noncarcinogens that have human health effects that have been shown by scientific evidence to be additive, the following equation shall be used to protect against additive effects associated with simultaneous human exposure to multiple chemicals.

$$PEL_1/HHWLA_1 + PEL_2/HHWLA_2 + \ldots + PEL_n/HHWLA_n \leq 1$$

Where:

PEL = average PEL of each separate noncarcinogen; and

HHWLA = WLA to meet human health criteria determined in accordance with rule 3745-2-05 of the Administrative Code.

(C) Other requirements.

(1) For discharges containing one or more 2, 3, 7, 8-substituted chlorinated dibenzo-p-dioxins or 2, 3, 7, 8-substituted dibenzofurans, the 2, 3, 7, 8-TCDD toxicity equivalence concentration (TEC_{tcdd}) shall be determined.

(2) The values listed in table 1 of this rule shall be used to determine the TEC_{tcdd}- using the following equation.

$$TEC_{tcdd} = \sum (C_x * TEF_x * BEF_x)$$

Where:

C_x = concentration of total chemical X in effluent;

TEF_x = TCDD toxicity equivalency factor for X; and

BEF_x = TCDD bioaccumulation equivalency factor for X.

(3) The TEC_{tcdd} concentration of a discharge shall be considered as one pollutant for purposes of the equation in paragraph (A)(2) of this rule (if carcinogenic) or paragraph (B)(2) of this rule (if noncarcinogenic).

(4) The procedure in paragraph (C)(2) of this rule is also applicable when noncarcinogenic furans and dioxins are present in an effluent.

Table 1. TEFs and BEFs for chlorinated dibenzo dioxins and chlorinated dibenzo furans.

Congener	TEF	BEF
2,3,7,8-TCDD	1.0	1.0
1,2,3,7,8-PeCDD	0.5	0.9
1,2,3,4,7,8-HxCDD	0.1	0.3
1,2,3,6,7,8-HxCDD	0.1	0.1
1,2,3,7,8,9-HxCDD	0.1	0.1
1,2,3,4,6,7,8-HpCDD	0.01	0.05
OCDD	0.001	0.01
2,3,7,8-TCDF	0.1	0.8
1,2,3,7,8-PeCDF	0.05	0.2
2,3,4,7,8-PeCDF	0.5	1.6
1,2,3,4,7,8-HxCDF	0.1	0.08
1,2,3,6,7,8-HxCDF	0.1	0.2
2,3,4,6,7,8-HxCDF	0.1	0.7
1,2,3,7,8,9-HxCDF	0.1	0.6
1,2,3,4,6,7,8-HpCDF	0.01	0.01
1,2,3,4,7,8,9-HpCDF	0.01	0.4
OCDF	0.001	0.02

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3745-2-08 **Mixing zone demonstration and sizing requirements.**

[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 3745-2-02 of the Administrative Code.]

(A) For the purpose of establishing a mixing zone other than as specified in rule 3745-2-05 of the Administrative Code, a mixing demonstration, subject to review by Ohio EPA, shall be performed according to the requirements in this rule. This rule describes general requirements for all demonstrations, requirements specific to area of initial mixing (AIM) demonstrations, and requirements for sizing acute and chronic mixing zones, and criteria necessary to establish mixing zones for bioaccumulative chemicals of concern (BCCs).

(B) Mixing zone demonstrations may be conducted for the following situations:

(1) To justify water quality based effluent limits (WQBELs) greater than the inside mixing zone maximum (IMZM) criteria for aquatic life and WQBELs greater than 1.0 TU_a for whole effluent toxicity pursuant to rule 3745-2-09 of the Administrative Code by use of an AIM;

(2) For application of a percentage of the stream design flow other than the default value selected by procedures in rule 3745-2-05 of the Administrative Code;

(3) For application of more than ten parts lake water to one part effluent when determining wasteload allocations (WLAs) for discharges to lake Erie or non-flowing waters;

(4) For application of a mixing zone for BCCs to existing dischargers after November 15, 2010; or

(5) In other situations at the director's discretion.

(C) All mixing zone demonstrations shall fulfill the following general requirements:

(1) Describe the amount of dilution occurring at stream design flow conditions, or other conditions found to be most critical with respect to effluent and receiving water mixing, at the boundaries of the proposed mixing zone and the size, shape and location of the area of mixing, including the manner in which diffusion and dispersion occur;

(2) For sources discharging to lake Erie or other non-flowing waters, define the location where discharge-induced mixing ceases;

(3) Document the substrate character and geomorphology within the mixing zone;

(4) Demonstrate that the mixing zone does not interfere with or block passage of fish or aquatic life;

(5) Demonstrate that the mixing zone will not jeopardize the continued existence of any endangered or threatened species or result in the destruction or adverse modification of such species' critical habitat;

(6) Demonstrate that the mixing zone does not extend to drinking water intakes;

(7) Demonstrate that the mixing zone would not otherwise interfere with the designated or existing uses of the receiving water or downstream waters;

(8) Document background water quality concentrations;

(9) Demonstrate that the mixing zone does not promote undesirable aquatic life or result in a dominance of nuisance species;

(10) Provide that by allowing additional mixing/dilution:

(a) Pollutants will not settle to form objectionable deposits;

(b) Floating debris, oil, scum, and other matter in concentrations that form nuisances will not be produced; and

(c) Objectionable color, odor, taste or turbidity will not be produced;

(11) Demonstrate whether or not adjacent mixing zones overlap;

(12) Demonstrate whether organisms would be attracted to the area of mixing as a result of the effluent character;

(13) Demonstrate whether the habitat supports endemic or naturally occurring species;

(14) Demonstrate that the mixing zone does not substantially interfere with the migratory routes, natural movements, survival, reproduction, or growth, or increase the vulnerability to predation, of any representative aquatic species;

(15) Demonstrate that the mixing zone does not interfere with or prevent the recovery of an aquatic community or species population that could reasonably be expected when previously limiting water quality conditions improve;

(16) Demonstrate that the mixing zone does not include any bathing area where bathhouses and/or lifeguards are provided; and

(17) Conditions within the mixing zone shall not be injurious to human health, in the event of a temporary exposure during recreation, such that scalding or burns would result.

(D) The mixing zone demonstration shall be submitted to Ohio EPA for review and comment. Following receipt of Ohio EPA's comments, the applicant shall resubmit the demonstration, if necessary, addressing Ohio EPA's comments.

(E) For sources discharging to lake Erie or other non-flowing waters, any adjustment to the dilution ratio shall be limited to the dilution available in the area where discharge-induced mixing occurs.

(F) The mixing zone demonstration shall be based on the assumption that a pollutant does not degrade within the proposed mixing zone, unless:

(1) Scientifically valid field studies or other relevant information demonstrate that degradation of the pollutant is expected to occur under the full range of environmental conditions expected to be encountered; and

(2) Scientifically valid field studies or other relevant information address other factors that affect pollutants in the water column including, but not limited to, resuspension of sediments, chemical speciation and biological and chemical transformation.

(G) An AIM demonstration shall be preceded by the submittal of the following to Ohio EPA.

(1) The discharger shall complete a pollution prevention alternatives assessment and show that application of cost-effective pollution prevention practices, where practical and possible, will not preclude the need for an AIM. Applicable pollution prevention practices shall be in place (or planned for implementation) before modification or installation of a discharge structure for an approved AIM.

(2) The discharger shall show that improved treatment, where practical and possible, will not preclude the need for an AIM, or that the cost of such treatment would be economically detrimental to the discharger and its community. The assessments shall include a cost/benefit analysis that represents the costs and benefits of the AIM to the environment, receiving water biota, and the citizens of Ohio as well as to the discharger and local residents.

(3) The discharger shall explain how an AIM and discharge structure may impact the environment in and around the proposed site. The discharger shall point out endangered species, important habitats and recreational uses of the area and any potential impact to them. The discharger shall also address the impact of the construction process on the environment.

(4) The discharger shall submit proposed site and structure information for Ohio EPA's use in determining habitat-related restrictions.

(H) If a discharger has submitted information relating to any requirements of paragraph (G) of this rule (or suitable substitutes) during the permit process, then the director may waive one or more of the related AIM prerequisites.

(I) An AIM shall be limited to the space around the discharge structure according to the following restrictions.

(1) An AIM shall not extend beyond the following radial distances from the discharge port:

(a) A default value of five times the natural receiving water depth (prior to construction) at the discharge point under stream design flow conditions (critical low depth for lakes); and

(b) A default value of fifty times the length scale factor for the discharge port (the length scale factor is the square root of the port cross-sectional area).

(2) The director may accept scientifically defensible field measurements, related studies or computer modeling results defining the area that is uninhabitable (or produces a reasonable minimum exposure time) to aquatic and benthic organisms from the discharger in lieu of the discharger complying with the default values contained in paragraph (I)(1) of this rule. This site-specific information shall be used in conjunction with restrictions in paragraphs (I)(3) and (I)(4) of this rule to size the AIM.

(3) An AIM shall be limited to the point where any discharge plume contacts the receiving water surface, bank, or bottom or contacts another discharge plume (mixture of effluent and receiving water) from the same discharge structure. An AIM shall also be limited to the point where any discharge plume decreases in center-line velocity (velocity at the geometric center of the plume) to 0.5 meters per second or a minimum center-line velocity, determined through a scientifically defensible demonstration, above which native fish species and other aquatic life are unable or unlikely to inhabit.

(4) An AIM shall not contact or block access to important aquatic habitat areas including, but not limited to, tributaries, inlets, bays, wetlands, spawning grounds, and important feeding areas.

(5) General location and structural restrictions. The discharge structure producing the AIM shall not: be exposed above the water surface under stream design flow or historical low-level conditions except at the bank; significantly alter the natural currents and erosion and deposition patterns of the receiving water; or cause significant bottom scouring.

(6) Location and structural restrictions for mixing zones containing an AIM in streams and rivers.

(a) The distance between the edge of the AIM and any other discharge or AIM in the receiving water shall equal or exceed five times the local stream width or one hundred meters, whichever is greater.

(b) The distance between the edge of an AIM and any intake of a drinking water source shall equal or exceed ten times the local stream width or two hundred meters, whichever is greater. The discharger shall demonstrate that the effluent plume will not impact an intake under any flow condition.

(c) The director may accept field measurements, scientific studies and computer modeling studies, in lieu of the discharger complying with the minimum distances contained in paragraphs (I)(6)(a) and (I)(6)(b) of this rule to size the AIM.

(7) Location and structural restrictions for mixing zones containing an AIM in lake Erie or non-flowing waters.

(a) The distance between the edge of the AIM and any other discharge or AIM in the receiving water shall equal or exceed two hundred meters.

(b) The distance between the edge of an AIM and any intake of a drinking water source shall equal or exceed five hundred meters. The discharger shall also demonstrate that the effluent plume will not impact the intake under any variation in current or lake level.

(c) The director may accept field measurements, scientific studies and computer modeling studies from the discharger in lieu of the discharger complying with the minimum distances contained in paragraphs (I)(7)(a) and (I)(7)(b) of this rule to size the AIM.

(d) The AIM discharge point should be located as far as reasonably possible from shore, in deep water. Structures sited close to shore or in shallow water shall be more strictly limited.

(8) Construction or modification of the discharge structure producing the AIM shall not:

(a) Permanently alter the natural physical characteristics of the receiving water such as depth, width, cross-section, and slope;

(b) Permanently expose erodible sediments or alter the natural bed materials;

(c) Permanently alter bank and riparian characteristics; or

(d) Impact or damage important areas or habitats.

(9) Discharge flow and velocity requirements for structures producing the AIM.

(a) The following waste flow velocities shall be maintained from each port of the discharge structure under all discharge and ambient conditions:

(i) At least 2.5 meters per second daily average velocity; and

(ii) 1.75 meters per second minimum velocity at any time.

(b) The director may accept scientifically defensible studies from the discharger indicating that alternative discharge velocities will sufficiently discourage habitability or minimize exposure times within the AIM in lieu of the discharger complying with paragraph (I)(9)(a) of this rule.

(c) The discharge structure shall be designed such that any discharge to the receiving water may completely cease if the waste flow is insufficient to maintain the required velocities. It shall also be designed such that changes in waste flow can be accommodated quickly, without major changes to the structure and without bypassing the discharge structure.

(J) For flowing streams, acute mixing zones and chronic mixing zones shall be sized on a case-by-case basis at the director's discretion using any appropriate restrictions listed in paragraphs (C), (D), (E) and (F) of this rule.

(K) For lake Erie or non-flowing waters, acute mixing zones and chronic mixing zones shall be sized according to the following:

(1) Acute mixing zones shall be sized on a case-by-case basis; and

(2) Chronic mixing zones shall be sized on a case-by-case basis and at the director's discretion using any appropriate restrictions listed in paragraphs (C), (D), (E) and (F) of this rule. Specific restrictions include the following:

(a) A mixing zone shall not extend to within one hundred meters of a drinking water intake unless the director accepts a scientifically defensible demonstration from the discharger indicating that the mixing zone can safely extend closer to the intake;

(b) The maximum dilution available from the mixing zone to meet chronic criteria shall be fifty parts lake water to one part effluent or the dilution available within sixty meters, whichever is smaller, unless the director accepts a scientifically valid demonstration from the discharger indicating that an alternative dilution ratio is appropriate; and

(c) The mixing zone shall not extend beyond the point where discharge induced mixing occurs.

(L) Mixing zones shall not be established by Ohio EPA for BCCs, beyond the dates established in rule 3745-2-05 of the Administrative Code, unless one of the following exceptions is met.

(1) Exception for water conservation. Mixing zones may be granted beyond November 15, 2010 for existing discharges if the discharger demonstrates that failure to grant a mixing zone would preclude water conservation measures that would lead to overall load reductions in BCCs, even though higher concentrations of BCCs exist in the effluent.

(2) Exception for technical and economic considerations. The director may grant mixing zones beyond November 15, 2010 for existing discharges upon the request of a discharger subject to the following limited circumstances:

(a) The discharger is in compliance with its existing NPDES permit and the act and the discharger had reduced the loading of the BCC for which a mixing zone is requested to the maximum extent possible;

(b) The availability and feasibility of additional controls for reducing BCCs for the discharger have been considered as well as the economic impact on the affected communities that would occur if the mixing zone were eliminated;

(c) Any mixing zone exceptions granted: do not result in less stringent limitations than those existing on December 30, 2002; are not likely to jeopardize the continued existence or critical habitat of any endangered or threatened species; protect all designated and existing uses of the receiving water; and meet all applicable criteria and values at the edge of or, as appropriate, within the mixing zone; and

(d) Any mixing zone exceptions granted shall be reevaluated for each successive permit application in which a mixing zone for the BCCs is sought, shall ensure that the discharger has developed and conducted a pollutant minimization program for the BCCs, and that alternative means for reducing BCCs elsewhere in the watershed have been evaluated.

(M) Thermal mixing zones.

(1) The director may establish as a term of a discharge permit issued pursuant to Chapter 3745-33 of the Administrative Code, or a permit to install issued pursuant to Chapter 3745-42 of the Administrative Code, a mixing zone applicable to the thermal component of the point source discharge authorized by such permit. A thermal mixing zone, which allows dilution and cooling of a

waste heat discharge, shall be considered a region in which organism response to temperature is time-dependent.

(a) Exposure to temperatures in a thermal mixing zone shall not cause an irreversible response that results in deleterious effects to the wildlife and aquatic life representative of the receiving waters.

(b) The daily average temperature in a thermal mixing zone at the point nearest to the discharge that is accessible to the resident aquatic organisms shall not exceed the temperatures in table 1 of this rule at the corresponding ambient temperature.

(c) At ambient temperatures of fifty-nine degrees Fahrenheit (fifteen degrees Celsius) and above, the daily average temperature in a thermal mixing zone shall be determined on a case-by-case basis.

(2) Thermal mixing zone size limitations shall be established by the director pursuant to paragraph (M)(1) of this rule in accordance with paragraph (C) of this rule for all point source discharges subject to permit.

(3) Any request for a thermal mixing zone in one of the following waters shall be preceded by an evaluation of treatment alternatives that would preclude the need for a mixing zone. This evaluation shall include a cost benefit analysis that presents the costs and benefits of the mixing zone to the environment, receiving water biota, and the citizens of Ohio, as well as to the discharger and local residents. The provisions of this paragraph do not apply to demonstrations conducted under Section 316(a) of the act.

(a) Any stream designated coldwater habitat;

(b) Any stream designated exceptional warmwater habitat; and

(c) Any lake other than lake Erie

The thermal mixing zone shall not cause an increase in pathogens that would contribute to an impairment of a designated use in any area of the water body outside the mixing zone; nor shall the thermal mixing zone cause nuisance growths, colors or odors from harmful, toxic, invasive or noxious organisms.

(4) Any thermal mixing zone request involving a new or expanded discharge must also evaluate other discharge alternatives as required by rule 3745-1-05 of the Administrative Code.

(5) Discharges of closed-cycle cooling blowdown with a flow of less than five per cent of the 7Q10 of the receiving water body are exempt from paragraph (M)(1) of this rule.

Table 1. Temperature

(a) Daily average temperatures of thermal mixing zones for all waters other than lake Erie at corresponding ambient temperatures as required in paragraph (M)(1) of this rule. Shown as degrees Fahrenheit and (Celsius).

Ambient - °F(°C)	Daily average temperature -°F(°C)	Ambient - °F(°C)	Daily average temperature -°F(°C)
32(0)	50(10.0)	48(8.9)	71(21.7)
33(0.6)	50(10.0)	49(9.4)	73(22.8)
34(1.1)	50(10.0)	50(10.0)	75(23.9)
35(1.7)	51(10.6)	51(10.6)	76(24.4)
36(2.2)	52(11.1)	52(11.1)	78(25.6)
37(2.8)	54(12.2)	53(11.7)	79(26.1)
38(3.3)	55(12.8)	54(12.2)	81(27.2)
39(3.9)	57(13.9)	55(12.8)	83(28.3)
40(4.4)	58(14.4)	56(13.3)	85(29.4)
41(5.0)	60(15.6)	57(13.9)	86(30.0)
42(5.6)	62(16.7)	58(14.4)	88(31.1)
43(6.1)	63(17.2)	59(15) and above - daily average limit will be determined on a case-by-case basis pursuant to paragraphs (M)(1) and (M)(2) of this rule.	
44(6.7)	65(18.3)		
45(7.2)	66(18.9)		
46(7.8)	68(20.0)		
47(8.3)	70(21.1)		

(b) Daily average temperatures of thermal mixing zones for lake Erie at corresponding ambient temperatures as required in paragraph (M)(1) of this rule. Shown as degrees Fahrenheit and (Celsius).

Ambient - °F(°C)	Daily average temperature - °F(°C)	Ambient - °F(°C)	Daily average temperature -°F(°C)
32(0)	52(11.1)	48(8.9)	68(20.0)
33(0.6)	52.5(11.4)	49(9.4)	70(21.1)
34(1.1)	53.5(11.9)	50(10.0)	71(21.7)
35(1.7)	54.4(12.4)	51(10.6)	73(22.8)
36(2.2)	55(12.8)	52(11.1)	75(23.9)
37(2.8)	56(13.3)	53(11.7)	77(25.0)
38(3.3)	57(13.9)	54(12.2)	78(25.6)
39(3.9)	58(14.4)	55(12.8)	80(26.7)
40(4.4)	59(15)	56(13.3)	82(27.8)
41(5.0)	59.5(15.3)	57(13.9)	84(28.9)
42(5.6)	60(15.6)	58(14.4)	86(30.0)
43(6.1)	61(16.1)	59(15) and above - daily average limit will be determined on a case-by-case basis pursuant to paragraphs (M)(1) and (M)(2) of this rule.	
44(6.7)	62(16.7)		
45(7.2)	63(17.2)		
46(7.8)	65(18.3)		
47(8.3)	66(18.9)		

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3745-2-09 **Whole effluent toxicity provisions and water quality based effluent limit calculation procedures.**

(A) Protection of aquatic life - whole effluent approach.

(1) An acute toxicity level of 0.3 acute toxic units (TU_a) shall apply outside the mixing zone to limited resource water, warmwater, exceptional warmwater, coldwater, seasonal salmonid, and modified warmwater habitat use designations in accordance with Chapter 3745-1 of the Administrative Code and the following:

$TU_a = 100/LC50$

Where:

LC50 = the median lethal concentration as defined in rule 3745-2-02 of the Administrative Code.

(2) A chronic toxicity level of 1.0 chronic toxic units (TU_c) shall apply outside the mixing zone to warmwater, exceptional warmwater, coldwater, seasonal salmonid, and modified warmwater habitat use designations, where:

$TU_c = 100/IC_{25}$ for all chronic endpoints, except that;

TU_c = 100/(geometric mean of NOEC and LOEC) for survival or mortality endpoints using daphnid species when this is more restrictive than the TU_c value resulting from the definition based on IC_{25}.

(3) The chronic toxicity level does not apply to limited resource water use designations.

(4) For undesignated waters, an acute toxicity level of 0.3 TU_a and a chronic toxicity level of 1.0 TU_c shall apply outside the mixing zone.

(5) Acute toxicity within the mixing zone shall be regulated by paragraph (B) of rule 3745-33-07 of the Administrative Code.

(B) For discharges of whole effluent toxicity (WET) to flowing receiving waters, the WQBEL for WET shall be calculated using the following mass balance equation:

$$\frac{WQC\,(Q_{eff} + Q_{up}) - Q_{up}\,(WQ_{up})}{Q_{eff}}$$

Where:

WQC = toxicity level as established in paragraph (A) of this rule;

Q_{eff} = effluent flow as established in paragraph (A)(4) of rule 3745-2-05 of the Administrative Code;

Q_{up} = stream design flow as established in paragraphs (A)(1) and (A)(2) of rule 3745-2-05 of the Administrative Code; and

WQ_{up} = background water quality as established in paragraph (C) of this rule.

An alternative modeling method may be used if the discharger demonstrates to Ohio EPA's satisfaction that it is appropriate and protective of water quality criteria.

(C) Background water quality for WET calculations shall be determined using the following requirements.

(1) Use 0.0 TU_c for background chronic toxicity unless there is specific information indicating additivity between the discharge and another source or sources in the background waters. If there is evidence of additivity, use 0.5 TU_c for background chronic toxicity. If sufficient data exists, use the average value of the data for background chronic toxicity.

(2) To establish background levels of acute toxicity, Ohio EPA shall consider the likelihood for acute toxicity to exist in the background waters of the discharge using available information on the following factors:

(a) The degree and type of biological effects in the background waters determined with biological index measurements;

(b) The frequency and magnitude of acute toxicity occurrences in the background waters used in toxicity tests;

(c) Data on additive, synergistic, or antagonistic effects of a discharge when it is combined with receiving water;

(d) The quality and quantity of each type of data available; and

(e) Other relevant factors.

(3) After an analysis of the likelihood for acute toxicity to exist in the background waters of the discharge, background toxicity shall be set equal to one of the following values:

(a) If there is likelihood, use 0.15 TU_a or if sufficient data are available and indicate that acute toxicity levels are routinely exceeded, use the average value of the data;

(b) If there is no likelihood or there are no data available to make an assessment of the likelihood, use 0.0 TU_a; or

(c) If background toxicity is due to an identifiable discharge that has not yet achieved toxicity limits required by paragraph (B) of rule 3745-33-07 of the Administrative Code, use 0.0 TU_a.

(D) Wasteload allocation (WLA) results for acute toxicity shall not exceed 1.0 TU_a unless the provisions in paragraph (B) of rule 3745-33-07 of the Administrative Code are met.

(E) Multiple discharges. When the director determines that it is necessary to consider multiple discharges in a WLA, the procedures defined in paragraph (A)(8) of rule 3745-2-05 of the Administrative Code shall be followed.

(F) WQBELs for WET for direct discharges to lakes or non-flowing receiving waters.

(1) WLAs to maintain chronic toxicity levels for direct discharges to non-flowing receiving waters shall be determined using the following equation:

11 (WQC) - 10 (BACK)

Where:

WQC = chronic toxicity level as established in paragraph (A) of this rule; and

BACK = background water quality as established in paragraph (C) of this rule.

(2) WLAs for acute levels shall be set equal to 1.0 TU_a.

(3) A mixing demonstration may be conducted in accordance with rule 3745-2-08 of the Administrative Code to justify a different quantity of receiving water in the WLA determination for chronic levels. Allocation results for acute toxicity shall not exceed 1.0 TU_a unless the provisions in paragraph (B) of rule 3745-33-07 of the Administrative Code are met.

(4) An alternate modeling method may be used if the discharger demonstrates to Ohio EPA's satisfaction that it is appropriate and protective of water quality levels.

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3745-2-10 **Wasteload allocation for ammonia-nitrogen toxicity.**

(A) For discharges of ammonia-nitrogen (NH_3-N) to flowing receiving waters, the wasteload allocation (WLA) shall be calculated using the following mass balance equation:

$$\frac{WQC\,(Q_{eff} + Q_{up}) - Q_{up}\,(WQ_{up})}{Q_{eff}}$$

Where:

WQC = water quality criterion as established in rule 3745-2-04 of the Administrative Code;

Q_{eff} = effluent design flow as established in rule 3745-2-05 of the Administrative Code;

Q_{up} = per cent of the upstream design flow as established in paragraph (B) of this rule; and

WQ_{up} = background water quality as established in rule 3745-2-05 of the Administrative Code.

Alternative modeling methods including, but not limited to, continuous simulation or probabilistic analyses, may be used if the director determines that they are appropriate and protective of water quality criteria.

(B) The following stream design flows shall be used to determine WLAs to maintain water quality criteria for NH_3-N toxicity.

(1) May to November: 30Q10 for summer chronic aquatic life.

(2) December to February: 30Q10 for winter chronic aquatic life.

(3) May to November: 7Q10 for summer acute aquatic life.

(4) December to February: 7Q10 for winter acute aquatic life.

(C) The WLAs shall use the per cent of stream design flow contained in paragraphs (A)(2)(a) to (A)(2)(c) of rule 3745-2-05 of the Administrative Code. The director may determine design flows for streams that are impacted by reservoirs or other physical alternations by taking into account relevant site-specific factors. Stream design flows for such impacted stream segments shall be established at levels that ensure protection of designated uses. Alternative flows or seasons may be used if the

director determines that the flow or season is as protective as those listed in paragraph (B) of this rule.

(D) WLAs to maintain the acute criteria shall be required for streams designated as limited resource water in Chapter 3745-1 of the Administrative Code, or for other streams for which the limited resource water criteria are applicable.

(E) Exception for direct discharges to lake Erie. If it is necessary to determine a WLA for a direct discharge to lake Erie, the mixing assumptions contained in rule 3745-2-05 of the Administrative Code shall be used.

(F) Exception for direct discharges to the Ohio river. If it is necessary to determine a WLA for a direct discharge to the Ohio river, the mixing assumptions contained in rule 3745-2-05 of the Administrative Code shall be used.

(G) Multiple discharges. When the director determines that it is necessary to consider multiple discharges in a WLA, the loading capacity may be distributed among discharges using a method deemed appropriate by the director based on site-specific considerations. This WLA shall be developed pursuant to rule 3745-2-05 of the Administrative Code.

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3745-2-11 **Dissolved oxygen modeling.**

(A) The loading capacity of a flowing receiving water for dissolved oxygen (D.O.) shall be determined by the use of mathematical water quality models. The models may range from simple solutions based on the Streeter-Phelps equation to complex, time variable models. The model complexity required shall be based on site-specific considerations. Whenever possible, these models should be calibrated and verified using site-specific data.

(1) Alternative modeling methods including, but not limited to, continuous simulation or probabilistic analyses may be used if the director determines that they are appropriate and protective of water quality criteria.

(2) If the director does not have sufficient site-specific stream data for D.O., the director may conduct a wasteload allocation (WLA) to maintain the criteria for ammonia toxicity. The required effluent ammonia may then be used to make a decision regarding necessary treatment related to overall D.O. impact in the receiving water, based on available information on wastewater treatment processes.

(B) The following stream design flows shall be used for dissolved oxygen modeling.

(1) May to November: 7Q10 for summer.

(2) December to February: 7Q10 for winter.

(3) The director may determine design flows for streams that are impacted by reservoirs or other physical alterations by taking into account relevant site-specific factors. Stream design flows for such impacted stream segments shall be established to assure protection of designated uses.

(4) Alternative flows or seasons may be used if the director determines that the flow or season is as protective as those listed in paragraph (B) of this rule.

(C) The background concentration of D.O. shall be based on the percentages of D.O. saturation in this paragraph at the temperature that represents the stream after mixing with the effluent. Site-specific D.O. values may be used if sufficient supporting data are available.

(1) Ninety per cent of saturation shall be used for streams classified as exceptional warmwater or coldwater habitat.

(2) Eighty per cent of saturation shall be used for all other stream uses.

(D) Exception for direct discharges to lake Erie. If it is necessary to determine a WLA for a direct discharge to lake Erie, the mixing assumptions contained in rule 3745-2-05 of the Administrative Code shall be used.

(E) Exception for direct discharges to the Ohio river. If it is necessary to determine a WLA for a direct discharge to the Ohio river, the mixing assumptions contained in rule 3745-2-05 of the Administrative Code shall be used.

(F) Multiple discharges. When the director determines that it is necessary to consider multiple discharges in a WLA, the loading capacity may be distributed among discharges using a method deemed appropriate by the director, based on site-specific considerations. This WLA shall be developed pursuant to rule 3745-2-05 of the Administrative Code.

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3745-2-12 **Total maximum daily loads.**

[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 3745-2-02 of the Administrative Code.]

(A)

(1) Total maximum daily loads (TMDLs) shall be established, at a minimum, in accordance with the listing and priority setting process established in section 303 (d) of the act and 40 C.F.R. 130.7.

(2) TMDLs shall be established and implemented through a TMDL implementation plan. An implementation plan shall address attainment of applicable water quality standards, determined in accordance with paragraph (C) of rule 3745-2-04 of the Administrative Code (or as otherwise applicable in accordance with Chapter 3745-1 of the Administrative Code) for each pollutant for which a TMDL is established.

(3) Where a TMDL is not required by paragraph (A)(1) of this rule or it is not technically feasible to complete development of a TMDL prior to NPDES permit deadlines for a discharge to a TMDL assessment area, Ohio EPA may develop water quality based effluent limits (WQBELs) for a discharge in the absence of a TMDL pursuant to rules 3745-2-04 to 3745-2-11 of the Administrative Code.

(B) A TMDL shall be determined as the sum of all existing or projected loads of a pollutant to the TMDL assessment area from point sources, nonpoint sources, and background sources. The sum of the loads shall not be greater than the loading capacity of the receiving water for the pollutant minus a specified margin of safety and any capacity reserved for future growth.

(C) Ohio EPA shall determine the assessment area for a TMDL, considering, at a minimum, the following factors:

(1) Area of impact;

(2) Significance of the pollutant of concern;

(3) Location, type, significance and interaction of pollutant sources;

(4) Availability of information;

(5) Treatability of pollutant and pollutant sources;

(6) Resources available to develop the TMDL implementation plan;

(7) Resources available for implementing the TMDL implementation plan;

(8) Coordination with other Ohio EPA programs and requirements; and

(9) Federal regulations and guidance regarding TMDLs.

(D) Where an assessment and remediation plan meets the requirements of this rule and the public participation requirements applicable to TMDLs, Ohio EPA may use the assessment and remediation plan in lieu of a TMDL implementation plan. Assessment and remediation plans may include, but are not limited to, the Lake Erie lakewide management plan, remedial action plans, and water quality management plans. Any part of an assessment and remediation plan that satisfies one or more requirements under section 303 (d) of the act or its implementing regulations may be part of a TMDL implementation plan.

(E) A TMDL implementation plan may be based on attaining water quality standards over a period of time, with specific controls on individual sources being implemented in stages. Where implementing a TMDL implementation plan will not immediately attain water quality standards, the TMDL implementation plan shall reflect reasonable assurances that water quality standards will be attained in a reasonable period of time. Ohio EPA shall determine the reasonable period of time in which water quality standards will be met considering, at a minimum, the following factors:

(1) Receiving water characteristics;

(2) Persistence, behavior and ubiquity of pollutants of concern;

(3) Type of remediation activities necessary;

(4) Available regulatory and non-regulatory controls; and

(5) Other requirements for attainment of water quality standards.

(F)

(1) Nonpoint source load allocations (LAs), for the purpose of establishing a TMDL, shall be based on at least the following information:

(a) Existing pollutant loadings if changes in loadings are not reasonably anticipated to occur;

(b) Increases in pollutant loadings that are reasonably anticipated to occur; and

(c) Anticipated decreases in pollutant loadings if such decreased loadings are technically feasible and are reasonably anticipated to occur within a reasonable time period as a result of implementation of best management practices or other load reduction measures.

(2) For LAs established on the basis of paragraph (F)(1)(c) of this rule, monitoring data shall be collected and analyzed in order to validate the TMDL's assumptions, to verify anticipated load reductions, to evaluate the effectiveness of controls being used to implement the TMDL implementation plan, and to revise the point source allocations and LAs as necessary to ensure that water quality standards will be achieved within the time-period established in the TMDL.

(3) For nonpoint sources considered in a TMDL that may affect the receiving water at stream flows at or below the stream design flows applicable under rule 3745-2-05 of the Administrative Code, LAs established in a TMDL shall be determined in accordance with rule 3745-2-05 of the Administrative Code such that water quality criteria are maintained at the design conditions.

(4) For nonpoint sources considered in a TMDL that only affect the receiving water at stream flows higher than the stream design flows applicable under rule 3745-2-05 of the Administrative Code, LAs may be established using stream flows and procedures which Ohio EPA determines are appropriate for that nonpoint source and which shall ensure that applicable water quality standards will be maintained whenever that nonpoint source load occurs.

(G) Pollutant loads allocated to point sources in a TMDL shall be used to determine wasteload allocations (WLAs) for those point sources.

(1) If TMDLs are established in TMDL implementation plans for different segments of the same watershed and include allocations for the same pollutant for the same point source, then WLAs for that pollutant and point source shall be consistent with the most stringent of those allocations.

(2) For point sources considered in a TMDL that discharge at stream flows at or below the stream design flows applicable under rule 3745-2-05 of the Administrative Code, WLAs shall be determined in accordance with rule 3745-2-05 of the Administrative Code such that water quality criteria are maintained at the design conditions.

(3) For point sources considered in a TMDL that only discharge at stream flows higher than the stream design flows applicable under rule 3745-2-05 of the Administrative Code, WLAs may be established using stream flows and procedures that Ohio EPA determines are appropriate for that point source and - that shall ensure that applicable water quality standards will be maintained whenever that point source load occurs.

(4) WLAs determined as part of a TMDL shall be used to determine WQBELs for that discharge in accordance with rule 3745-2-06 of the Administrative Code.

(H) The background concentration of a pollutant for the purpose of establishing a TMDL shall be determined in accordance with paragraph (A)(3) of rule 3745-2-05 of the Administrative Code. Ohio EPA may apply alternative procedures to determine background concentrations if necessary to account for all conditions considered in the TMDL, such as, but not limited to, cases where background concentrations vary substantially with flow such that a background concentration derived in accordance with paragraph (A) of rule 3745-2-05 of the Administrative Code may not be appropriate.

(I) The loading capacity for the purpose of establishing a TMDL shall be determined as the largest load of a pollutant that a water body can receive without violating water quality standards at any applicable site within the TMDL implementation plan assessment area (outside of applicable mixing zones). Separate loading capacities may be determined for each flow condition applicable to the TMDL. Pollutant loads for sources which only affect the receiving water at or above certain flow conditions shall be determined to maintain only the loading capacities applicable at and above those flow conditions.

(J) Each TMDL shall include a margin of safety (MOS) sufficient to account for technical uncertainties in establishing the TMDL. The TMDL implementation plan shall describe the manner in which the MOS is determined and incorporated into the TMDL. The MOS may be provided by leaving a portion of the loading capacity unallocated or by using conservative modeling assumptions to establish WLAs and LAs.

(K) TMDLs –may include reserved allocations of loading capacity to accommodate various needs including, but not limited to, future growth, additional sources, and environmental reserves. Where such reserved allocations are not included in a TMDL, any increased loadings of the pollutant for which the TMDL, was developed that are due to a new or expanded discharge shall not be allowed unless the TMDL is revised in accordance with this rule to include an allocation for the new or expanded discharge.

(L) TMDLs shall reflect, where appropriate and where sufficient data are available, contributions to the water column from sediments inside and outside of any applicable mixing zones. TMDLs shall be sufficiently stringent so as to prevent accumulation of the pollutant of concern in sediments to levels injurious to designated or existing uses, human health, wildlife and aquatic life criteria.

(M) Notwithstanding the exception provided for the establishment of controls on wet weather point sources in rule 3745-2-01 of the Administrative Code, TMDLs shall reflect, where appropriate and where sufficient data are available, point source and nonpoint source pollutant loads resulting from wet weather events.

(N) TMDLs shall be based on the assumption that a pollutant does not degrade. However, Ohio EPA may take into account degradation of the pollutant if each of the following conditions is met:

(1) Scientifically valid field studies or other relevant information demonstrate that degradation of the pollutant is expected to occur under the full range of environmental conditions expected to be encountered; and

(2) Scientifically valid field studies or other relevant information address other factors that affect the level of pollutants in the water column including, but not limited to, resuspension of sediments, chemical speciation, and biological and chemical transformation.

(O) TMDLs for metals shall be determined based on the total recoverable form of that metal provided by all sources considered in that TMDL. The loading capacity for that TMDL shall be determined to maintain the total recoverable criteria applicable to that metal, with the following exceptions.

(1) A WLA may be based on dissolved criteria in accordance with paragraph (F) of rule 3745-2-04 of the Administrative Code, provided that the WLA does not result in a total recoverable load in excess of that allocated to the point source as part of an established TMDL.

(2) The loading capacity may be based on an effective total recoverable criteria, determined from applicable dissolved criteria in accordance with paragraph (F) of rule 3745-2-04 of the Administrative Code, provided that the dissolved metal translator applied in determination of the effective total recoverable criteria can be demonstrated to be appropriate and protective for all sources of that metal and all receiving water conditions considered in the TMDL.

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