STATE OF MICHIGAN
DEPARTMENT OF ENVIRONMENTAL QUALITY
LANSING

RICK SNYDER
GOVERNOR

C. HEIDI GRETHER
DIRECTOR

February 8, 2018

Mr. Stephen G. Termaath, GS-15, DAF
AFCEC/CIBE
Chief, BRAC Program Management Division
Installations Directorate
2261 Hughes Avenue, Suite 155
JBSA Lackland, Texas 78236-9853

Dear Mr. Termaath:

SUBJECT: Dispute Resolution Concerning the Former Wurtsmith United States Air Force (USAF) Base and Response to Impacts to Drinking Water from Per- and Polyfluoroalkyl Substances (PFAS); Site ID No. 35000058

During our telephone conversation on January 16, 2018, it was agreed that the Michigan Department of Environmental Quality (MDEQ) would provide clarification and direction for resolution of the seven primary issues in dispute as set forth in the USAF January 11, 2018, response to MDEQ's initiation of dispute resolution. The issues and MDEQ's proposals for resolution of the disputes are set forth below.

1. MDEQ: Regularly monitor existing residential and Type I community wells for PFAS contamination.

   USAF: The USAF has performed two rounds of potable well sampling for the Residential and Type I wells in the affected area and results on both rounds are consistent. The first sampling events were conducted in the Winter/Fall of 2015 and the summer of 2016, and the second round in the Summer of 2017. There has been only one exceedance of the USEPA lifetime health advisory (HA) for PFOS/PFOA at a private drinking water well. No further sampling has been conducted of water from wells that showed no detectable levels of PFOS and PFOA.

   The USAF plan is to sample quarterly for the next year the drinking water wells sampled in 2017, which all had PFOS/PFOA below the HAs, then annually for the next two (2) years. We will evaluate these results in coordination with MDEQ to determine further monitoring needs. For example, if sampling results indicate stable concentrations and these are below one half the HA, these wells may not require further sampling.

   MDEQ Response: The frequency and the duration of the sampling of residential wells on the west side of Van Etten Creek and Van Etten Lake as proposed by the USAF is acceptable to the MDEQ. However, information collected since the

MDEQ originally requested monitoring of existing residential wells indicates that assessment of conditions east of Van Etten Creek and Van Etten Lake can be more efficiently accomplished through the actions detailed below:

The USAF must develop, in the form of a work plan to be submitted to the MDEQ for review and approval, a plan with a proposed schedule for the investigation of conditions on the east side of Van Etten Lake and Van Etten Creek in the areas indicated on Figure 1. Sampling results in these areas demonstrate that contaminants released from the former USAF base are present at varying concentrations, and must be further evaluated to determine the necessary course of action to protect human health and the environment.

The work plan must be submitted to the MDEQ no later than forty-five (45) days after receipt of this letter. The work plan must include immediate, interim steps to install a groundwater monitoring well network to (1) serve as a sentinel for potable residential and Type I community wells, and (2) support the characterization, both vertically and horizontally, of the plumes in the areas east of Van Etten Lake and Van Etten Creek identified on Figure 1. The monitoring well network necessary to achieve this task must include vertical aquifer sampling for the complete depth of the aquifer. The resulting data must be sufficient to develop a predictive model of the plumes' potential impact on public health and the environment.

2. MDEQ: Full characterization of the PFAS plumes in areas up gradient of the impacted residential and Type I community wells.

USAF: The USAF conducted an initial Site Inspection (SI) for PFAS from April 2016 to November 2016. The SI field work consisted of 60 soil samples and 209 groundwater samples. In addition, the USAF conducted a Supplemental Site Inspection (SSI) from August 2017 to December 2017. Field work conducted for the SSI consisted of 201 more groundwater samples. Further investigation will depend on the results of this field work, and the results are expected to be final by March 2018. The results will be evaluated, and decisions will be made on whether further sampling is needed or enough data has been obtained to characterize the plume. The USAF is following a phased approach and is prioritizing locations that are up gradient of potable residential and Type I community wells impacted by PFOS/PFOA. The SSI results will also refine the delineation of the width of the fire training area (FT002) plume.

MDEQ Response: In 2016, the MDEQ required that the USAF fully characterize the PFAS plumes in the areas up gradient of the impacted residential and Type 1 community wells without distinguishing locations where response actions should be prioritized. Since the MDEQ's February 29, 2016, letter to Mr. David Strainge from Mr. Robert Wagner, information collected and analyzed by the MDEQ indicates that the extent of the plumes emanating from the base and the number

of residential wells that are impacted are much greater than was known at the time of the 2016 letter. Although it is important to fully characterize the PFAS contamination from the base, the MDEQ recognizes that these large and complex plumes from the former USAF base must be addressed in a phased, iterative approach that builds upon information and knowledge gathered in each phase. In the immediate, near term future, the first priority for the USAF is to characterize impacted groundwater areas of high concern from a human health impact perspective. Figure 2 shows these priority areas.

The areas identified in Figure 2 are a priority because contamination is elevated in residential wells that are down gradient of highly contaminated plumes, such that these residential wells are threatened with levels of PFAS contamination that could exceed federal health advisory levels or state criteria. The work plan required under Issue No. 1, above, must also include an investigation of these priority areas, along with a schedule for implementation of the investigation to address this disputed issue.

The investigation of the priority areas must be sufficient enough to identify individual plumes, the maximum concentration levels of contaminates, and migration characteristics. The study must be sufficiently rigorous such that the USAF can identify appropriate sentry well locations and depths, as well as sufficient monitoring frequency, to yield information that will provide warning of plume movement above Part 201[1] criteria into residential drinking water wells.

To fully characterize the plumes in these areas, the investigation must also include a study of the geology, hydrogeology, appropriate analysis of chemicals of concern, plume extent, characteristics of plume movement and contaminant concentrations. Because the contamination seems to vary greatly with depth in the Wurtsmith plumes both on and off the former USAF base, vertical aquifer sampling through the entire water column will be necessary to fully characterize the plumes.

3. MDEQ: Implement a sentinel monitoring well system to assure that higher level PFAS contamination is not moving toward the portion of the aquifer that is used as a drinking water source.

   USAF: The results of sampling described in items 1 and 2 will determine whether existing monitoring wells or new wells up gradient of drinking water wells impacted by PFOS/PFOA can serve as sentinel wells.

   MDEQ Response: The MDEQ agrees that the sampling that the USAF refers to, which is part of the SI and SSI cited by the USAF in its response to Issue No. 2, above, is potentially sufficient to identify sentry well locations for some areas of

[1] Part 201, Environmental Remediation, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended.

residential wells just off the base. However, the recently completed USAF work does not provide sufficient information for the hatched areas shown on Figure 2: (1) the Defense Reutilization and Marketing Office (DRMO); (2) LF30/31 and Loud Island contaminant plume; (3) the plume in the area of the Alert Apron; (4) the plume near Van Etten Lake Dam; and (5) the residential wells east of Van Etten Lake and Van Etten Creek. The hatched areas need more complete characterization to determine sentry well locations. The groundwater flow regime appears to be highly complex because of the impacts of the operations of the dam that creates the lake. A thorough understanding of the hydrogeological regime is necessary for understanding plume flux into the aquifers near residential wells. The MDEQ agrees that work completed as requested in Issues No. 1 and 2 will inform the location of additional needed sentry wells and appropriate monitoring requirements, including frequency and duration, in the hatched areas.

4. MDEQ: Evaluate the existing groundwater extraction systems as an interim remedial action to control the PFAS plume migration toward the impacted residential and Type I community wells.

   USAF: The current SSI will provide information on the effectiveness of the three-main pump and treat systems (Arrow Street, Mission Street, and Benzene Plant) which are up gradient of the vast majority of the private wells. Based on the SSI evaluation, it will be determined if further plume capture action is needed to protect down gradient drinking water wells from PFOS/PFOA contamination above the HA.

   MDEQ Response: MDEQ is seeking actions by the USAF to control PFAS plume migration toward the impacted residential and Type I community wells. The USAF's proposal to rely on the current SSI to evaluate the effectiveness of the groundwater extraction systems is not adequate. The Arrow Street, Mission Street, and Benzene Plant extraction systems are not adequate to capture PFAS plumes on the east side of the base, north of Arrow Street all the way to the plume emanating from the DRMO. Also, the capture zones of these three systems cannot control plumes that are moving off-base south of 5th Street. Each of these areas is up gradient of residential wells that are impacted. Thus, as interim actions, the three systems are only partially effective, over a limited area. The MDEQ is also concerned that PFAS plumes are breaking through the three extraction well capture zones in the area of F41 and Budziak Road. See the plume map shown on Figure 2.

   As part of its evaluation of the three existing extraction systems, the USAF must design and implement a monitoring plan that can delineate the capture zone of the existing systems. The monitoring plan shall include sampling locations, frequency, and constituents in order to demonstrate hydraulic capture of the plume over time. This plan, including a schedule for implementation, must be submitted to the MDEQ no later than March 1, 2018.

The USAF must also evaluate the feasibility of expanding the existing extraction systems or adding more groundwater extraction systems to adequately intercept the PFAS plumes. Results of this evaluation must be submitted to the MDEQ no later than forty-five (45) days after receipt of this letter.

5. MDEQ: Present a plan to the MDEQ providing for final remedial actions.

   USAF: In accordance with the Comprehensive Environmental, Compensation and Liability Act and 40 CFR 300.420, at the conclusion of the SSI the USAF will determine whether further action is warranted. Final remedial actions will be determined under the CERCLA process and these will come after a remedial investigation (including risk assessments) and feasibility study are completed.

   MDEQ Response: The MDEQ agrees with the USAF that final remedial actions should be informed by investigations of the plumes and their impacts, as well as feasibility studies of possible response actions to address the risks posed to human health and the environment. This issue was raised in the dispute to ensure that the MDEQ and the USAF agree that the development and analysis of investigations and feasibility studies to address the PFAS contamination released by the USAF must keep the goal of final remedial actions in mind and must be aimed at reaching a final remedial action in the future. If the USAF agrees with MDEQ, this issue can be deemed resolved.

6. MDEQ: Provide an alternative drinking water source to affected well users.

   USAF: The USAF notes that in its February 29, 2016 letter MDEQ "urged" the USAF to take this action. It was not on MDEQ's list of five demands. Where drinking water samples indicate unacceptable risk to human health, as defined by exceeding one or more of the USEPA's HAs for PFOA, PFOS or PFOA and PFOS combined, the USAF will take appropriate mitigation action for public and private water sources reasonably believed to be contaminated by USAF actions.

   MDEQ Response: MDEQ acknowledges that the USAF has provided municipal water to the one residence with a potable water well that was found to have concentrations of PFOA and PFOS above the USEPA HA for PFOA and PFOS combined. It is MDEQ's understanding that the USAF will also provide an alternate drinking water source for any future residential or community drinking water wells at which sampling results exceed the HA for PFOA, PFOS, or PFOA and PFOS combined.

   As you know, the MDEQ issued enforceable criteria for PFOA and PFOS in groundwater as a source of drinking water on January 10, 2018. The Part 201 criteria mirror the EPA HA levels of 70 ppt for PFOA, PFOS, or PFOA and PFOS

combined. Section 120(1)(a) of CERCLA explicitly states that federal facilities shall be subject to CERCLA in the same manner and to the same extent as private facilities. 42 USC § 9620(1)(a). Section 120(a)(4) of CERCLA further specifies that State laws concerning removal and remedial actions shall apply to actions at facilities owned or operated by the United States. 42 USC § 9620(a)(4). The enforceable, generally-applicable Michigan standards are more stringent than federal standards, and therefore also qualify as Applicable or Relevant and Appropriate standards under CERCLA, which are mandatory under the National Contingency Plan (NCP). 42 USC § 9621(d), 40 CFR § 300.430(f)(1)(i)(A).

Under Michigan law, parties responsible for causing a release or threat of release, defined as "any circumstance that may reasonably be anticipated to cause a release," are jointly and severally liable for costs of response activity, natural resource damages, and actions necessary to abate imminent and substantial endangerment to the public health, safety, welfare, and the environment. See MCL 324.20101(1)(ccc); MCL 324.20126a. In addition, Part 201 sets forth specific actions that are required of liable owners or operators of properties that are "facilities" as defined under Part 201. A "facility" under Michigan law is any location where a hazardous substance in excess of the concentrations that satisfy the cleanup criteria for unrestricted residential use has come to be located.

Levels of PFAS exceeding Michigan's cleanup criteria have been identified both on and off the former base, making this area a "facility" of undetermined scope, at this time, where response activities are required. Response activities recognized under Part 201 expressly include enforcement actions, providing alternate water supplies, and state-approved health assessments or health effect studies, among other actions necessary to protect the public health. MCL 324.20101(1(vv). At this time, the MDEQ is seeking the investigations and feasibility studies as described in this dispute communication in an effort to clarify where conditions exist that pose imminent and substantial endangerments to public health, safety, welfare, or the environment, and to appropriately direct response activities necessary to prevent exposures at unacceptable levels, including as needed alternate water supplies.

The discussion above presents a high-level, presentation of the State's authorities to require the USAF to take response actions to address its releases of PFAS at and near Wurtsmith. The State is not, in this statement, waiving its rights to fully enforce all applicable laws and regulations, whether mentioned in this communication or not. Those authorities include, but are not limited to, CERCLA, the Michigan Natural Resources and Environmental Protection Act, MCL 324.101 *et seq,* and the Michigan Safe Drinking Water Act and its water-supply replacement requirements. MCL 325.101 *et seq.*

7. MDEQ: Additional sampling is needed to evaluate compliance with Michigan's statewide criteria for groundwater-surface water interface (GSI) locations as set forth in Part 201. The USAF must move more aggressively and more quickly to define and remove the ongoing threat to public health and the environment, starting with the USAF action to provide a long-term potable water supply to affected well users and followed by response actions to remediate impacted ecosystems, including surface waters, groundwater, fish, birds, and mammals.

   USAF: As described in item 6, the USAF has provided long-term potable water to the only residence with a well exceeding the USEPA HA levels. We will continue to take the appropriate mitigation actions for public and private drinking water wells reasonably believed to be contaminated above the HA levels by USAF actions. Our first priority remains protection of drinking water.

   The USAF has installed a groundwater treatment system for the plume from the fire training area (FT002). This system is designed to control the levels of PFOS/PFOA in groundwater up gradient from surface water and provide protection of fish in the human food chain. After further base-wide investigations, PFOS/PFOA was discovered in areas that are up gradient of potential drinking water exposures, and this has taken on the highest priority. Ongoing design and construction of a treatment system for the Arrow Street and Benzene Plants will intercept and remove PFOS/PFOA from groundwater and reduce the levels reaching surface water. The SSI will provide additional information about plumes migrating toward surface waters. We will address the other locations that do not have potential drinking water exposures by following the CERCLA process.

   MDEQ Response: The USAF has appropriately focused on drinking water, however, surface water contamination that affects humans through the consumption of contaminated fish can be of higher risk to human health than drinking water contamination, and is an issue at Wurtsmith. In 2012, the Michigan Department of Health and Human Services (MDHHS) issued a "do not eat" fish advisory for all fish caught from Clark's Marsh and for resident fish in the lower Au Sable River south of the base due to unsafe levels of PFAS released by the USAF. An additional concern is human exposure to PFAS-contaminated foam on surface water.

   To address these concerns, the USAF must also investigate and address the impact from its releases of PFAS to surface water and biota in lakes, marshes, creeks and rivers in the area surrounding the base. Although the USAF has conducted some limited investigation of impacts to surface water in the past, there are several areas where there is no data close to the water body. Figure 3 shows areas of potential impact to surface water and outlines the area that the USAF must cover in its investigation. The USAF must submit a work plan for this investigation to the MDEQ within ninety (90) days of receipt of this letter. The work plan must include a schedule for installation of proposed wells that are near the groundwater-surface water interface (GSI) or push point samplers at the GSI.

As requested by the USAF, the MDEQ is enclosing with this communication statutory language regarding GSI compliance (Section 20120e of Part 201) and a copy of Part 31, Water Resources Protection, and the Part 31 Rules related to water quality standards, which contain the basis for the State's water quality standards and evaluation of GSI criteria compliance.

Please contact Mr. Robert Delaney, Superfund Section, Remediation and Redevelopment Division at 517-284-5085; delaneyr@michigan.gov; or MDEQ, P.O. Box 30426, Lansing, Michigan 48909-7926, to arrange the next call or meeting to discuss any or all of this communication. The MDEQ hopes that the USAF will satisfy its obligations in cooperation with the State of Michigan and we look forward to receiving your response.

Sincerely,

Kathleen Shirey, Acting Director
Remediation and Redevelopment Division
517-420-2503

Enclosures
cc: Mr. Benjamin Marrs, USAF
Ms. Sharon Vriesenga, USAF
Ms. Carol Isaacs, Governor's Office
Ms. Polly Synk, Michigan Department of Attorney General
Ms. Katie Barron, Michigan Department of Attorney General
Ms. C. Heidi Grether, Director, MDEQ
Mr. Michael McClellan, Environment Deputy Director, MDEQ
Ms. Susan Leeming, External Relations Deputy Director, MDEQ
Ms. Mel Brown, Communications Director, MDEQ
Mr. Nate Zimmer, MDEQ
Ms. Amy Peterson, MDEQ
Mr. Mike Jury, MDEQ
Mr. David Kline, MDEQ.
Mr. Robert Delaney, MDEQ
Ms. Lisa Agosta, MDEQ

Phelan Creek

East of Van Etten Lake

Van Etten Lake

Van Etten Creek

Duell Lake

Consumers Ditch Outlet

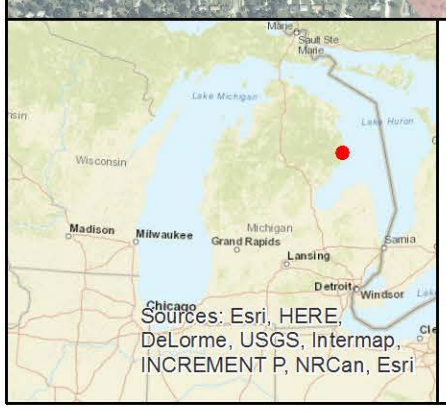
Au Sable River

East of Van Etten Creek

Lake Huron

N

0 0.25 0.5 Miles



Legend

- Residential Drinking Water Samples
- Areas Proposed for Further Investigation

Groundwater Impact

Total PFAS (ppt)

- 1 - 50
- 51 - 300
- 301 - 1,000
- 1,000 - 5,000
- > 5,000

DEQ

DRAFT

1/30/2018

FIGURE 1
AREAS FOR
IMMEDIATE INVESTIGATION

FORMER WURTSMITH
AIR FORCE BASE
IOSCO COUNTY,
MICHIGAN

DEQ

1/31/2018

Legend

- Residential Drinking Water Samples
- Areas Proposed for Further Investigation

Groundwater Impact

Total PFAS (ppt)

- 1 - 50
- 51 - 300
- 301 - 1,000
- 1,000 - 5,000
- > 5,000

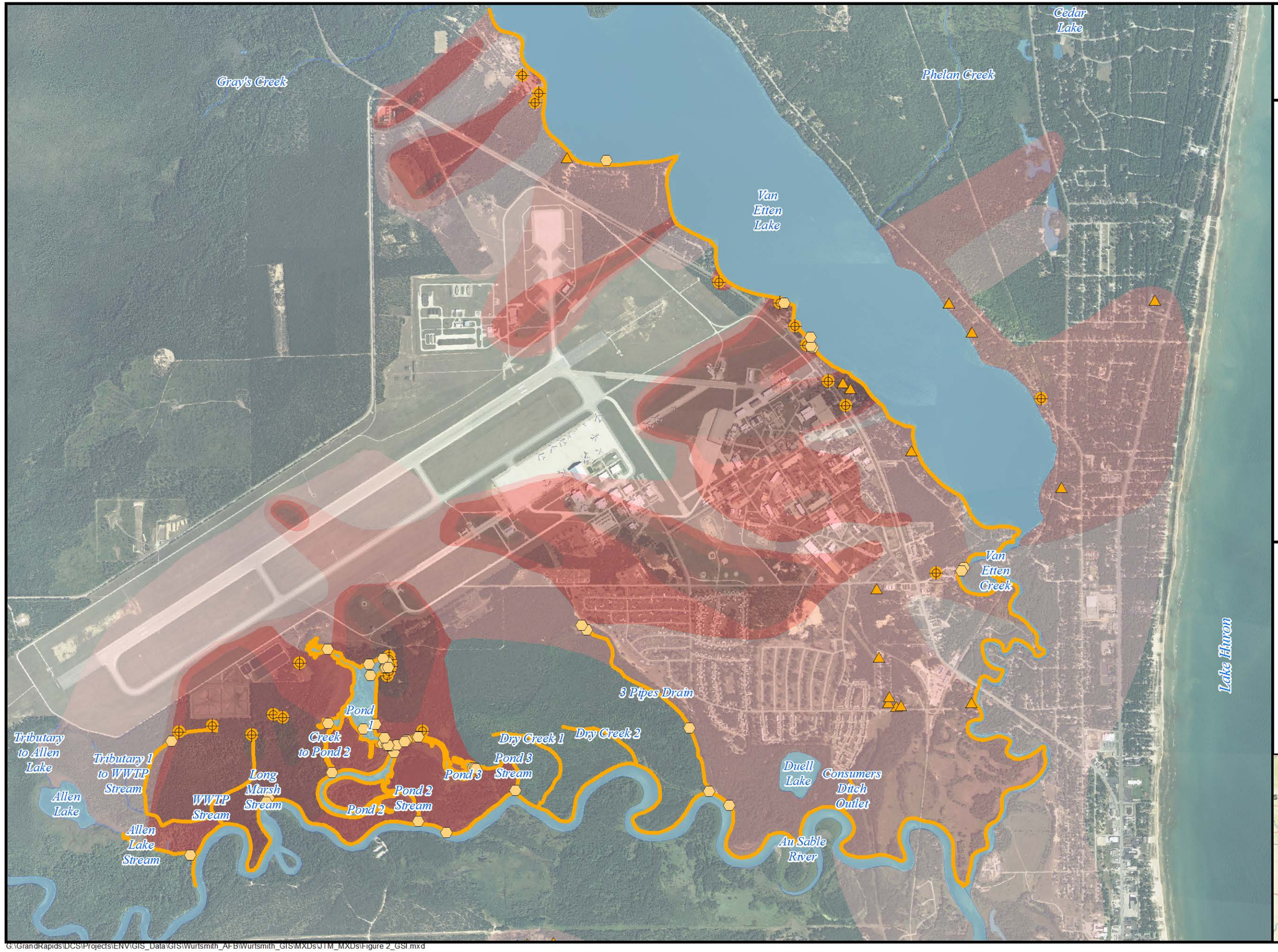
DRAFT

FIGURE 2
AREAS FOR
IMMEDIATE INVESTIGATION

FORMER WURTSMITH
AIR FORCE BASE
IOSCO COUNTY,
MICHIGAN

0 2,300 4,600
Feet

G:\GrandRapids\DCS\Projects\ENV\GIS_Data\GIS\Wurtsmith_AFB\Wurtsmith_GIS\MXDs\JTM_MXDs\Figure 2_Areas_Further_Investigation.mxd



DEQ

1/30/2018

Legend

- Residential Wells > 12 ppt PFOS
- Surface Water >12 ppt PFOS
- Groundwater >12 ppt PFOS
- GSI Investigation Area

Groundwater Impact
Total PFAS (ppt)

- 1 - 50
- 51 - 300
- 301 - 1,000
- 1,000 - 5,000
- > 5,000

DRAFT

FIGURE 3
GSI INVESTIGATION AREA

FORMER WURTSMITH AIR FORCE BASE
IOSCO COUNTY, MICHIGAN

0 2,000 4,000
Feet

G:\GrandRapids\DCS\Projects\ENV\GIS_Data\GIS\Wurtsmith_AFB\Wurtsmith_GIS\MXDs\JTM_MXDs\Figure 2_GSI.mxd

NATURAL RESOURCES AND ENVIRONMENTAL PROTECTION ACT (EXCERPT)
Act 451 of 1994

324.20120e Response activity providing for venting groundwater; definitions.

Sec. 20120e. (1) Subject to other requirements of this section, a person may demonstrate compliance with requirements under this part for a response activity providing for venting groundwater by meeting any of the following, singly or in combination:

(a) Generic GSI criteria, which are the water quality standards for surface waters developed by the department pursuant to part 31. The use of surface water quality standards or variances shall be allowable in any of the cleanup categories provided for in section 20120a(1).

(b) A variance from the surface water quality standards as approved by the department under part 31. A variance shall be used only if the variance is requested by a person performing response activities with respect to venting groundwater.

(c) Mixing zone-based GSI criteria established under this part, which are consistent with part 31. The use of mixing zone-based GSI criteria shall be allowable in any of the categories provided for in section 20120a(1) and (2) and shall be allowable for criteria based on chronic-based or acute-based surface water quality criteria.

(d) Site-specific criteria established under section 20120b or this subdivision or a combination of both. The use of mixing zones established under this part may be applied to, or included as, site-specific criteria. Biological criteria may be used as site-specific criteria. If biological criteria are used, then sentinel wells shall be used for a period as needed to determine if the biological criteria may be exceeded due to future increased mass loading to the surface water from the venting plume. Numerical evaluations of analyses of the samples from the sentinel wells shall be performed in connection with this determination.

(e) An ecological demonstration under subsection (9).

(f) A modeling demonstration under subsection (10).

(2) Whole effluent toxicity testing shall not be required or be a criterion or be the basis for any criteria under subsection (1) for venting groundwater except for samples taken at the GSI.

(3) The pathway addressed by GSI criteria under subsection (1) shall be considered a relevant pathway when a remedial investigation or application of best professional judgment leads to the conclusion that a hazardous substance in groundwater is reasonably expected to vent to surface water in concentrations that exceed the generic GSI criteria. The factors to be considered in determining whether the pathway is relevant include all of the following:

(a) Whether there is a hydraulic connection between groundwater and the surface water in question.

(b) The proximity of surface water to source areas and areas of the groundwater contaminant plume that currently, or may in the future be expected to, exceed the generic GSI criteria.

(c) Subject to subsection (23)(g), whether the receiving surface water is a surface water of the state as that term is defined in part 31 and rules promulgated under that part.

(d) The direction of groundwater movement.

(e) The presence of artificial structures or natural features that would alter hydraulic pathways. This includes, but is not limited to, highly permeable zones, utility corridors, and seawalls.

(f) The mass of hazardous substances present at the facility that may affect groundwater.

(g) Documented facility-specific evidence of natural attenuation, if any.

(h) Whether or not a sewer that has an outfall to surface water has openings in the portion of the sewer where the sewer and the groundwater contaminant plume intersect that allows the groundwater contaminant plume to migrate into the sewer. If it can be demonstrated that the sewer is sufficiently tight to prevent inflow to the sewer where the groundwater contaminant plume intersects the sewer or if the sewer is otherwise impervious, based on accepted industry standards, to prevent inflow from groundwater into the sewer at that location, then the GSI pathway with respect to the sewer is not relevant and shall not apply.

(4) For purposes of determining the relevance of a pathway under subsection (3), both of the following apply:

(a) GSI monitoring wells are not required in order to make a determination if other information is sufficient to make a judgment that the pathway is not relevant.

(b) Fate and transport modeling may be used, if appropriate, to support a professional judgment.

(5) A person may proceed under section 20114a to undertake the following response activities involving venting groundwater:

(a) Evaluation activities associated with a response activity providing for venting groundwater using alternative monitoring points, an ecological demonstration, a modeling demonstration, or any combination of these. If a person who is liable under section 20126 decides not to take additional response activities to

address the GSI pathway based on alternative monitoring points, an ecological demonstration, a modeling demonstration, or a determination under subsection (14), or any combination of these, the person shall notify the department and request department approval. A notification and request for approval under this subdivision shall not be considered an admission of liability under section 20126.

(b) Response activities that rely on GSI monitoring wells to demonstrate compliance under subsection (1)(a).

(c) Except as provided in subdivision (a) and subsection (6), response activities that rely on monitoring from alternative monitoring points to demonstrate compliance with subsection (1)(a) if the person submits to the department a notice of alternative monitoring points at least 30 days prior to relying on those alternative monitoring points that contains substantiating evidence that the alternative monitoring points comply with this section.

(d) Response activities implemented by a person who is not liable under section 20126 that rely on a modeling demonstration, or rely on an ecological demonstration, or a combination of these, to demonstrate compliance with subsection (1)(a).

(6) A person shall proceed under section 20114b to undertake response activities that rely on monitoring from alternative monitoring points or rely on an ecological demonstration, a modeling demonstration, or a combination of these, to demonstrate compliance with subsection (1)(a) if 1 or more of the following conditions apply to the venting groundwater:

(a) An applicable criterion is based on acute toxicity endpoints.

(b) The venting groundwater contains a bioaccumulative chemical of concern as identified in the water quality standards for surface waters developed pursuant to part 31 and for which the person is liable under this part.

(c) The venting groundwater is entering a surface water body protected for coldwater fisheries identified in the following publications:

(*i*) "Coldwater Lakes of Michigan," as published in 1976 by the department of natural resources.

(*ii*) "Designated Trout Lakes and Regulations," issued September 10, 1998, by the director of the department of natural resources under the authority of part 411.

(*iii*) "Designated Trout Streams for the State of Michigan," as issued under order of the director of the department of natural resources, FO-210.08, on November 8, 2007.

(d) The venting groundwater is entering a surface water body designated as an outstanding state resource water or outstanding international resource water as identified in the water quality standards for surface waters developed pursuant to part 31.

(7) A person shall proceed under section 20114b to undertake response activities that rely on monitoring from alternative monitoring points, or rely on an ecological demonstration, or rely on a modeling demonstration or that use mixing zone-based GSI criteria, or any combination of these, as applicable, to demonstrate compliance with subsection (1)(b), (c), (d), (e), or (f).

(8) Alternative monitoring points may be used to demonstrate compliance with subsection (1) if the alternative monitoring points meet the following standards:

(a) The locations where venting groundwater enters surface water have been reasonably identified to allow monitoring for the evaluation of compliance with criteria. This identification shall include all of the following:

(*i*) Identification of the location of alternative monitoring points within areas of venting groundwater.

(*ii*) Documentation of the approximate boundaries of the areas where the groundwater plume vents to surface water. This documentation shall include information about the substrate character and geology in the areas where groundwater vents to surface water.

(*iii*) Documentation that the venting area identified and alternative monitoring points include points that are reasonably representative of the higher concentrations of hazardous substances present in the groundwater at the GSI.

(b) The alternative monitoring points allow for venting groundwater to be sampled at the GSI. Devices used for sampling at alternative monitoring points may be beyond the water's edge and on top of or into the sediments, at the GSI.

(c) Sentinel monitoring points are used in conjunction with the alternative monitoring points for a period as needed to assure that any potential exceedance of an applicable surface water quality standard can be identified with sufficient notice to allow additional response activity, if needed, to be implemented that will address the exceedance. Sentinel monitoring points shall include, at a minimum, monitoring points upland of the surface water body.

(9) An ecological demonstration may be used to demonstrate compliance with subsection (1) if the ecological demonstration meets the following:

(a) The boundaries of the area where the groundwater plume vents to surface water are documented as provided in subsection (8)(a)(*ii*).

(b) Sampling data for the area described in subdivision (a), when compared to other reasonably proximate areas of that surface water body, do not show an impairment of existing or designated uses for that surface water body caused by, or contributed to by, the venting plume, or do not show that the venting plume will cause or contribute to impairment of existing or designated uses of that surface water body in a situation where the area of the surface water immediately outside the venting area of the venting plume shows an impairment of existing or designated uses.

(c) Sampling data for the area described in subdivision (a) do not show exceedances of applicable criteria under subsection (1) in the surface water body caused by, or contributed to by, the venting plume.

(d) The sampling data in subdivisions (b) and (c) may be data on benthic organisms, fish, and the water column of the surface water, which data may be in the form of an in situ bioassay or a biological community assessment.

(e) Sentinel monitoring in on-land wells is performed for a period as needed to show that the groundwater plume is not likely to migrate to the surface water body and vent in the future in a mass amount and rate that would impair the existing or designated uses for that surface water body, or cause or contribute to exceedances of surface water quality standards in the surface water body.

(10) A modeling demonstration may be used to demonstrate compliance with subsection (1) if the modeling demonstration meets all of the following:

(a) The modeling methodology is generally recognized as a means to model venting groundwater plumes or is an innovative method that is scientifically justifiable.

(b) The results of the modeling show that the venting plume at the GSI complies with the applicable criteria under subsection (1) or supports the ecological demonstration, as applicable.

(c) The model is supported by site-specific information and appropriate field measurements.

(11) If alternative monitoring points or an ecological demonstration or a modeling demonstration or a combination of these is used for the response activity and sentinel wells are installed, a contingency plan for potential additional response activity may be required.

(12) If a person intends to utilize mixing zone-based GSI criteria under subsection (1)(c) or site-specific criteria under subsection (1)(d) in conjunction with alternative monitoring points, an ecological demonstration, or a modeling demonstration, or a combination of these, the person shall submit to the department a response activity plan that includes the following:

(a) A demonstration of compliance with the standards in subsection (6), (7), or (8), as applicable.

(b) If compliance with a mixing zone-based groundwater-surface water interface criterion under subsection (1)(c) is to be determined with data from the alternative monitoring points, documentation that it is possible to reasonably estimate the volume and rate of venting groundwater.

(c) A site-specific monitoring plan that takes into account the basis for the site-specific criterion or mixing zone criterion.

(13) If there is an exceedance of an applicable GSI criterion based on acute toxicity at a compliance monitoring point applicable at a particular facility, then action shall be taken as follows:

(a) A person that is implementing the response activity at that facility and that determines that there is an exceedance shall notify the department of that condition within 7 days of obtaining knowledge that the exceedance is occurring.

(b) If the person described in subdivision (a) is a person liable under section 20126, then that person shall, within 30 days of the date on which notice is required under subdivision (a), do 1 or more of the following:

(*i*) Commence response activity to address the exceedance at the applicable compliance monitoring point and submit a schedule to the department for the response activity.

(*ii*) Submit a notice of intent to the department to propose an alternative monitoring point or perform an ecological demonstration or perform a modeling demonstration or a combination of these. The notice shall include a schedule for submission of the proposal.

(*iii*) Submit a notice of intent to the department to propose a site-specific criterion or a mixing zone criterion under sections 20120a and 20120b. The notice shall include a schedule for submission of the proposal.

(c) The department may approve a schedule as submitted under subdivision (b) or direct reasonable modifications in the schedule. The department may grant extensions of time for actions required under subdivision (b) and for activities in an approved or department-modified schedule if the person is acting in good faith and site conditions inhibit progress or completion of the activity. The department's decision to grant an extension or impose a schedule modification shall consider the practical problems associated with carrying out the response activity and the nature and extent of the exceedances of applicable GSI criteria.

(14) Response activity beyond evaluations shall not be required if venting groundwater has no effect or only a de minimis effect on a surface water body. A determination under this subsection may be based on mass flow and rate of groundwater movement calculations. A person evaluating a venting plume that determines that the plume has no effect or only a de minimis effect on a surface water body shall notify the department of the determination. The department may, within 90 days after receipt of the determination, disapprove the determination. If the department does not notify the person that it disapproves the determination within the 90-day period, then the person's determination shall be final.

(15) If a person has controlled the source of groundwater contamination and has demonstrated that compliance with GSI criteria developed under this part is unachievable, that person may file a technical impracticability waiver request with the department. The technical impracticability waiver shall document the reasons why compliance is unachievable. The department shall respond to the waiver within 180 days with an approval, request for additional information, or denial that provides a detailed description of the reasons for denial.

(16) Natural attenuation of hazardous substances in venting groundwater upgradient of the GSI is an acceptable form of remediation and may be relied upon in lieu of any active remediation of the groundwater. Natural attenuation may be occurring by way of dispersion, diffusion, sorption, degradation, transformative reactions, and other methods.

(17) A permit shall not be required under part 31 for any venting groundwater contamination plume that is addressed under this section.

(18) Wetlands shall be protected for the groundwater surface water pathway to the extent that particular designated uses, as defined by part 31, which are specific to that wetland would otherwise be impaired by a groundwater contamination plume venting to surface water in the wetland.

(19) If a groundwater contamination plume is entering a sewer that discharges to surface water, and the GSI pathway is relevant, all of the following apply:

(a) If the groundwater enters a storm sewer that is owned or operated by an entity that is subject to federal municipal separate storm sewer system regulations and a part 31 permit for the discharges from the system, the contaminated groundwater entering the sewer is subject to regulation by the entity's ordinance regarding illicit discharges, but the regulation of the contaminated groundwater shall not prevent the use of subdivision (b) or other provisions of this section to determine the need for response activity under this part.

(b) All of the following apply:

(*i*) The compliance monitoring point may be a groundwater monitoring well, if proposed by the person performing the response action, or that person may choose another point for measuring compliance under this subparagraph.

(*ii*) A mixing zone may be applied that accounts for the mixing which occurs in the receiving surface water into which the sewer system discharges.

(*iii*) Attenuation that occurs in the sewer system prior to the sewer system outfall to surface water shall be considered.

(*iv*) The compliance point is at the sewer system outfall to surface water, which shall account for any applicable mixing zone for the sewer system outfall.

(*v*) Monitoring to determine compliance may be performed at a location where the contaminated groundwater enters the sewer or downstream from that location but upstream of the sewer outfall at the surface water, if practicable and representative. Appropriate back calculation from the compliance point to the monitoring point may be applied to account for mixing and other attenuation that occurs in the sewer system before the compliance point. As appropriate, such a monitoring point may require another monitoring point in the sewer system upstream from the area where the contaminated groundwater enters the sewer. Upstream sampling in the sewer may be performed to determine source contribution.

(*vi*) The contaminant mass flow, and the rate and amount of groundwater flow, into the sewer may be considered and may result in a determination that the migration into the sewer is de minimis and does not require any response activity in addition to the evaluation that leads to such determination.

(c) Factors in subdivision (b) may be considered and applied to determine if an illicit discharge is occurring and how to regulate the discharge.

(20) If the department denies a response activity plan containing a proposal for alternative monitoring points, an ecological demonstration, or a modeling demonstration, or a combination of these, the department shall state the reasons for denial, including the scientific and technical basis for the denial. A person may appeal a decision of the department in a response activity plan or no further action report regarding venting groundwater as a scientific or technical dispute under section 20114e.

(21) This section is intended to allow a person to demonstrate compliance with requirements under this part for a response activity involving venting groundwater, and, for this purpose, this section shall be given

retroactive application and shall be available for use by such person. A person performing response activity involving venting groundwater under any judgment, consent judgment, order, consent order, or agreement that was entered prior to the effective date of the 2012 amendatory act that amended this section may pursue, alter, or terminate such response activity based on any provision of this section subject to any necessary entry or approval by the court in a case of a judgment, consent judgment, or court order or any necessary amendment procedure to amend an agreement. The department shall not oppose use of any provision of this section as grounds to amend an agreement or for a court to modify or terminate response activity obligations involving venting groundwater under a judgment, consent judgment, or court order. A person performing response activity involving venting groundwater under any remedial action plan, interim response plan designed to meet criteria, interim response action plan, or response activity plan that was approved by the department prior to the effective date of the 2012 amendatory act that amended this section may submit an amended plan to the department for approval that pursues, alters, or terminates response activity based on any provision of this section. The department shall not oppose use of any provision of this section in approving an amended plan.

(22) A person that undertakes response activity under subsection (4) or that takes action under subsection (13)(b) shall not be considered to be making an admission of liability by undertaking such response activities or taking such action.

(23) As used in this section:

(a) "Alternative monitoring points" means alternative monitoring points authorized under subsection (8).

(b) "Ecological demonstration" means an ecological demonstration authorized under subsection (1)(e).

(c) "GSI" means groundwater-surface water interface, which is the location at which groundwater enters surface water.

(d) "GSI monitoring well" means a vertical well installed in the saturated zone as close as practicable to surface water with a screened interval or intervals that are representative of the groundwater venting to the surface water.

(e) "Mixing zone-based GSI criteria" means mixing zone-based GSI criteria authorized under subsection (1)(c).

(f) "Modeling demonstration" means a modeling demonstration authorized under subsection (1)(f).

(g) "Surface water" does not include any of the following:

(*i*) Groundwater.

(*ii*) Hyporheic zone water.

(*iii*) Water in enclosed sewers.

(*iv*) Water in drainage ways and ponds used solely for wastewater or storm water conveyance, treatment, or control.

(*v*) Water in subgrade utility runs and utility lines and permeable fill in and around them.

History: Add. 2010, Act 228, Imd. Eff. Dec. 14, 2010;—Am. 2012, Act 190, Imd. Eff. June 20, 2012.

Compiler's note: Former MCL 324.20120e, which pertained to recalculation of cleanup criteria, was repealed by Act 603 of 2006, Eff. Jan. 3, 2008.

Enacting section 1 of Act 190 of 2012 provides:

"Enacting section 1. R 299.5716 of the Michigan administrative code is rescinded."

Popular name: Act 451

Popular name: Environmental Remediation

Popular name: Environmental Response Act

Popular name: NREPA

NATURAL RESOURCES AND ENVIRONMENTAL PROTECTION ACT (EXCERPT)
Act 451 of 1994

PART 31
WATER RESOURCES PROTECTION

324.3101 Definitions.

Sec. 3101. As used in this part:

(a) "Aquatic nuisance species" means a nonindigenous species that threatens the diversity or abundance of native species or the ecological stability of infested waters, or commercial, agricultural, aquacultural, or recreational activities dependent on such waters.

(b) "Ballast water" means water and associated solids taken on board a vessel to control or maintain trim, draft, stability, or stresses on the vessel, without regard to the manner in which it is carried.

(c) "Ballast water treatment method" means a method of treating ballast water and sediments to remove or destroy living biological organisms through 1 or more of the following:

(*i*) Filtration.

(*ii*) The application of biocides or ultraviolet light.

(*iii*) Thermal methods.

(*iv*) Other treatment techniques approved by the department.

(d) "Department" means the department of environmental quality.

(e) "Detroit consumer price index" means the most comprehensive index of consumer prices available for the Detroit area from the United States Department of Labor, Bureau of Labor Statistics.

(f) "Emergency management coordinator" means that term as defined in section 2 of the emergency management act, 1976 PA 390, MCL 30.402.

(g) "Great Lakes" means the Great Lakes and their connecting waters, including Lake St. Clair.

(h) "Group 1 facility" means a facility whose discharge is described by R 323.2218 of the Michigan administrative code.

(i) "Group 2 facility" means a facility whose discharge is described by R 323.2210(y), R 323.2215, or R 323.2216 of the Michigan administrative code. Group 2 facility does not include a Group 2a facility.

(j) "Group 2a facility" means a facility whose discharge is described by R 323.2210(y) or R 323.2215 of the Michigan administrative code and that meets 1 or more of the following:

(*i*) The facility's discharge is from a coin-operated laundromat.

(*ii*) The facility's discharge is from a car wash or vehicle wash open to the public.

(*iii*) The facility's discharge is a subsurface sanitary discharge of fewer than 10,000 gallons per day that does not meet the terms for authorization under R 323.2211(a) of the Michigan administrative code.

(*iv*) The facility's discharge is a seasonal sanitary discharge from a public park, public or private recreational vehicle park or campground, or recreational or vacation camp.

(k) "Group 3 facility" means a facility whose discharge is described by R 323.2211 or R 323.2213 of the Michigan administrative code.

(*l*) "Local health department" means that term as defined in section 1105 of the public health code, 1978 PA 368, MCL 333.1105.

(m) "Local unit" means a county, city, village, or township or an agency or instrumentality of any of these entities.

(n) "Municipality" means this state, a county, city, village, or township, or an agency or instrumentality of any of these entities.

(o) "National response center" means the National Communications Center established under the clean water act, 33 USC 1251 to 1387, located in Washington, DC, that receives and relays notice of oil discharge or releases of hazardous substances to appropriate federal officials.

(p) "Nonoceangoing vessel" means a vessel that is not an oceangoing vessel.

(q) "Oceangoing vessel" means a vessel that operates on the Great Lakes or the St. Lawrence waterway after operating in waters outside of the Great Lakes or the St. Lawrence waterway.

(r) "Open water disposal of contaminated dredge materials" means the placement of dredge materials contaminated with toxic substances as defined in R 323.1205 of the Michigan administrative code into the open waters of the waters of the state but does not include the siting or use of a confined disposal facility designated by the United States Army Corps of Engineers or beach nourishment activities utilizing uncontaminated materials.

(s) "Primary public safety answering point" means that term as defined in section 102 of the emergency telephone service enabling act, 1986 PA 32, MCL 484.1102.

(t) "Sediments" means any matter settled out of ballast water within a vessel.

(u) "Sewage sludge" means sewage sludge generated in the treatment of domestic sewage, other than only septage or industrial waste.

(v) "Sewage sludge derivative" means a product for land application derived from sewage sludge that does not include solid waste or other waste regulated under this act.

(w) "Sewage sludge generator" means a person who generates sewage sludge that is applied to land.

(x) "Sewage sludge distributor" means a person who applies, markets, or distributes, except at retail, a sewage sludge derivative.

(y) "St. Lawrence waterway" means the St. Lawrence River, the St. Lawrence Seaway, and the Gulf of St. Lawrence.

(z) "Threshold reporting quantity" means that term as defined in R 324.2002 of the Michigan administrative code.

(aa) "Waters of the state" means groundwaters, lakes, rivers, and streams and all other watercourses and waters, including the Great Lakes, within the jurisdiction of this state.

History: 1994, Act 451, Eff. Mar. 30, 1995;—Am. 1997, Act 29, Imd. Eff. June 18, 1997;—Am. 2001, Act 114, Imd. Eff. Aug. 6, 2001;—Am. 2004, Act 90, Imd. Eff. Apr. 22, 2004;—Am. 2004, Act 142, Imd. Eff. June 15, 2004;—Am. 2006, Act 97, Imd. Eff. Apr. 4, 2006;—Am. 2015, Act 247, Imd. Eff. Dec. 22, 2015.

Compiler's note: For transfer of authority, powers, duties, functions, and responsibilities of the Waste Management Division to the Director of the Michigan Department of Environmental Quality, see E.R.O. No. 1995-16, compiled at MCL 324.99901 of the Michigan Compiled Laws.

Popular name: Act 451

Popular name: NREPA

324.3102 Implementation of part.

Sec. 3102. The director shall implement this part.

History: 1994, Act 451, Eff. Mar. 30, 1995.

Compiler's note: For creation of the office of administrative hearings within the department of natural resources and transfer of authority to make decisions regarding administrative appeals of surface water discharge permit applications from the commission of natural resources to the office of administrative hearings, see E.R.O. No. 1995-3, compiled at MCL 299.911 of the Michigan Compiled Laws.

For transfer of authority, powers, duties, functions, and responsibilities of the Surface Water Quality Division to the Director of the Michigan Department of Environmental Quality, see E.R.O. No. 1995-16, compiled at MCL 324.99901 of the Michigan Compiled Laws.

For transfer of authority, powers, duties, functions, and responsibilities of the Waste Management Division to the Director of the Michigan Department of Environmental Quality, see E.R.O. No. 1995-16, compiled at MCL 324.99901 of the Michigan Compiled Laws.

For transfer of the Office of Administrative Hearings, including but not limited to authority, powers, duties, functions, and responsibilities, to the Director of the Michigan Department of Environmental Quality, see E.R.O. No. 1995-16, compiled at MCL 324.99901 of the Michigan Compiled Laws.

Popular name: Act 451

Popular name: NREPA

324.3103 Department of environmental quality; powers and duties generally; rules; other actions.

Sec. 3103. (1) The department shall protect and conserve the water resources of the state and shall have control of the pollution of surface or underground waters of the state and the Great Lakes, which are or may be affected by waste disposal of any person. The department may make or cause to be made surveys, studies, and investigations of the uses of waters of the state, both surface and underground, and cooperate with other governments and governmental units and agencies in making the surveys, studies, and investigations. The department shall assist in an advisory capacity a flood control district that may be authorized by the legislature. The department, in the public interest, shall appear and present evidence, reports, and other testimony during the hearings involving the creation and organization of flood control districts. The department shall advise and consult with the legislature on the obligation of the state to participate in the costs of construction and maintenance as provided for in the official plans of a flood control district or intercounty drainage district.

(2) The department shall enforce this part and may promulgate rules as it considers necessary to carry out its duties under this part. However, notwithstanding any rule-promulgation authority that is provided in this part, except for rules authorized under section 3112(6), the department shall not promulgate any additional rules under this part after December 31, 2006.

(3) The department may promulgate rules and take other actions as may be necessary to comply with the federal water pollution control act, 33 USC 1251 to 1387, and to expend funds available under such law for extension or improvement of the state or interstate program for prevention and control of water pollution. This

part shall not be construed as authorizing the department to expend or to incur any obligation to expend any state funds for such purpose in excess of any amount that is appropriated by the legislature.

(4) Notwithstanding the limitations on rule promulgation under subsection (2), rules promulgated under this part before January 1, 2007 shall remain in effect unless rescinded.

History: 1994, Act 451, Eff. Mar. 30, 1995;—Am. 2004, Act 91, Imd. Eff. Apr. 22, 2004;—Am. 2005, Act 33, Imd. Eff. June 6, 2005.

Compiler's note: For transfer of authority, powers, duties, functions, and responsibilities of the Environmental Assistance Division to the Director of the Michigan Department of Environmental Quality, see E.R.O. No. 1995-16, compiled at MCL 324.99901 of the Michigan Compiled Laws.

For transfer of authority, powers, duties, functions, and responsibilities of the Surface Water Quality Division to the Director of the Michigan Department of Environmental Quality, see E.R.O. No. 1995-16, compiled MCL 324.99901 of the Michigan Compiled Laws.

For transfer of authority, powers, duties, functions, and responsibilities of the Waste Management Division to the Director of the Michigan Department of Environmental Quality, see E.R.O. No. 1995-16, compiled at MCL 324.99901 of the Michigan Compiled Laws.

Popular name: Act 451

Popular name: NREPA

Administrative rules: R 323.1001 et seq. and R 323.2101 et seq. of the Michigan Administrative Code.

324.3103a Legislative findings; duties of department; vessel owner or operator ineligible for new grant, loan, or award.

Sec. 3103a. (1) The legislature finds both of the following:

(a) It is a goal of this state to prevent the introduction of and minimize the spread of aquatic nuisance species within the Great Lakes.

(b) That, to achieve the goal stated in subdivision (a), this state shall cooperate with the United States and Canadian authorities, other states and provinces, and the maritime industry.

(2) By March 1, 2002, the department shall do all of the following:

(a) Determine whether the ballast water management practices that were proposed by the shipping federation of Canada to the department on June 7, 2000 are being complied with by all oceangoing vessels operating on the Great Lakes and the St. Lawrence waterway. Upon request by the department, the owner or operator of an oceangoing vessel shall provide, on a form developed by the department and the shipping federation of Canada, confirmation of whether or not the vessel is complying with the ballast water management practices described in this subdivision.

(b) Determine whether the ballast water management practices that were proposed jointly by the lake carriers' association and the Canadian shipowners' association to the department on January 26, 2001 are being complied with by all nonoceangoing vessels operating on the Great Lakes and the St. Lawrence waterway. Upon request by the department, the owner or operator of a nonoceangoing vessel shall provide, on a form developed by the department and the lake carriers' association and the Canadian shipowners' association, confirmation of whether or not the vessel is complying with the ballast water management practices described in this subdivision. For a nonoceangoing vessel that is a ferry used to transport motor vehicles across Lake Michigan, if the configuration of the vessel would prohibit compliance with 1 or more of the ballast water management practices described in this section, the department shall establish alternative ballast water management practices for the vessel and shall determine whether those practices are being complied with.

(c) Determine whether either or both of the ballast water management practices described in subdivisions (a) and (b) have been made conditions of passage on the St. Lawrence seaway by the St. Lawrence seaway management corporation and the Saint Lawrence seaway development corporation.

(d) Determine the following:

(*i*) Whether 1 or more ballast water treatment methods, which protect the safety of the vessel, its crew, and its passengers, could be used by oceangoing vessels to prevent the introduction of aquatic nuisance species into the Great Lakes.

(*ii*) A time period after which 1 or more ballast water treatment methods identified under subparagraph (*i*) could be used by all oceangoing vessels operating on the Great Lakes.

(*iii*) If the department determines under subparagraph (*i*) that a ballast water treatment method is not available, the actions needed to be taken for 1 or more ballast water treatment methods that would meet the requirements of subparagraph (*i*) to be developed, tested, and made available to vessel owners and operators and a time period after which the ballast water treatment method or methods could be used by all oceangoing vessels operating on the Great Lakes. Subsequently, if at any time the department determines that 1 or more ballast water treatment methods that meet the requirements of subparagraph (*i*) could be used by oceangoing vessels operating on the Great Lakes, the department shall determine a date after which the ballast water treatment method or methods could be used by all oceangoing vessels operating on the Great Lakes.

(e) Submit to the governor and the standing committees of the legislature with jurisdiction primarily over issues pertaining to natural resources and the environment a letter of determination that outlines the determinations made by the department under this subsection.

(3) By March 1, 2003, the department shall do all of the following:

(a) Determine whether all oceangoing vessels that are operating on the Great Lakes are using a ballast water treatment method, identified by the department under subsection (2)(d)(*i*) or (*iii*), to prevent the introduction of aquatic nuisance species into the Great Lakes. Upon request by the department, the owner or operator of an oceangoing vessel shall provide, on a form developed by the department and the shipping federation of Canada, confirmation of whether or not the vessel is using a ballast water treatment method identified by the department under subsection (2)(d)(*i*) or (*iii*). If the department determines that all oceangoing vessels that are operating on the Great Lakes are not using a ballast water treatment method by the dates identified in subsection (2)(d)(*ii*) or (*iii*), the department shall determine what the reasons are for not doing so.

(b) Determine whether the use of a ballast water treatment method has been made a condition of passage on the St. Lawrence seaway by the St. Lawrence seaway management corporation and the Saint Lawrence seaway development corporation.

(c) Submit to the governor and the standing committees of the legislature with jurisdiction primarily over issues pertaining to natural resources and the environment a letter of determination that outlines the determinations made by the department under this subsection.

(4) The department shall do all of the following:

(a) By March 1, 2002, compile and maintain a list of all oceangoing vessels and nonoceangoing vessels that it determines have complied with the ballast water management practices described in subsection (2)(a) or (b), as appropriate, during the previous 12 months. This list shall be continually updated and maintained on the department's website.

(b) By March 1, 2003, if the department has determined under subsection (2)(d)(*i*), or if the department subsequently determines under subsection (2)(d)(*iii*), that 1 or more ballast water treatment methods could be used by oceangoing vessels to prevent the introduction of aquatic nuisance species into the Great Lakes, compile and maintain a list of all oceangoing vessels that, after the date specified in subsection (2)(d)(*ii*) or the date identified by the department under subsection (2)(d)(*iii*), as appropriate, have been using 1 of these ballast water treatment methods during the previous 12 months.

(c) Continually update and post the lists provided for in subdivisions (a) and (b) on the department's website.

(d) Annually distribute a copy of the lists prepared under subdivisions (a) and (b) to persons in the state who have contracts with oceangoing or nonoceangoing vessel operators for the transportation of cargo.

(e) Provide to the governor and the standing committees of the legislature with jurisdiction primarily over issues pertaining to natural resources and the environment copies of the initial lists prepared under subdivisions (a) and (b) and the annual list distributed under subdivision (d).

(5) The owner or operator of an oceangoing vessel or a nonoceangoing vessel that is not on an applicable list prepared under subsection (4) and any persons in the state who have contracts for the transportation of cargo with an oceangoing or nonoceangoing vessel operator that is not on an applicable list prepared under subsection (4) are not eligible for a new grant, loan, or award administered by the department.

History: Add. 2001, Act 114, Imd. Eff. Aug. 6, 2001.

Popular name: Act 451

Popular name: NREPA

324.3104 Cooperation and negotiation with other governments as to water resources; alteration of watercourses; federal assistance; formation of Great Lakes aquatic nuisance species coalition; report; requests for appropriations; recommendations; permit to alter floodplain; application; fees; disposition of fees; other parts subject to single highest permit fee.

Sec. 3104. (1) The department is designated the state agency to cooperate and negotiate with other governments, governmental units, and governmental agencies in matters concerning the water resources of the state, including, but not limited to, flood control, beach erosion control, water quality control planning, development, and management, and the control of aquatic nuisance species. The department shall have control over the alterations of natural or present watercourses of all rivers and streams in this state to assure that the channels and the portions of the floodplains that are the floodways are not inhabited and are kept free and clear of interference or obstruction that will cause any undue restriction of the capacity of the floodway.

The department may take steps as may be necessary to take advantage of any act of congress that may be of assistance in carrying out the purposes of this part, including the water resources planning act, 42 USC 1962 to 1962d-3, and the federal water pollution control act, 33 USC 1251 to 1387.

(2) To address discharges of aquatic nuisance species from oceangoing vessels that damage water quality, aquatic habitat, or fish or wildlife, the department shall facilitate the formation of a Great Lakes aquatic nuisance species coalition. The Great Lakes aquatic nuisance species coalition shall be formed through an agreement entered into with other states in the Great Lakes basin to implement on a basin-wide basis water pollution laws that prohibit the discharge of aquatic nuisance species into the Great Lakes from oceangoing vessels. The department shall seek to enter into an agreement that will become effective not later than January 1, 2007. The department shall consult with the department of natural resources prior to entering into this agreement. Upon entering into the agreement, the department shall notify the Canadian Great Lakes provinces of the terms of the agreement. The department shall seek funding from the Great Lakes protection fund authorized under part 331 to implement the Great Lakes aquatic nuisance species coalition.

(3) The department shall report to the governor and to the legislature at least annually on any plans or projects being implemented or considered for implementation. The report shall include requests for any legislation needed to implement any proposed projects or agreements made necessary as a result of a plan or project, together with any requests for appropriations. The department may make recommendations to the governor on the designation of areawide water quality planning regions and organizations relative to the governor's responsibilities under the federal water pollution control act, 33 USC 1251 to 1387.

(4) A person shall not alter a floodplain except as authorized by a floodplain permit issued by the department pursuant to part 13. An application for a permit shall include information that may be required by the department to assess the proposed alteration's impact on the floodplain. If an alteration includes activities at multiple locations in a floodplain, 1 application may be filed for combined activities.

(5) Except as provided in subsections (6), (7), and (9), until October 1, 2019, an application for a floodplain permit shall be accompanied by a fee of $500.00. Until October 1, 2019, if the department determines that engineering computations are required to assess the impact of a proposed floodplain alteration on flood stage or discharge characteristics, the department shall assess the applicant an additional $1,500.00 to cover the department's cost of review.

(6) Until October 1, 2019, an application for a floodplain permit for a minor project category shall be accompanied by a fee of $100.00. Minor project categories shall be established by rule and shall include activities and projects that are similar in nature and have minimal potential for causing harmful interference.

(7) If work has been done in violation of a permit requirement under this part and restoration is not ordered by the department, the department may accept an application for a permit for that work if the application is accompanied by a fee equal to 2 times the permit fee required under subsection (5) or (6).

(8) The department shall forward fees collected under this section to the state treasurer for deposit in the land and water management permit fee fund created in section 30113.

(9) A project that requires review and approval under this part and 1 or more of the following is subject to only the single highest permit fee required under this part or the following:

(a) Part 301.

(b) Part 303.

(c) Part 323.

(d) Part 325.

(e) Section 117 of the land division act, 1967 PA 288, MCL 560.117.

History: 1994, Act 451, Eff. Mar. 30, 1995;—Am. 1995, Act 169, Imd. Eff. Oct. 9, 1995;—Am. 1999, Act 106, Imd. Eff. July 7, 1999;—Am. 2003, Act 163, Imd. Eff. Aug. 12, 2003;—Am. 2004, Act 325, Imd. Eff. Sept. 10, 2004;—Am. 2005, Act 33, Imd. Eff. June 6, 2005;—Am. 2008, Act 276, Imd. Eff. Sept. 29, 2008;—Am. 2011, Act 90, Imd. Eff. July 15, 2011;—Am. 2015, Act 82, Eff. Oct. 1, 2015.

Popular name: Act 451

Popular name: NREPA

Administrative rules: R 323.1001 et seq. of the Michigan Administrative Code.

324.3105 Entering property for inspections and investigations; assistance.

Sec. 3105. The department may enter at all reasonable times in or upon any private or public property for the purpose of inspecting and investigating conditions relating to the pollution of any waters of the state and the obstruction of the floodways of the rivers and streams of this state. The department may call upon any officer, board, department, school, university, or other state institution and the officers or employees thereof for any assistance considered necessary to implement this part.

History: 1994, Act 451, Eff. Mar. 30, 1995.

Popular name: Act 451

Popular name: NREPA

324.3106 Establishment of pollution standards; permits; determination of volume of water and high and low water marks; rules; orders; pollution prevention.

Sec. 3106. The department shall establish pollution standards for lakes, rivers, streams, and other waters of the state in relation to the public use to which they are or may be put, as it considers necessary. The department shall issue permits that will assure compliance with state standards to regulate municipal, industrial, and commercial discharges or storage of any substance that may affect the quality of the waters of the state. The department may set permit restrictions that will assure compliance with applicable federal law and regulations. The department may ascertain and determine for record and in making its order what volume of water actually flows in all streams, and the high and low water marks of lakes and other waters of the state, affected by the waste disposal or pollution of any persons. The department may promulgate rules and issue orders restricting the polluting content of any waste material or polluting substance discharged or sought to be discharged into any lake, river, stream, or other waters of the state. The department shall take all appropriate steps to prevent any pollution the department considers to be unreasonable and against public interest in view of the existing conditions in any lake, river, stream, or other waters of the state.

History: 1994, Act 451, Eff. Mar. 30, 1995.

Popular name: Act 451

Popular name: NREPA

Administrative rules: R 323.1001 et seq. and R 323.2101 et seq. of the Michigan Administrative Code.

324.3106a Satisfaction of remedial obligations.

Sec. 3106a. Corrective action measures conducted pursuant to part 213 satisfy remedial obligations under this part.

History: Add. 1995, Act 15, Imd. Eff. Apr. 12, 1995.

Popular name: Act 451

Popular name: NREPA

324.3107 Harmful interference with streams; rules; orders; determinations for record.

Sec. 3107. The department may promulgate rules and issue orders for the prevention of harmful interference with the discharge and stage characteristics of streams. The department may ascertain and determine for record and in making its order the location and extent of floodplains, stream beds, and channels and the discharge and stage characteristics of streams at various times and circumstances.

History: 1994, Act 451, Eff. Mar. 30, 1995.

Popular name: Act 451

Popular name: NREPA

Administrative rules: R 323.1001 et seq. of the Michigan Administrative Code.

324.3108 Unlawful occupation, filling, or grading of floodplain, stream bed, or channel of stream; exceptions; construction of building with basement.

Sec. 3108. (1) A person shall not occupy or permit the occupation of land for residential, commercial, or industrial purposes or fill or grade or permit the filling or grading for a purpose other than agricultural of land in a floodplain, stream bed, or channel of a stream, as ascertained and determined for the record by the department, or undertake or engage in an activity on or with respect to land that is determined by the department to interfere harmfully with the discharge or stage characteristics of a stream, unless the occupation, filling, grading, or other activity is permitted under this part.

(2) A person may construct or cause the construction of a building that includes a basement in a floodplain that has been properly filled above the 100-year flood elevation under permit if 1 or more of the following apply:

(a) The lowest floor, including the basement, will be constructed above the 100-year flood elevation.

(b) A licensed professional engineer schooled in the science of soil mechanics certifies that the building site has been filled with soil of a type and in a manner that hydrostatic pressures are not exerted upon the basement walls or floor while the watercourse is at or below the 100-year flood elevation, that the placement of the fill will prevent settling of the building or buckling of floors or walls, and that the building is equipped with a positive means of preventing sewer backup from sewer lines and drains that serve the building.

(c) A licensed professional engineer or architect certifies that the basement walls and floors are designed to be watertight and to withstand hydrostatic pressure from a water level equal to the 100-year flood elevation

and that the building is properly anchored or weighted to prevent flotation and is equipped with a positive means of preventing sewer backup from sewer lines and drains that serve the building.

(3) If the community within which a building described in subsection (2) is located is a participant in the national flood insurance program authorized under the national flood insurance act of 1968, title XIII of the housing and urban development act of 1968, Public Law 90-448, 82 Stat. 572, 42 U.S.C. 4001, 4011 to 4012, 4013 to 4020, 4022 to 4102, 4104 to 4104d, 4121 to 4127, and 4129, then the developer shall apply for and obtain a letter of map revision, based on fill, from the federal emergency management agency prior to the issuance of a local building permit or the construction of the building if 1 or both of the following apply:

(a) The floodplain will be altered through the placement of fill.

(b) The watercourse is relocated or enclosed.

History: 1994, Act 451, Eff. Mar. 30, 1995;—Am. 1996, Act 162, Imd. Eff. Apr. 11, 1996.

Popular name: Act 451

Popular name: NREPA

324.3109 Discharge into state waters; prohibitions; exception; violation; penalties; abatement; "on-site wastewater treatment system" defined.

Sec. 3109. (1) A person shall not directly or indirectly discharge into the waters of the state a substance that is or may become injurious to any of the following:

(a) To the public health, safety, or welfare.

(b) To domestic, commercial, industrial, agricultural, recreational, or other uses that are being made or may be made of such waters.

(c) To the value or utility of riparian lands.

(d) To livestock, wild animals, birds, fish, aquatic life, or plants or to their growth or propagation.

(e) To the value of fish and game.

(2) The discharge of any raw sewage of human origin, directly or indirectly, into any of the waters of the state shall be considered prima facie evidence of a violation of this part by the municipality in which the discharge originated unless the discharge is permitted by an order or rule of the department. If the discharge is not the subject of a valid permit issued by the department, a municipality responsible for the discharge may be subject to the remedies provided in section 3115. If the discharge is the subject of a valid permit issued by the department pursuant to section 3112, and is in violation of that permit, a municipality responsible for the discharge is subject to the penalties prescribed in section 3115.

(3) Notwithstanding subsection (2), a municipality is not responsible or subject to the remedies or penalties provided in section 3115 under either of the following circumstances:

(a) The discharge is an unauthorized discharge from a sewerage system as defined in section 4101 that is permitted under this part and owned by a party other than the municipality, unless the municipality has accepted responsibility in writing for the sewerage system and, with respect to the civil fine and penalty under section 3115, the municipality has been notified in writing by the department of its responsibility for the sewerage system.

(b) The discharge is from 3 or fewer on-site wastewater treatment systems.

(4) Unless authorized by a permit, order, or rule of the department, the discharge into the waters of this state of any medical waste, as defined in part 138 of the public health code, 1978 PA 368, MCL 333.13801 to 333.13832, is prima facie evidence of a violation of this part and subjects the responsible person to the penalties prescribed in section 3115.

(5) Unless a discharge is authorized by a permit, order, or rule of the department, the discharge into the waters of this state from an oceangoing vessel of any ballast water is prima facie evidence of a violation of this part and subjects the responsible person to the penalties prescribed in section 3115.

(6) A violation of this section is prima facie evidence of the existence of a public nuisance and in addition to the remedies provided for in this part may be abated according to law in an action brought by the attorney general in a court of competent jurisdiction.

(7) As used in this section, "on-site wastewater treatment system" means a system of components, other than a sewerage system as defined in section 4101, used to collect and treat sanitary sewage or domestic equivalent wastewater from 1 or more dwellings, buildings, or structures and discharge the resulting effluent to a soil dispersal system on property owned by or under the control of the same individual or entity that owns or controls the dwellings, buildings, or structures.

History: 1994, Act 451, Eff. Mar. 30, 1995;—Am. 2005, Act 32, Eff. Jan. 1, 2007;—Am. 2005, Act 241, Imd. Eff. Nov. 22, 2005;—Am. 2014, Act 536, Imd. Eff. Jan 15, 2015.

Popular name: Act 451

Popular name: NREPA

Administrative rules: R 323.1001 et seq. of the Michigan Administrative Code.

324.3109a Mixing zones for discharges of venting groundwater; conditions not requiring permit; definitions.

Sec. 3109a. (1) Notwithstanding any other provision of this part, or rules promulgated under this part, the department shall allow for a mixing zone for discharges of venting groundwater in the same manner as the department provides for a mixing zone for point source discharges. Mixing zones for discharges of venting groundwater shall not be less protective of public health or the environment than the level of protection provided for mixing zones from point source discharges.

(2) Notwithstanding any other provision of this part, if a discharge of venting groundwater is in compliance with the water quality standards provided for in this part and the rules promulgated under this part, a permit is not required under this part for the discharge if the discharge is provided for in either or both of the following:

(a) A remedial action plan that is approved by the department under part 201.

(b) A corrective action plan that is submitted to the department under part 213 that includes a mixing zone determination made by the department and that has been noticed in the department calendar.

(3) As used in this section:

(a) "Mixing zone" means that portion of a water body where a point source discharge or venting groundwater is mixed with receiving water.

(b) "Venting groundwater" means groundwater that is entering a surface water of the state from a facility, as defined in section 20101.

History: Add. 1995, Act 70, Imd. Eff. June 5, 1995;—Am. 1999, Act 106, Imd. Eff. July 7, 1999.

Popular name: Act 451

Popular name: NREPA

324.3109b Satisfaction of remedial obligations.

Sec. 3109b. Notwithstanding any other provision of this part, remedial actions that satisfy the requirements of part 201 satisfy a person's remedial obligations under this part.

History: Add. 1995, Act 70, Imd. Eff. June 5, 1995.

Popular name: Act 451

Popular name: NREPA

324.3109c Open water disposal of dredge materials contaminated with toxic substances; prohibition.

Sec. 3109c. Notwithstanding any other provision of this part or the rules promulgated under this part, the open water disposal of dredge materials that are contaminated with toxic substances as defined in R 323.1205 of the Michigan administrative code is prohibited.

History: Add. 2006, Act 97, Imd. Eff. Apr. 4, 2006;—Am. 2013, Act 87, Imd. Eff. June 28, 2013.

Popular name: Act 451

Popular name: NREPA

324.3109d MAEAP-verified farms; applicable conditions; obligation to obtain permit not modified or limited; definitions.

Sec. 3109d. (1) Beginning 6 months after the effective date of the amendatory act that added this section, notwithstanding any other provision of this part, the following apply to MAEAP-verified farms:

(a) Except as provided in subdivision (b), if all of the following conditions are met, the owner or operator of the MAEAP-verified farm is not subject to civil fines under section 3115, but may be responsible for actual natural resources damages:

(*i*) A discharge to the waters of the state occurs from a portion or operation of the farm that is MAEAP-verified and in compliance with MAEAP standards.

(*ii*) The owner or operator acted promptly to correct the condition after discovery.

(*iii*) The owner or operator reported the discharge to the department within 24 hours of the discovery.

(b) Subdivision (a) does not apply if either of the following conditions occurs:

(*i*) The actions of the owner or operator pose or posed a substantial endangerment to the public health, safety, or welfare.

(*ii*) The director, upon advice from the interagency technical review panel provided for in section 8710, determines the owner or operator has previously committed significant violations that constitute a pattern of

repeated violations of environmental laws, rules, regulations, permit conditions, settlement agreements, or orders of consent or judicial orders and that were due to separate and distinct events.

(c) If a MAEAP-verified farm is in compliance with all MAEAP standards applicable to the farming operation, the farm is considered to be implementing conservation and management practices needed to meet total maximum daily load implementation for impaired waters pursuant to 33 USC 1313.

(d) If a discharge from a MAEAP-verified farm that is in compliance with all MAEAP standards applicable to land application is caused by an act of God weather event, both of the following apply:

(*i*) The discharge shall be considered nonpoint source pollution.

(*ii*) If the discharge is determined by the director with scientific evidence provided by water quality data to have caused an exceedance of water quality standards, the farm, within 30 days of notification, shall provide to the department a report that includes details of conservation or management practice changes, if necessary, to further address the risk of discharge recurrence. The report shall state whether those conservation or management practices have already been implemented by the farm. Upon receipt of the report, the department shall review the report and respond within 30 days. The departmental response may include report acceptance with no further action required or may recommend environmentally sound and economically feasible conservation or management practices to prevent future discharges.

(2) This section does not modify or limit any obligation to obtain a permit under this part.

(3) As used in this section:

(a) "Act of God weather event" means a precipitation event that meets both of the following conditions:

(*i*) Exceeds 1/2 inch in precipitation.

(*ii*) Was forecast by the national weather service 24 hours earlier as having less than a 70% probability of exceeding 1/2 inch of precipitation.

(b) "MAEAP-verified farm" means that term as it is defined in part 87.

History: Add. 2011, Act 1, Imd. Eff. Mar. 9, 2011.

Popular name: Act 451

Popular name: NREPA

324.3109e Sodium or chloride in groundwater discharge permit; limitation; discharge of sodium or chloride causing groundwater concentration exceeding certain levels; duties of permittee; response activities.

Sec. 3109e. (1) Notwithstanding any other provision in this act or the rules promulgated under this act, the department shall not establish or enforce a limitation for sodium or chloride in a groundwater discharge permit that is more restrictive than the following:

(a) 400 milligrams of sodium per liter.

(b) 500 milligrams of chloride per liter.

(2) Notwithstanding any other provision of this act or the rules promulgated under this act, the department shall not establish or enforce a limitation for sodium or chloride in groundwater that is more restrictive than the following:

(a) 230 milligrams of sodium per liter.

(b) 250 milligrams of chloride per liter.

(3) Notwithstanding any other provision of this part or rules promulgated under this part, if a permittee discharges sodium or chloride, or both, into groundwater that migrates off of the property on which the discharge was made and that discharge directly causes the groundwater concentration of sodium or chloride, or both, to exceed the levels provided under subsection (2), the permittee shall do all of the following:

(a) Initiate a sampling program approved by the department to monitor downgradient water supply wells for the levels of sodium or chloride, or both, in the water supply.

(b) If the concentration of sodium in a downgradient water supply exceeds the level provided under subsection (2), the permittee shall provide and maintain, for each affected downgradient water supply, free of charge, a point-of-use treatment system approved by the department that will remove sodium from the water supply so as to be in compliance with the level provided under subsection (2).

(c) If the concentration of chloride in a downgradient water supply exceeds the level provided under subsection (2), provide to each affected water supply owner a notice of aesthetic impact with respect to chloride levels.

(4) Notwithstanding any other provision of this act, a permittee subject to the requirements of subsection (3) that complies with the requirements of subsection (3) is not subject to response activities under part 201 with respect to a discharge of sodium or chloride, or both, that is in compliance with the discharge level under subsection (1).

History: Add. 2013, Act 180, Imd. Eff. Nov. 26, 2013.

Popular name: Act 451

Popular name: NREPA

324.3110 Waste treatment facilities of industrial or commercial entity; exception; examination and certification of supervisory personnel; training program; fees; failure to pay fee; continuing education programs; reports; false statement; applicability of section.

Sec. 3110. (1) Each industrial or commercial entity, other than a concentrated animal feed operation, that discharges liquid wastes into any surface water or groundwater or underground or on the ground other than through a public sanitary sewer shall have waste treatment or control facilities under the specific supervision and control of persons who have been certified by the department as properly qualified to operate the facilities. The department shall examine all supervisory personnel having supervision and control of the facilities, other than a concentrated animal feed operation, and certify that the persons are properly qualified to operate or supervise the facilities.

(2) The department may conduct a program for training persons seeking to be certified as operators or supervisors under subsection (1), section 4104, or section 9 of the safe drinking water act, 1976 PA 399, MCL 325.1009. Until October 1, 2021, the department may charge a fee based on the costs to the department of operating this training program. The fees shall be deposited into the operator training and certification fund created in section 3134.

(3) The department shall administer certification operator programs for persons seeking to be certified as operators or supervisors under subsection (1), section 4104, or section 9 of the safe drinking water act, 1976 PA 399, MCL 325.1009. A person wishing to become certified as an operator or a supervisor shall submit an application to the department containing information required by the department. Information submitted as part of the application shall be considered part of the examination for certification. Until October 1, 2021, the department may charge a certification examination fee and a certification renewal fee in accordance with the following fee schedule:

(a) For certification examinations under subsection (1), the following fees apply:

(*i*) Industrial wastewater certification level 1 or 2 examination as described under subrule (2) of R 323.1253 of the Michigan Administrative Code, $35.00.

(*ii*) Industrial wastewater certification level 3 examination as described under subrule (2) of R 323.1253 of the Michigan Administrative Code, $40.00.

(*iii*) Industrial wastewater special classification A-1a examination or noncontact cooling water A-1h examination as described under subrule (2) of R 323.1253 of the Michigan Administrative Code, $30.00.

(*iv*) Storm water industrial certification A-1i examination as described under subrule (2) of R 323.1253 of the Michigan Administrative Code, $30.00.

(b) For certification examinations under section 4104, the following fees apply:

(*i*) Municipal wastewater certification level A, B, C, or D examination as described under subrule (1) of R 299.2911 of the Michigan Administrative Code, $70.00.

(*ii*) Municipal wastewater certification level L2 examination as described under subrule (3)(a) of R 299.2911 of the Michigan Administrative Code, $45.00.

(*iii*) Municipal wastewater certification level L1 examination as described under subrule (3)(b) of R 299.2911 of the Michigan Administrative Code, $45.00.

(*iv*) Municipal wastewater certification level SC examination as described under subrule (4) of R 299.2911 of the Michigan Administrative Code, $45.00.

(c) For certification examinations under section 9 of the safe drinking water act, 1976 PA 399, MCL 325.1009, for operators of the following systems, the following fees apply:

(*i*) Drinking water complete treatment system classes F-1, F-2, F-3, or F-4 as described under subrule (1) of R 325.11901 of the Michigan Administrative Code, $70.00.

(*ii*) Drinking water limited treatment system classes D-1, D-2, D-3, or D-4 as described under subrule (2) of R 325.11901 of the Michigan Administrative Code, $70.00.

(*iii*) Drinking water distribution system classes S-1, S-2, S-3, or S-4 as described under R 325.11902 of the Michigan Administrative Code, $70.00.

(*iv*) Drinking water complete treatment system class F-5 as described under subrule (1) of R 325.11901 of the Michigan Administrative Code, $45.00.

(*v*) Drinking water limited treatment system class D-5 as described under subrule (2) of R 325.11901 of the Michigan Administrative Code, $45.00.

(*vi*) Drinking water distribution system class S-5 as described under R 325.11902 of the Michigan Administrative Code, $45.00.

(d) For certification renewals under subsection (1), the following fees apply:

(*i*) Storm water industrial certification A-1i as described under subrule (2) of R 323.1253 of the Michigan Administrative Code, $95.00.

(*ii*) Storm water construction certification A-1j as described under subrule (2) of R 323.1253 of the Michigan Administrative Code, $95.00.

(*iii*) All other industrial wastewater certification levels 1, 2, or 3 as described under subrule (2) of R 323.1253 of the Michigan Administrative Code and issued on a single certificate, $95.00.

(e) For certification renewals under section 4104 for all municipal wastewater certification levels as described under R 299.2911 of the Michigan Administrative Code and issued on a single certificate, $95.00.

(f) For certification renewals under section 9 of the safe drinking water act, 1976 PA 399, MCL 325.1009, for all drinking water certification levels as described under R 325.11901 or R 325.11902 of the Michigan Administrative Code and issued on a single certificate, $95.00.

(4) The failure to pay a required certification examination fee within 90 days after taking an examination is considered failure of the examination. The department shall not allow an individual to take a future examination within the failed examination program unless he or she pays the prior fee in full.

(5) The department shall conduct a program for persons or organizations seeking to offer approved continuing education courses to be used by certified operators and supervisors when renewing their certifications under subsection (1), section 4104, and section 9 of the safe drinking water act, 1976 PA 399, MCL 325.1009. The department may charge continuing education providers a course application fee and course renewal fee as provided in the following fee schedule:

(a) An application for approval of a training course, $75.00 for each course.

(b) An application for renewal of an approved training course, $50.00 for each course.

(6) All fees collected under this section shall be deposited in the operator training and certification fund established in section 3134.

(7) A person certified as required by subsection (1) shall file monthly, or at such longer intervals as the department may designate, on forms provided by the department, reports showing the effectiveness of the treatment or control facility operation and the quantity and quality of discharged liquid wastes. If a person knowingly makes a false statement in a report, the department may revoke his or her certificate as an approved treatment facility operator.

(8) This section does not apply to water, gas, or other material that is injected into a well to facilitate production of oil or gas or to water derived in association with oil or gas production and disposed of in a well, if the well is used either to facilitate production or for disposal purposes and is under permit by the state supervisor of wells.

History: 1994, Act 451, Eff. Mar. 30, 1995;—Am. 2011, Act 148, Imd. Eff. Sept. 21, 2011;—Am. 2017, Act 90, Imd. Eff. July 12, 2017.

Popular name: Act 451

Popular name: NREPA

324.3111 Repealed. 2012, Act 43, Imd. Eff. Mar. 6, 2012.

Compiler's note: The repealed section pertained to requirements for filing of report by person doing business with state who discharges wastewater into waters of the state or sewer system.

Popular name: Act 451

Popular name: NREPA

Administrative rules: R 299.9001 et seq. of the Michigan Administrative Code.

324.3111b Release required to be reported under R 324.2001 to R 324.2009.

Sec. 3111b. (1) If a person is required to report a release to the department under part 5 of the water resources protection rules, R 324.2001 to R 324.2009 of the Michigan administrative code, the person, via a 9-1-1 call, shall at the same time report the release to the primary public safety answering point serving the jurisdiction where the release occurred.

(2) If a person described in subsection (1) is required to subsequently submit to the department a written report on the release under part 5 of the water resources protection rules, R 324.2001 to R 324.2009 of the Michigan administrative code, the person shall at the same time submit a copy of the report to the local health department serving the jurisdiction where the release occurred.

(3) If the department of state police or other state agency receives notification, pursuant to an agreement with or the laws of another state, Canada, or the province of Ontario, of the release in that other jurisdiction of a polluting material in excess of the threshold reporting quantity and if the polluting material has entered or may enter surface waters or groundwaters of this state, the department of state police or other state agency

shall contact the primary public safety answering point serving each county that may be affected by the release.

(4) The emergency management coordinator of each county shall develop and oversee the implementation of a plan to provide timely notification of a release required to be reported under subsection (1) or (3) to appropriate local, state, and federal agencies. In developing and overseeing the implementation of the plan, the emergency management coordinator shall consult with both of the following:

(a) The directors of the primary public safety answering points with jurisdiction within the county.

(b) Any emergency management coordinator appointed for a city, village, or township located in that county.

(5) If rules promulgated under this part require a person to maintain a pollution incident prevention plan, the person shall update the plan to include the requirements of subsections (1) and (2) when conducting any evaluation of the plan required by rule.

(6) If a person reports to the department a release pursuant to subsection (1), the department shall do both of the following:

(a) Notify the person of the requirements imposed under subsections (1) and (2).

(b) Request that the person, even if not responsible for the release, report the release, via a 9-1-1 call, to the primary public safety answering point serving 1 of the following, as applicable:

(*i*) The jurisdiction where the release occurred, if known.

(*ii*) The jurisdiction where the release was discovered, if the jurisdiction where the release occurred is not known.

(7) The department shall notify the public and interested parties, by posting on its website within 30 days after the effective date of the amendatory act that added this section and by other appropriate means, of all of the following:

(a) The requirements of subsections (1) and (2).

(b) The relevant voice, and, if applicable, facsimile telephone numbers of the department and the national response center.

(c) The criminal and civil sanctions under section 3115 applicable to violations of subsections (1) and (2).

(8) Failure of the department to provide a person with the notification required under subsection (6) or (7) does not relieve the person of any obligation to report a release or other legal obligation.

(9) The department shall biennially do both of the following:

(a) Evaluate the state and local reporting system established under this section.

(b) Submit to the standing committees of the senate and house of representatives with primary responsibility for environmental protection issues a written report on any changes recommended to the reporting system.

History: Add. 2004, Act 142, Imd. Eff. June 15, 2004.

Popular name: Act 451

Popular name: NREPA

324.3112 Permit to discharge waste into state waters; application determined as complete; condition of validity; modification, suspension, or revocation of permit; reissuance; application for new permit; notice; order; complaint; petition; contested case hearing; rejection of petition; oceangoing vessels engaging in port operations; permit required.

Sec. 3112. (1) A person shall not discharge any waste or waste effluent into the waters of this state unless the person is in possession of a valid permit from the department.

(2) An application for a permit under subsection (1) shall be submitted to the department. Within 30 days after an application for a new or increased use is received, the department shall determine whether the application is administratively complete. Within 90 days after an application for reissuance of a permit is received, the department shall determine whether the application is administratively complete. If the department determines that an application is not complete, the department shall notify the applicant in writing within the applicable time period. If the department does not make a determination as to whether the application is complete within the applicable time period, the application shall be considered to be complete.

(3) The department shall condition the continued validity of a permit upon the permittee's meeting the effluent requirements that the department considers necessary to prevent unlawful pollution by the dates that the department considers to be reasonable and necessary and to assure compliance with applicable federal law and regulations. If the department finds that the terms of a permit have been, are being, or may be violated, it may modify, suspend, or revoke the permit or grant the permittee a reasonable period of time in which to comply with the permit. The department may reissue a revoked permit upon a showing satisfactory to the

department that the permittee has corrected the violation. A person who has had a permit revoked may apply for a new permit.

(4) If the department determines that a person is causing or is about to cause unlawful pollution of the waters of this state, the department may notify the alleged offender of its determination and enter an order requiring the person to abate the pollution or refer the matter to the attorney general for legal action, or both.

(5) A person who is aggrieved by an order of abatement of the department or by the reissuance, modification, suspension, or revocation of an existing permit of the department executed pursuant to this section may file a sworn petition with the department setting forth the grounds and reasons for the complaint and asking for a contested case hearing on the matter pursuant to the administrative procedures act of 1969, 1969 PA 306, MCL 24.201 to 24.328. A petition filed more than 60 days after action on the order or permit may be rejected by the department as being untimely.

(6) Beginning January 1, 2007, all oceangoing vessels engaging in port operations in this state shall obtain a permit from the department. The department shall issue a permit for an oceangoing vessel only if the applicant can demonstrate that the oceangoing vessel will not discharge aquatic nuisance species or if the oceangoing vessel discharges ballast water or other waste or waste effluent, that the operator of the vessel will utilize environmentally sound technology and methods, as determined by the department, that can be used to prevent the discharge of aquatic nuisance species. The department shall cooperate to the fullest extent practical with other Great Lakes basin states, the Canadian Great Lakes provinces, the Great Lakes panel on aquatic nuisance species, the Great Lakes fishery commission, the international joint commission, and the Great Lakes commission to ensure development of standards for the control of aquatic nuisance species that are broadly protective of the waters of the state and other natural resources. Permit fees for permits under this subsection shall be assessed as provided in section 3120. The permit fees for an individual permit issued under this subsection shall be the fees specified in section 3120(1)(a) and (5)(a). The permit fees for a general permit issued under this subsection shall be the fees specified in section 3120(1)(c) and (5)(b)(*i*). Permits under this subsection shall be issued in accordance with the timelines provided in section 3120. The department may promulgate rules to implement this subsection.

History: 1994, Act 451, Eff. Mar. 30, 1995;—Am. 2004, Act 91, Imd. Eff. Apr. 22, 2004;—Am. 2005, Act 33, Imd. Eff. June 6, 2005.

Popular name: Act 451

Popular name: NREPA

324.3112a Discharge of untreated sewage from sewer system; notification; duties of municipality; legal action by state not limited; penalties and fines; definitions.

Sec. 3112a. (1) Except for sewer systems described in subsection (8), if untreated sewage or partially treated sewage is directly or indirectly discharged from a sewer system onto land or into the waters of the state, the person responsible for the sewer system shall immediately, but not more than 24 hours after the discharge begins, notify the department; local health departments as defined in section 1105 of the public health code, 1978 PA 368, MCL 333.1105; a daily newspaper of general circulation in the county or counties in which a municipality notified pursuant to subsection (4) is located; and a daily newspaper of general circulation in the county in which the discharge occurred or is occurring of all of the following:

(a) Promptly after the discharge starts, by telephone or in another manner required by the department, that the discharge is occurring.

(b) At the conclusion of the discharge, in writing or in another manner required by the department, all of the following:

(*i*) The volume and quality of the discharge as measured pursuant to procedures and analytical methods approved by the department.

(*ii*) The reason for the discharge.

(*iii*) The waters or land area, or both, receiving the discharge.

(*iv*) The time the discharge began and ended as measured pursuant to procedures approved by the department.

(*v*) Verification of the person's compliance status with the requirements of its national pollutant discharge elimination system permit or groundwater discharge permit and applicable state and federal statutes, rules, and orders.

(2) Upon being notified of a discharge under subsection (1), the department shall promptly post the notification on its website.

(3) Each time a discharge to surface waters occurs under subsection (1), the person responsible for the sewer system shall test the affected waters for E. coli to assess the risk to the public health as a result of the discharge and shall provide the test results to the affected local county health departments and to the

department. The testing shall be done at locations specified by each affected local county health department but shall not exceed 10 tests for each separate discharge event. The requirement for this testing may be waived by the affected local county health department if the affected local county health department determines that such testing is not needed to assess the risk to the public health as a result of the discharge event.

(4) A person responsible for a sewer system that may discharge untreated sewage or partially treated sewage into the waters of the state shall annually contact each municipality whose jurisdiction contains waters that may be affected by the discharge. If those contacted municipalities wish to be notified in the same manner as provided in subsection (1), the person responsible for the sewer system shall provide that notification.

(5) A person who is responsible for a discharge of untreated sewage or partially treated sewage from a sewer system into the waters of the state shall comply with the requirements of its national pollutant discharge elimination system permit or groundwater discharge permit and applicable state and federal statutes, rules, and orders.

(6) This section does not authorize the discharge of untreated sewage or partially treated sewage into the waters of the state or limit the state from bringing legal action as otherwise authorized by this part.

(7) The penalties and fines provided for in section 3115 apply to a violation of this section.

(8) For sewer systems that discharge to the groundwater via a subsurface disposal system, that do not have a groundwater discharge permit issued by the department, and the discharge of untreated sewage or partially treated sewage is not to surface waters, the person responsible for the sewer system shall notify the local health department in accordance with subsection (1)(a) and (b), but the requirements of subsections (2), (3), (4), and (5) do not apply.

(9) As used in this section:

(a) "Partially treated sewage" means any sewage, sewage and storm water, or sewage and wastewater, from domestic or industrial sources that meets 1 or more of the following:

(*i*) Is not treated to national secondary treatment standards for wastewater or that is treated to a level less than that required by the person's national pollutant discharge elimination system permit.

(*ii*) Is treated to a level less than that required by the person's groundwater discharge permit.

(*iii*) Is found on the ground surface.

(b) "Sewer system" means a public or privately owned sewer system designed and used to convey or treat sanitary sewage or sanitary sewage and storm water. Sewer system does not include an on-site wastewater treatment system serving 1 residential unit or duplex.

(c) "Surface water" means all of the following, but does not include drainage ways and ponds used solely for wastewater conveyance, treatment, or control:

(*i*) The Great Lakes and their connecting waters.

(*ii*) Inland lakes.

(*iii*) Rivers.

(*iv*) Streams.

(*v*) Impoundments.

(*vi*) Open drains.

(*vii*) Other surface bodies of water.

History: 1994, Act 451, Eff. Mar. 30, 1995;—Am. 1998, Act 3, Imd. Eff. Jan. 30, 1998;—Am. 2000, Act 286, Imd. Eff. July 10, 2000;—Am. 2004, Act 72, Imd. Eff. Apr. 20, 2004.

Popular name: Act 451

Popular name: NREPA

324.3112b Discharge from combined sewer system; issuance or renewal of permit; disconnection of eaves troughs and downspouts as condition; exception; "combined sewer system" defined.

Sec. 3112b. (1) When a permit for a discharge from a combined sewer system is issued or renewed under this part, the department shall require as a condition of the permit that eaves troughs and roof downspouts for the collection of storm water throughout the tributary service area are not directly connected to the sewer system. The department may allow the permittee up to 1 year to comply with this provision for residential property and up to 5 years for commercial and industrial properties.

(2) Subsection (1) does not apply if the permittee demonstrates to the satisfaction of the department that the disconnection of downspouts and eaves troughs is not a cost-effective means of reducing the frequency or duration of combined sewer overflows or of maintaining compliance with discharge requirements.

(3) As used in this section, “combined sewer system” means a sewer designed and used to convey both storm water runoff and sanitary sewage, and which contains lawfully installed regulators and control devices that allow for delivery of sanitary flow to treatment during dry weather periods and divert storm water and sanitary sewage to surface waters during storm flow periods.

History: Add. 1998, Act 4, Imd. Eff. Jan. 30, 1998.

Popular name: Act 451

Popular name: NREPA

324.3112c Discharges of untreated or partially treated sewage from sewer systems; list of occurrences; “partially treated sewage” and “sewer system” defined.

Sec. 3112c. (1) The department shall compile and maintain a list of occurrences of discharges of untreated or partially treated sewage from sewer systems onto land or into the waters of the state that have been reported to the department or are otherwise known to the department. This list shall be made available on the department's website on an ongoing basis. In addition, the department shall annually publish this list and make it available to the general public. The list shall include all of the following:

(a) The entity responsible for the discharge.

(b) The waters or land area, or both, receiving the discharge.

(c) The volume and quality of the discharge.

(d) The time the discharge began and ended.

(e) A description of the actions the department has taken to address the discharge.

(f) Whether the entity responsible for the discharge is subject to a schedule of compliance approved by the department.

(g) Any other information that the department considers relevant.

(2) As used in this section:

(a) “Partially treated sewage” means any sewage, sewage and storm water, or sewage and wastewater, from domestic or industrial sources that is not treated to national secondary treatment standards for wastewater or that is treated to a level less than that required by a national pollutant discharge elimination system permit.

(b) “Sewer system” means a sewer system designed and used to convey sanitary sewage or storm water, or both.

History: Add. 2000, Act 287, Imd. Eff. July 10, 2000.

Popular name: Act 451

Popular name: NREPA

324.3112e Permit not required; "beneficial use by-product" and "beneficial use 3" defined.

Sec. 3112e. (1) Notwithstanding sections 3112 and 3113, a permit is not required under this part for any of the following:

(a) The use of a beneficial use by-product for beneficial use 3 in compliance with part 115.

(b) The storage of a beneficial use by-product in compliance with part 115.

(2) As used in subsection (1), "beneficial use by-product" and "beneficial use 3" mean those terms as defined in section 11502.

History: Add. 2014, Act 178, Eff. Sept. 16, 2014.

Popular name: Act 451

Popular name: NREPA

324.3113 New or increased use of waters for sewage or other waste disposal purposes; filing information; permit; conditions; complaint; petition; contested case hearing; rejection of petition.

Sec. 3113. (1) A person who seeks a new or increased use of the waters of the state for sewage or other waste disposal purposes shall file with the department an application setting forth the information required by the department, including the nature of the enterprise or development contemplated, the amount of water required to be used, its source, the proposed point of discharge of the wastes into the waters of the state, the estimated amount to be discharged, and a statement setting forth the expected bacterial, physical, chemical, and other known characteristics of the wastes.

(2) If a permit is granted, the department shall condition the permit upon such restrictions that the department considers necessary to adequately guard against unlawful uses of the waters of the state as are set forth in section 3109.

(3) If the permit or denial of a new or increased use is not acceptable to the permittee, the applicant, or any other person, the permittee, the applicant, or other person may file a sworn petition with the department setting forth the grounds and reasons for the complaint and asking for a contested case hearing on the matter pursuant to the administrative procedures act of 1969, 1969 PA 306, MCL 24.201 to 24.328. A petition filed more than 60 days after action on the permit application may be rejected by the department as being untimely.

History: 1994, Act 451, Eff. Mar. 30, 1995;—Am. 2004, Act 91, Imd. Eff. Apr. 22, 2004.

Popular name: Act 451

Popular name: NREPA

324.3114 Enforcement of part; criminal complaint.

Sec. 3114. An employee of the department of natural resources or an employee of another governmental agency appointed by the department may, with the concurrence of the department, enforce this part and may make a criminal complaint against a person who violates this part.

History: 1994, Act 451, Eff. Mar. 30, 1995.

Popular name: Act 451

Popular name: NREPA

324.3115 Violations; civil or criminal liability; venue; jurisdiction; penalties; knowledge attributable to defendant; lien; setoff.

Sec. 3115. (1) The department may request the attorney general to commence a civil action for appropriate relief, including a permanent or temporary injunction, for a violation of this part or a provision of a permit or order issued or rule promulgated under this part. An action under this subsection may be brought in the circuit court for the county of Ingham or for the county in which the defendant is located, resides, or is doing business. If requested by the defendant within 21 days after service of process, the court shall grant a change of venue to the circuit court for the county of Ingham or for the county in which the alleged violation occurred, is occurring, or, in the event of a threat of violation, will occur. The court has jurisdiction to restrain the violation and to require compliance. In addition to any other relief granted under this subsection, the court, except as otherwise provided in this subsection, shall impose a civil fine of not less than $2,500.00 and the court may award reasonable attorney fees and costs to the prevailing party. However, all of the following apply:

(a) The maximum fine imposed by the court shall be not more than $25,000.00 per day of violation.

(b) For a failure to report a release to the department or to the primary public safety answering point under section 3111b(1), the court shall impose a civil fine of not more than $2,500.00.

(c) For a failure to report a release to the local health department under section 3111b(2), the court shall impose a civil fine of not more than $500.00.

(2) A person who at the time of the violation knew or should have known that he or she discharged a substance contrary to this part, or contrary to a permit or order issued or rule promulgated under this part, or who intentionally makes a false statement, representation, or certification in an application for or form pertaining to a permit or in a notice or report required by the terms and conditions of an issued permit, or who intentionally renders inaccurate a monitoring device or record required to be maintained by the department, is guilty of a felony and shall be fined not less than $2,500.00 or more than $25,000.00 for each violation. The court may impose an additional fine of not more than $25,000.00 for each day during which the unlawful discharge occurred. If the conviction is for a violation committed after a first conviction of the person under this subsection, the court shall impose a fine of not less than $25,000.00 per day and not more than $50,000.00 per day of violation. Upon conviction, in addition to a fine, the court in its discretion may sentence the defendant to imprisonment for not more than 2 years or impose probation upon a person for a violation of this part. With the exception of the issuance of criminal complaints, issuance of warrants, and the holding of an arraignment, the circuit court for the county in which the violation occurred has exclusive jurisdiction. However, the person shall not be subject to the penalties of this subsection if the discharge of the effluent is in conformance with and obedient to a rule, order, or permit of the department. In addition to a fine, the attorney general may file a civil suit in a court of competent jurisdiction to recover the full value of the injuries done to the natural resources of the state and the costs of surveillance and enforcement by the state resulting from the violation.

(3) Upon a finding by the court that the actions of a civil defendant pose or posed a substantial endangerment to the public health, safety, or welfare, the court shall impose, in addition to the sanctions set forth in subsection (1), a fine of not less than $500,000.00 and not more than $5,000,000.00.

(4) Upon a finding by the court that the actions of a criminal defendant pose or posed a substantial

endangerment to the public health, safety, or welfare, the court shall impose, in addition to the penalties set forth in subsection (2), a fine of not less than $1,000,000.00 and, in addition to a fine, a sentence of 5 years' imprisonment.

(5) To find a defendant civilly or criminally liable for substantial endangerment under subsection (3) or (4), the court shall determine that the defendant knowingly or recklessly acted in such a manner as to cause a danger of death or serious bodily injury and that either of the following occurred:

(a) The defendant had an actual awareness, belief, or understanding that his or her conduct would cause a substantial danger of death or serious bodily injury.

(b) The defendant acted in gross disregard of the standard of care that any reasonable person should observe in similar circumstances.

(6) Knowledge possessed by a person other than the defendant under subsection (5) may be attributable to the defendant if the defendant took affirmative steps to shield himself or herself from the relevant information.

(7) A civil fine or other award ordered paid pursuant to this section shall do both of the following:

(a) Be payable to the state of Michigan and credited to the general fund.

(b) Constitute a lien on any property, of any nature or kind, owned by the defendant.

(8) A lien under subsection (7)(b) shall take effect and have priority over all other liens and encumbrances except those filed or recorded prior to the date of judgment only if notice of the lien is filed or recorded as required by state or federal law.

(9) A lien filed or recorded pursuant to subsection (8) shall be terminated according to the procedures required by state or federal law within 14 days after the fine or other award ordered to be paid is paid.

(10) In addition to any other method of collection, any fine or other award ordered paid may be recovered by right of setoff to any debt owed to the defendant by the state of Michigan, including the right to a refund of income taxes paid.

History: 1994, Act 451, Eff. Mar. 30, 1995;—Am. 2004, Act 91, Imd. Eff. Apr. 22, 2004;—Am. 2004, Act 143, Imd. Eff. June 15, 2004.

Popular name: Act 451

Popular name: NREPA

324.3115a Violation as misdemeanor; penalty; "minor offense" defined.

Sec. 3115a. (1) Except as provided in subsections (2) and (3), a person who alters or causes the alteration of a floodplain in violation of this part is guilty of a misdemeanor punishable by a fine of not more than $2,500.00 for each occurrence.

(2) A person who commits a minor offense is guilty of a misdemeanor punishable by a fine of not more than $500.00 for each violation. A law enforcement officer may issue and serve an appearance ticket upon a person for a minor offense pursuant to sections 9a to 9g of chapter IV of the code of criminal procedure, Act No. 175 of the Public Acts of 1927, being sections 764.9a to 764.9g of the Michigan Compiled Laws.

(3) A person who willfully or recklessly violates a condition of a floodplain permit issued under this part is guilty of a misdemeanor punishable by a fine of not more than $2,500.00 per day.

(4) As used in this section, "minor offense" means either of the following violations of this part if the department determines that restoration of the affected floodplain is not required:

(a) The failure to obtain a permit under this part.

(b) A violation of a permit issued under this part.

History: 1994, Act 451, Eff. Mar. 30, 1995.

Popular name: Act 451

Popular name: NREPA

324.3116 Construction of part.

Sec. 3116. This part does not repeal any law governing the pollution of lakes and streams, but shall be held and construed as ancillary to and supplementing the other laws and in addition to the laws now in force, except as a law may be in direct conflict with this part. This part does not apply to copper or iron mining operations, whereby such operations result in the placement, removal, use, or processing of copper or iron mineral tailings or copper or iron mineral deposits from such operations being placed in inland waters on bottomlands owned by or under the control of the mining company and only water which may contain a minimal amount of residue as determined by the department resulting from such placement, removal, use, or processing being allowed or permitted to escape into public waters. This part does not apply to the discharge of water from underground iron or copper mining operations subject to a determination by the department.

History: 1994, Act 451, Eff. Mar. 30, 1995.

Popular name: Act 451

Popular name: NREPA

324.3117 Supplemental construction.

Sec. 3117. This part is supplemental to and in addition to the drain code of 1956, Act No. 40 of the Public Acts of 1956, being sections 280.1 to 280.630 of the Michigan Compiled Laws. This part does not amend or repeal any law of the state relating to the public service commission, the department, and the department of public health relating to waters and water structures, or any act or parts of acts not inconsistent with this part.

History: 1994, Act 451, Eff. Mar. 30, 1995.

Popular name: Act 451

Popular name: NREPA

324.3118 Stormwater discharge fees.

Sec. 3118. (1) Except as otherwise provided in this section, until October 1, 2019, the department shall collect stormwater discharge fees from persons who apply for or have been issued stormwater discharge permits as follows:

(a) A 1-time fee of $400.00 is required for a permit related solely to a site of construction activity for each permitted site. The fee shall be submitted by the permit applicant with his or her application for an individual permit or for a certificate of coverage under a general permit. For a permit by rule, the fee shall be submitted by the construction site permittee along with his or her notice of coverage. A person needing more than 1 permit may submit a single payment for more than 1 permit and receive appropriate credit. Payment of the fee under this subdivision or verification of prepayment is a necessary part of a valid permit application or notice of coverage under a permit by rule.

(b) An annual fee of $260.00 is required for a permit related solely to a stormwater discharge associated with industrial activity or from a commercial site for which the department determines a permit is needed.

(c) An annual fee of $500.00 is required for a permit for a municipal separate storm sewer system, unless the permit is issued to a city, a village, a township, or a county or is a single permit authorization for municipal separate storm sewer systems in multiple locations statewide.

(d) An annual fee for a permit for a municipal separate storm sewer system issued to a city, village, or township shall be determined by its population in an urbanized area as defined by the United States Bureau of the Census. The fee shall be based on the latest available decennial census as follows:

(*i*) For a population of 1,000 people or fewer, the annual fee is $500.00.

(*ii*) For a population of more than 1,000 people, but fewer than 3,001 people, the annual fee is $1,000.00.

(*iii*) For a population of more than 3,000 people, but fewer than 10,001 people, the annual fee is $2,000.00.

(*iv*) For a population of more than 10,000 people, but fewer than 30,001 people, the annual fee is $3,000.00.

(*v*) For a population of more than 30,000 people, but fewer than 50,001 people, the annual fee is $4,000.00.

(*vi*) For a population of more than 50,000 people, but fewer than 75,001 people, the annual fee is $5,000.00.

(*vii*) For a population of more than 75,000 people, but fewer than 100,001 people, the annual fee is $6,000.00.

(*viii*) For a population of more than 100,000 people, the annual fee is $7,000.00.

(e) An annual fee of $3,000.00 is required for a permit for a municipal separate storm sewer system issued to a county.

(f) An annual fee for a single municipal separate storm sewer systems permit authorizing a state or federal agency to operate municipal separate storm sewer systems in multiple locations statewide shall be determined in accordance with a memorandum of understanding between that state or federal agency and the department and shall be based on the projected needs by the department to administer the permit.

(2) A stormwater discharge permit is not required for a municipality that does not own or operate a separate storm sewer system. The department shall not collect stormwater discharge fees under this section from a municipality that does not own or operate a separate storm sewer system.

(3) Permit fees required under this section are nonrefundable.

(4) A person possessing a permit not related solely to a site of construction activity as of January 1 shall be assessed a fee. The department shall notify those persons of their fee assessments by February 1. Payment shall be postmarked no later than March 15. Failure by the department to send a fee assessment notification by the deadline, or failure of a person to receive a fee assessment notification, does not relieve that person of his or her obligation to pay the fee. If the department does not meet the February deadline for sending the fee assessment, the fee assessment is due not later than 45 days after the permittee receives a fee notification.

(5) If a stormwater permit is issued for a drainage district, the drainage district is responsible for the applicable fee under this section.

(6) The department shall assess interest on all fee payments submitted under this section after the due date. The permittee shall pay an additional amount equal to 0.75% of the payment due for each month or portion of a month the payment remains past due.

(7) The department shall forward all fees and interest payments collected under this section to the state treasurer for deposit into the fund.

(8) The department shall make payment of the required fee assessed under this section a condition of issuance or reissuance of a permit not related solely to a site of construction activity.

(9) In addition to any other penalty provided in this part, if a person fails to pay the fee required under this section by its due date, the person is in violation of this part and the department may undertake enforcement actions as authorized under this part.

(10) The attorney general may bring an action to collect overdue fees and interest payments imposed under this section.

(11) If the permit is for a municipal separate storm sewer system and the population served by that system is different than that determined by the latest decennial census, the permittee may appeal the annual fee determination and submit written verification of actual population served by the municipal separate storm sewer system.

(12) A person who wishes to appeal either a fee or a penalty assessed under this section is limited to an administrative appeal, in accordance with section 631 of the revised judicature act of 1961, 1961 PA 236, MCL 600.631. The appeal shall be filed within 30 days of the department's fee notification under subsection (4).

(13) As used in this section and section 3119:

(a) "Certificate of coverage" means a document issued by the department that authorizes a discharge under a general permit.

(b) "Clean water act" means the federal water pollution control act, 33 USC 1251 to 1376.

(c) "Construction activity" means a human-made earth change or disturbance in the existing cover or topography of land that is 5 acres or more in size, for which a national permit is required pursuant to 40 CFR 122.26(a), and which is described as a construction activity in 40 CFR 122.26(b)(14)(x). Construction activity includes clearing, grading, and excavating activities. Construction activity does not include the practice of clearing, plowing, tilling soil, and harvesting for the purpose of crop production.

(d) "Fee" means a stormwater discharge fee authorized under this section.

(e) "Fund" means the stormwater fund created in section 3119.

(f) "General permit" means a permit issued authorizing a category of similar discharges.

(g) "Individual permit" means a site-specific permit.

(h) "Municipal separate storm sewer system" means all separate storm sewers that are owned or operated by the United States or a state, city, village, township, county, district, association, or other public body created by or pursuant to state law, having jurisdiction over disposal of sewage, industrial wastes, stormwater, or other wastes, including special districts under state law, such as a sewer district, flood control district, or drainage district or similar entity, or a designated or approved management agency under section 208 of the clean water act, 33 USC 1288, that discharges to waters of the state. Municipal separate storm sewer system includes systems similar to separate storm sewer systems in municipalities, such as systems at military bases, large hospital or prison complexes, and highways and other thoroughfares. Municipal separate storm sewer system does not include separate storm sewers in very discrete areas, such as individual buildings.

(i) "Notice of coverage" means a notice that a person engaging in construction activity agrees to comply with a permit by rule for that activity. A notice of coverage is not required to include a copy of an individual permit issued under part 91 if the notice of coverage includes a copy of a permit for the construction activity issued under part 615, 625, 631, 632, or 634, along with any forms or diagrams pertaining to soil erosion and sedimentation control that were part of the application for that permit.

(j) "Permit", unless the context implies otherwise, or "stormwater discharge permit" means a permit authorizing the discharge of wastewater or any other substance to surface waters of the state under the national pollutant discharge elimination system, pursuant to the clean water act or this part and the rules and regulations promulgated under that act or this part.

(k) "Public body" means the United States, this state, a city, village, township, county, school district, public college or university, or single purpose governmental agency, or any other body that is created by federal or state statute or law.

(*l*) "Separate storm sewer system" means a system of drainage, including, but not limited to, roads, catch basins, curbs, gutters, parking lots, ditches, conduits, pumping devices, or man-made channels, that has the

following characteristics:

(*i*) The system is not a combined sewer where stormwater mixes with sanitary wastes.

(*ii*) The system is not part of a publicly owned treatment works.

(m) ""Stormwater" means stormwater runoff, snowmelt runoff, and surface runoff and drainage.

(n) "Stormwater discharge associated with industrial activity" means a point source discharge of stormwater from a facility that is defined as an industrial activity under 40 CFR 122.26(b)(14)(i) to (ix) and (xi).

History: 1994, Act 451, Eff. Mar. 30, 1995;—Am. 1995, Act 169, Imd. Eff. Oct. 9, 1995;—Am. 1999, Act 35, Imd. Eff. June 3, 1999;—Am. 2004, Act 91, Imd. Eff. Apr. 22, 2004;—Am. 2008, Act 2, Imd. Eff. Jan. 16, 2008;—Am. 2009, Act 102, Imd. Eff. Sept. 30, 2009;—Am. 2011, Act 90, Imd. Eff. July 15, 2011;—Am. 2015, Act 82, Eff. Oct. 1, 2015;—Am. 2017, Act 40, Eff. Aug. 21, 2017.

Popular name: Act 451

Popular name: NREPA

324.3119 Storm water fund.

Sec. 3119. (1) The storm water fund is created within the state treasury.

(2) The state treasurer may receive money or other assets from any source for deposit into the fund. The state treasurer shall direct the investment of the fund. The state treasurer shall credit to the fund interest and earnings from fund investments.

(3) Money in the fund at the close of the fiscal year shall remain in the fund and shall not lapse to the general fund.

(4) The department shall expend money from the fund, upon appropriation, only for 1 or more of the following purposes:

(a) Review of storm water permit applications.

(b) Storm water permit development, issuance, reissuance, modification, and termination.

(c) Surface water monitoring to support the storm water permitting process.

(d) Assessment of compliance with storm water permit conditions.

(e) Enforcement against storm water permit violations.

(f) Classification of storm water control facilities.

(g) Not more than 10% of the money in the fund for training for certification of storm water operators and educational material to assist persons regulated under this part.

(h) Regional or statewide public education to enhance the effectiveness of storm water permits.

(5) Money in the fund shall not be used to support the direct costs of litigation undertaken to enforce this part.

(6) Upon the expenditure or appropriation of money raised in section 3118 for any other purpose than those specifically listed in this section, authorization to collect fees under section 3118 shall be suspended until such time as the money expended or appropriated for purposes other than those listed in this section is returned to the fund.

(7) By January 1, 2006 and by January 1 of each year thereafter, the department shall prepare and submit to the governor, the legislature, the chairs of the standing committees of the senate and house of representatives with primary responsibility for issues related to natural resources and the environment, and the chairs of the subcommittees of the senate and house appropriations committees with primary responsibility for appropriations to the department a report that details the departmental activities of the previous fiscal year in administering the department's storm water program that were funded by the fund. This report shall include, at a minimum, all of the following:

(a) The number of full-time equated positions performing each of the following functions:

(*i*) Permit issuance and development.

(*ii*) Compliance.

(*iii*) Enforcement.

(b) The number of new permit applications received by the department in the preceding year.

(c) The number of renewal permits in the preceding year.

(d) The number of permit modifications requested in the preceding year.

(e) The number of staff hours dedicated to each of the fee categories listed in section 3118.

(f) The number of permits issued for fee categories listed in section 3118.

(g) The average number of days required for review of a permit from the date the permit application is determined to be administratively complete.

(h) The number of permit applications denied.

(i) The number of permit applications withdrawn by the applicant.

(j) The percentage and number of permit applications that were reviewed for administrative completeness

within 10 days of receipt by the department.

(k) The percentage and number of permit applications submitted to the department that were administratively complete as received.

(*l*) The percentage and number of new permit applications for which a final action was taken by the department within 180 days.

(m) The percentage and number of permit renewals and modifications processed within the required time.

(n) The number of permits reopened by the department.

(o) The number of unfilled positions dedicated to the department's storm water program.

(p) The amount of revenue in the fund at the end of the fiscal year.

History: 1994, Act 451, Eff. Mar. 30, 1995;—Am. 1999, Act 106, Imd. Eff. July 7, 1999;—Am. 2004, Act 91, Imd. Eff. Apr. 22, 2004.

Popular name: Act 451

Popular name: NREPA

324.3120 New, reissued, or modified permit fees; new or increased use permit; grant or denial of permit; failure to make decision within applicable time period; annual permit fees; definitions.

Sec. 3120. (1) Until October 1, 2019, an application for a new permit, a reissuance of a permit, or a modification of an existing permit under this part authorizing a discharge into surface water, other than a storm water discharge, shall be accompanied by an application fee as follows:

(a) For an EPA major facility permit, $750.00.

(b) For an EPA minor facility individual permit, a CSO permit, or a wastewater stabilization lagoon individual permit, $400.00.

(c) For an EPA minor facility general permit, $75.00.

(2) Within 180 days after receipt of a complete application for a new or increased use permit, the department shall either grant or deny the permit, unless the applicant and the department agree to extend this time period.

(3) By September 30 of the year following the submittal of a complete application for reissuance of a permit, the department shall either grant or deny the permit, unless the applicant and the department agree to extend this time period.

(4) If the department fails to make a decision on an application within the applicable time period under subsection (2) or (3), the department shall return to the applicant the application fee submitted under subsection (1) and the applicant shall not be subject to an application fee and shall receive a 15% annual discount on an annual permit fee required for a permit issued based upon that application.

(5) Until October 1, 2019, a person who receives a permit under this part authorizing a discharge into surface water, other than a stormwater discharge, is subject to an annual permit fee as follows:

(a) For an industrial or commercial facility that is an EPA major facility, $8,700.00.

(b) For an industrial or commercial facility that is an EPA minor facility, the following amounts:

(*i*) For a general permit for a low-flow facility, $150.00.

(*ii*) For a general permit for a high-flow facility, $400.00.

(*iii*) For an individual permit for a low-flow facility, $1,650.00.

(*iv*) For an individual permit for a high-flow facility, $3,650.00.

(c) For a municipal facility that is an EPA major facility, the following amounts:

(*i*) For an individual permit for a facility discharging 500 MGD or more, $213,000.00.

(*ii*) For an individual permit for a facility discharging 50 MGD or more but less than 500 MGD, $20,000.00.

(*iii*) For an individual permit for a facility discharging 10 MGD or more but less than 50 MGD, $13,000.00.

(*iv*) For an individual permit for a facility discharging less than 10 MGD, $5,500.00.

(d) For a municipal facility that is an EPA minor facility, the following amounts:

(*i*) For an individual permit for a facility discharging 10 MGD or more, $3,775.00.

(*ii*) For an individual permit for a facility discharging 1 MGD or more but less than 10 MGD, $3,000.00.

(*iii*) For an individual permit for a facility discharging less than 1 MGD, $1,950.00.

(*iv*) For a general permit for a high-flow facility, $600.00.

(*v*) For a general permit for a low-flow facility, $400.00.

(e) For a municipal facility that is a CSO facility, $6,000.00.

(f) For an individual permit for a wastewater stabilization lagoon, $1,525.00.

(g) For an individual or general permit for an agricultural purpose, $600.00, unless either of the following

applies:

(*i*) The facility is an EPA minor facility and would qualify for a general permit for a low-flow facility, in which case the fee is $150.00.

(*ii*) The facility is an EPA major facility that is not a farmers' cooperative corporation, in which case the fee is $8,700.00.

(h) For a facility that holds a permit issued under this part but has no discharge and is connected to and is authorized to discharge only to a municipal wastewater treatment system, an annual permit maintenance fee of $100.00. However, if a facility does have a discharge or at some point is no longer connected to a municipal wastewater treatment system, the annual permit fee shall be the appropriate fee as otherwise provided in this subsection.

(6) If the person required to pay an application fee under subsection (1) or an annual permit fee under subsection (5) is a municipality, the municipality may pass on the application fee or the annual permit fee, or both, to each user of the municipal facility.

(7) The department shall send invoices for annual permit fees under subsection (5) to all permit holders by December 1 of each year. The fee shall be based on the status of the facility as of October 1 of that year. A person subject to an annual permit fee shall pay the fee not later than January 15 of each year. Failure by the department to send an invoice by the deadline, or failure of a person to receive an invoice, does not relieve that person of his or her obligation to pay the annual permit fee. If the department does not meet the December 1 deadline for sending invoices, the annual permit fee is due not later than 45 days after receiving an invoice. The department shall forward annual permit fees received under this section to the state treasurer for deposit into the national pollutant discharge elimination system fund created in section 3121.

(8) The department shall assess a penalty on all annual permit fee payments submitted under this section after the due date. The penalty shall be an amount equal to 0.75% of the payment due for each month or portion of a month the payment remains past due.

(9) Following payment of an annual permit fee, if a permittee wishes to challenge its annual permit fee under this section, the owner or operator shall submit the challenge in writing to the department. The department shall not process the challenge unless it is received by the department by March 1 of the year the payment is due. A challenge shall identify the facility and state the grounds upon which the challenge is based. Within 30 calendar days after receipt of the challenge, the department shall determine the validity of the challenge and provide the permittee with notification of a revised annual permit fee and a refund, if appropriate, or a statement setting forth the reason or reasons why the annual permit fee was not revised. If the owner or operator of a facility desires to further challenge its annual permit fee, the owner or operator of the facility has an opportunity for a contested case hearing as provided for under the administrative procedures act of 1969, 1969 PA 306, MCL 24.201 to 24.328.

(10) The attorney general may bring an action for the collection of the annual permit fee imposed under this section.

(11) As used in this section:

(a) "Agricultural purpose" means the agricultural production or processing of those plants and animals useful to human beings produced by agriculture and includes, but is not limited to, forages and sod crops, grains and feed crops, field crops, dairy animals and dairy products, poultry and poultry products, cervidae, livestock, including breeding and grazing, equine, fish and other aquacultural products, bees and bee products, berries, herbs, fruits, vegetables, flowers, seeds, grasses, nursery stock, trees and tree products, mushrooms, and other similar products, or any other product, as determined by the commission of agriculture and rural development, that incorporates the use of food, feed, fiber, or fur. Agricultural purpose includes an operation or facility that produces wine.

(b) "Combined sewer overflow" means a discharge from a combined sewer system that occurs when the flow capacity of the combined sewer system is exceeded at a point prior to the headworks of a publicly owned treatment works during wet weather conditions.

(c) "Combined sewer system" means a sewer designed and used to convey both storm water runoff and sanitary sewage, and that contains lawfully installed regulators and control devices that allow for delivery of sanitary flow to treatment during dry weather periods and divert storm water and sanitary sewage to surface waters during storm flow periods.

(d) "CSO facility" means a facility whose discharge is solely a combined sewer overflow.

(e) "EPA major facility" means a facility that is designated by the United States Environmental Protection Agency as being a major facility under 40 CFR 122.2.

(f) "EPA minor facility" means a facility that is not an EPA major facility.

(g) "Farmers' cooperative corporation" means a farmers' cooperative corporation organized within the limitations of section 98 of 1931 PA 327, MCL 450.98.

(h) "General permit" means a permit suitable for use at facilities meeting eligibility criteria as specified in the permit. With a general permit, the discharge from a specific facility is acknowledged through a certificate of coverage issued to the facility.

(i) "High-flow facility" means a facility that discharges 1 MGD or more.

(j) "Individual permit" means a permit developed for a particular facility, taking into account that facility's specific characteristics.

(k) "Industrial or commercial facility" means a facility that is not a municipal facility.

(*l*) "Low-flow facility" means a facility that discharges less than 1 MGD.

(m) "MGD" means 1,000,000 gallons per day.

(n) "Municipal facility" means a facility that is designed to collect or treat sanitary wastewater, and is either publicly or privately owned, and serves a residential area or a group of municipalities.

(o) "Wastewater stabilization lagoon" means a type of treatment system constructed of ponds or basins designed to receive, hold, and treat sanitary wastewater for a predetermined amount of time through a combination of physical, biological, and chemical processes.

History: Add. 2004, Act 91, Imd. Eff. Apr. 22, 2004;—Am. 2009, Act 102, Imd. Eff. Sept. 30, 2009;—Am. 2011, Act 90, Imd. Eff. July 15, 2011;—Am. 2015, Act 82, Eff. Oct. 1, 2015.

Popular name: Act 451

Popular name: NREPA

324.3121 National pollutant discharge elimination system fund.

Sec. 3121. (1) The national pollutant discharge elimination system fund is created within the state treasury.

(2) The state treasurer may receive money or other assets from any source for deposit into the fund. The state treasurer shall direct the investment of the fund. The state treasurer shall credit to the fund interest and earnings from fund investments.

(3) Money in the fund at the close of the fiscal year shall remain in the fund and shall not lapse to the general fund.

(4) The department shall expend money from the fund, upon appropriation, only to administer the national pollutant discharge elimination system program under this part including, but not limited to, all of the following:

(a) Water quality standards development and maintenance.

(b) Permit development and issuance.

(c) Maintenance of program data.

(d) Ambient water quality monitoring conducted to determine permit conditions and evaluate the effectiveness of permit requirements.

(e) Activities conducted to determine a discharger's permit compliance status, including, but not limited to, inspections, discharge monitoring, and review of submittals.

(f) Laboratory services.

(g) Enforcement.

(h) Program administration activities.

(5) By January 1, 2006 and by January 1 of each year thereafter, the department shall prepare and submit to the governor, the legislature, the chairs of the standing committees of the senate and house of representatives with primary responsibility for issues related to natural resources and the environment, and the chairs of the subcommittees of the senate and house appropriations committees with primary responsibility for appropriations to the department a report that details the departmental activities of the previous fiscal year in administering the department's national pollutant discharge elimination system program that were funded by the fund. This report shall include, at a minimum, all of the following as it relates to the department:

(a) The number of full-time equated positions performing each of the following functions:

(*i*) Permit issuance and development.

(*ii*) Compliance.

(*iii*) Enforcement.

(b) The number of permit applications received by the department in the preceding year, including applications for new and increased uses and reissuances.

(c) The number of staff hours dedicated to each of the fee categories listed in section 3120.

(d) The number of permits issued for fee categories listed in section 3120.

(e) The number of permit applications denied.

(f) The number of permit applications withdrawn by the applicant.

(g) The percentage and number of permit applications that were reviewed for administrative completeness within statutory time frames.

(h) The percentage and number of permit applications submitted to the department that were administratively complete as received.

(i) The percentage and number of permit applications for which a final action was taken by the department within statutory time frames for new and increased uses and reissuances.

(j) The number of permits reopened by the department.

(k) The number of unfilled positions dedicated to the national pollutant discharge elimination system program.

(*l*) The amount of revenue in the fund at the end of the fiscal year.

(6) As used in this section:

(a) "Fund" means the national pollutant discharge elimination system fund created in subsection (1).

(b) "National pollutant discharge elimination system program" means the national pollutant discharge elimination system program delegated to the department under section 402 of title IV of the federal water pollution control act, chapter 758, 86 Stat. 880, 33 U.S.C. 1342, and implemented under this part.

History: Add. 2004, Act 91, Imd. Eff. Apr. 22, 2004.

Popular name: Act 451

Popular name: NREPA

324.3122 Annual groundwater discharge permit fee; failure of department to grant or deny within certain time period; payment of fee by municipality; definitions.

Sec. 3122. (1) Until September 30, 2019, the department may levy and collect an annual groundwater discharge permit fee from facilities or municipalities that discharge wastewater to the ground or groundwater of this state pursuant to section 3112. The fee shall be as follows:

(a) For a group 1 facility, $3,650.00.

(b) For a group 2 facility or a municipality of 1,000 or fewer residents, $1,500.00.

(c) For a group 2a facility, $250.00.

(d) For a group 3 facility, $200.00.

(2) Within 180 days after receipt of a complete application for a permit to discharge wastewater to the ground or to groundwater, the department shall either grant or deny a permit, unless the applicant and the department agree to extend this time period. If the department fails to make a decision on an application within the time period specified or agreed to under this subsection, an applicant subject to an annual groundwater discharge permit fee shall receive a 15% annual discount on the annual groundwater discharge permit fee.

(3) If the person required to pay the annual groundwater discharge permit fee under subsection (1) is a municipality, the municipality may pass on the annual groundwater discharge permit fee to each user of the municipal facility.

(4) As used in this section, "group 1 facility", "group 2 facility", "group 2a facility", and "group 3 facility" do not include a municipality with a population of 1,000 or fewer residents.

History: Add. 2004, Act 90, Imd. Eff. Apr. 22, 2004;—Am. 2007, Act 75, Imd. Eff. Sept. 30, 2007;—Am. 2011, Act 90, Imd. Eff. July 15, 2011;—Am. 2015, Act 82, Eff. Oct. 1, 2015;—Am. 2015, Act 247, Imd. Eff. Dec. 22, 2015.

Popular name: Act 451

Popular name: NREPA

324.3122a Annual groundwater discharge permit fees; credit; amount.

Sec. 3122a. In any state fiscal year, if the department collects more than $2,000,000.00 under section 3122 in annual groundwater discharge permit fees, the department shall credit in the next fiscal year each permittee who paid a groundwater discharge permit fee a proportional amount of the fees collected in excess of $2,000,000.00. However, if a permit is no longer required by the permittee in the next fiscal year, the department shall do the following:

(a) If the credited amount is $50.00 or more, the department shall provide a refund to the permittee for the credited amount.

(b) If the credited amount is less than $50.00, the department shall provide a credit to the permittee for an annual groundwater discharge permit fee that may be required in a subsequent year.

History: Add. 2004, Act 114, Imd. Eff. May 21, 2004.

Popular name: Act 451

Popular name: NREPA

324.3123 Groundwater discharge permit fees; invoices; late payment; action by attorney

general.

Sec. 3123. (1) The department shall send invoices for the groundwater discharge permit fees under section 3122 to all permit holders by January 15 of each year. Fees will be charged for all facilities authorized as of December 15 of each calendar year. Payment shall be postmarked no later than March 1 of each year. Failure by the department to send an invoice by the deadline, or failure of a person to receive an invoice, does not relieve that person of his or her obligation to pay the annual groundwater discharge permit fee. If the department does not meet the January 15 deadline for sending invoices, the annual groundwater discharge permit fee is due not later than 45 days after receiving an invoice. The department shall forward money collected pursuant to this section to the state treasurer for deposit into the groundwater discharge permit fund established under section 3124.

(2) The department shall assess a penalty on all fee payments submitted under this section after the due date. The penalty shall be an amount equal to 0.75% of the payment due for each month or portion of a month the payment remains past due. Failure to timely pay a fee imposed by this section is a violation of this part and is cause for revocation of a permit issued under this part and may subject the discharger to additional penalties pursuant to section 3115.

(3) The attorney general may bring an action for the collection of the groundwater discharge permit fees imposed under this section.

History: Add. 2004, Act 90, Imd. Eff. Apr. 22, 2004.

Popular name: Act 451

Popular name: NREPA

324.3124 Groundwater discharge permit fund.

Sec. 3124. (1) The groundwater discharge permit fund is created within the state treasury. The state treasurer may receive money or other assets from any source for deposit into the groundwater discharge permit fund. The state treasurer shall direct the investment of the groundwater discharge permit fund.

(2) Money in the groundwater discharge permit fund at the close of the fiscal year shall remain in the groundwater discharge permit fund and shall not lapse to the general fund.

(3) The state treasurer shall credit to the groundwater discharge permit fund the interest and earnings from groundwater discharge permit fund investments.

(4) The department shall expend money from the groundwater discharge permit fund, upon appropriation, only to implement the department's groundwater discharge program under this part. However, in any state fiscal year, the department shall not expend more than $2,000,000.00 of money from the fund.

(5) By March 1 annually, the department shall prepare and submit to the governor, the legislature, the chair of the standing committees of the senate and house of representatives with primary responsibility for issues related to natural resources and the environment, and the chairs of the subcommittees of the senate and house appropriations committees with primary responsibility for appropriations to the department a report that details the activities during the previous fiscal year in administering the department's groundwater discharge program that were funded by the groundwater discharge permit fund. This report shall include, at a minimum, all of the following as they relate to the department:

(a) The number of full-time equated positions performing groundwater permitting, compliance, and enforcement activities.

(b) The number of applications received by the department, reported as the number of applications determined to be administratively incomplete and the number determined to be administratively complete.

(c) The number of applications for groundwater permits determined to be administratively complete for which a final action was taken by the department. The number of final actions shall be reported as the number of applications approved, the number of applications denied, and the number of applications withdrawn by the applicant.

(d) The percentage and number of applications determined to be administratively complete for which a final decision was made within the statutory time frame.

(e) The number of inspections conducted at groundwater facilities.

(f) The number of violation letters sent.

(g) The number of contested case hearings and civil actions initiated and completed, the number of voluntary consent orders and administrative orders entered or issued, and the amount of fines and penalties collected through such actions or orders.

(h) For each enforcement action that includes a penalty, a description of what corrective actions were required by the enforcement action.

(i) The number of groundwater complaints received, investigated, resolved, and not resolved by the department.

(j) The amount of revenue in the groundwater discharge permit fund at the end of the fiscal year.

History: Add. 2004, Act 90, Imd. Eff. Apr. 22, 2004.

Popular name: Act 451

Popular name: NREPA

324.3131 Land application of sewage sludge and derivatives; rules; applicability to bulk biosolids or bulk derivative; definitions.

Sec. 3131. (1) By October 1, 1997, the department of environmental quality in consultation with the department of agriculture and rural development shall promulgate rules to manage the land application of sewage sludge and sewage sludge derivatives. The rules shall be consistent with the minimum requirements of 40 CFR part 503 but may impose requirements in addition to or more stringent than 40 CFR part 503 to protect public health or the environment from any adverse effect from a pollutant in sewage sludge or in a sewage sludge derivative. However, the rules shall require that if monitoring of sewage sludge or a sewage sludge derivative indicates a pollutant concentration in excess of that provided in table 3 of 40 CFR 503.13, monitoring frequency shall be increased to not less than twice that provided in table 1 of 40 CFR 503.16, until pollutant concentrations are at or below those provided in table 3 of 40 CFR 503.13. The rules shall require a sewage sludge generator or sewage sludge distributor to deliver to a county, city, village, or township a copy of any record required to be created under the rules pertaining to sewage sludge or a sewage sludge derivative applied to land in that local unit. The copy shall be delivered free of charge promptly after the record is created.

(2) Notwithstanding R 323.2407(3) of the Michigan administrative code, the requirements of R 323.2408 and R 323.2410 of the Michigan administrative code in effect on the effective date of the 2012 amendatory act that added this subsection, or subsequent revisions of those requirements, do not apply to bulk biosolids or a bulk derivative that is sold or given away if all of the following requirements are met:

(a) The material is finished compost or other material that has been demonstrated to be mature and stable and to present minimal vector attraction and potential to generate a nuisance.

(b) The material is of exceptional quality.

(c) The generator or distributor provides to the person receiving the material a written record that contains all of the following information:

(*i*) The name and address of the person who prepared the material.

(*ii*) General handling guidelines and recommended application rates.

(*iii*) A current monitoring summary of nitrogen, phosphorus, and potassium concentrations.

(d) The material is used beneficially for its nutrient value in accordance with the generator's approved residuals management program.

(e) The material is utilized only for landscaping uses at 1 or more of the following locations:

(*i*) A public park.

(*ii*) An athletic field.

(*iii*) A cemetery.

(*iv*) A plant nursery.

(*v*) A turf farm.

(*vi*) A golf course.

(*vii*) A lawn.

(*viii*) A home garden.

(*ix*) Any other location approved by the director of the department or his or her designee.

(3) The requirements of R 323.2413(2)(a) through (c) and (e) through (i) of the Michigan administrative code in effect on the effective date of the 2012 amendatory act that added this subsection do not apply to bulk biosolids or a bulk derivative of exceptional quality utilized for landscaping purposes.

(4) A person who generates bulk biosolids or a bulk derivative of exceptional quality for landscaping uses shall keep a record of quantities in excess of 20 cubic yards sold or given away in a single transaction and make the record available to the department for inspection and copying. The record shall include all of the following information:

(a) The name and address of the recipient.

(b) The quantity received.

(c) The signature or initials of the recipient.

(d) A general description of the intended use consistent with subsection (2)(e).

(5) As used in this section:

(a) All of the following mean those terms as defined in R 324.2402 of the Michigan administrative code:

(*i*) "Bulk biosolids".

(*ii*) "Derivative".

(*iii*) "Exceptional quality".

(*iv*) "Generator".

(*v*) "Residuals management program".

(b) "Bulk derivative" means a derivative that is not sold or given away in a bag or other container for application to a lawn or home garden.

History: Add. 1997, Act 29, Imd. Eff. June 18, 1997;—Am. 2012, Act 563, Imd. Eff. Jan. 2, 2013.

Compiler's note: In separate opinions, the Michigan Supreme Court held that Section 45(8), (9), (10), and (12) and the second sentence of Section 46(1) ("An agency shall not file a rule ... until at least 10 days after the date of the certificate of approval by the committee or after the legislature adopts a concurrent resolution approving the rule.") of the Administrative Procedures Act of 1969, in providing for the Legislature's reservation of authority to approve or disapprove rules proposed by executive branch agencies, did not comply with the enactment and presentment requirements of Const 1963, Art 4, and violated the separation of powers provision of Const 1963, Art 3, and, therefore, were unconstitutional. These specified portions were declared to be severable with the remaining portions remaining effective. Blank v Department of Corrections, 462 Mich 103 (2000).

Popular name: Act 451

Popular name: NREPA

324.3132 Sewage sludge generators and sewage sludge distributors; fees; report; sewage sludge land application fund; local ordinance.

Sec. 3132. (1) Beginning in state fiscal year 1998, an annual sewage sludge land application fee is imposed upon sewage sludge generators and sewage sludge distributors. The sewage sludge land application fee shall be in an amount equal to the sum of an administrative fee and a generation fee. The administrative fee shall be $400.00 and the department shall set the generation fee as provided by subsection (2). The department shall set the generation fee so that the annual cumulative total of the sewage sludge land application fee to be paid in a state fiscal year is, as nearly as possible, $650,000.00 minus the amount in the fund created under subsection (5) carried forward from the prior state fiscal year. Starting with fees to be paid in state fiscal year 1999, the $650,000.00 amount shall be annually adjusted for inflation using the Detroit consumer price index.

(2) Each sewage sludge generator and sewage sludge distributor shall annually report to the department for each state fiscal year, beginning with the 1997 state fiscal year, the number of dry tons of sewage sludge it generated or the number of dry tons of sewage sludge in sewage sludge derivatives it distributed that were applied to land in that state fiscal year. The report is due 30 days after the end of the state fiscal year. By December 15 of each state fiscal year, the department shall determine the generation fee on a per dry ton basis by dividing the cumulative generation fee by the number of dry tons of sewage sludge applied to land or in sewage sludge derivatives applied to land in the immediately preceding state fiscal year. The department shall notify each sewage sludge generator and sewage sludge distributor of the generation fee on a per dry ton basis. Notwithstanding any other provision of this section, for the 1998 state fiscal year, the generation fee shall not exceed $4.00 per dry ton.

(3) By January 31 of each state fiscal year, each sewage sludge generator or sewage sludge distributor shall pay its sewage sludge land application fee. The sewage sludge generator or sewage sludge distributor shall determine the amount of its sewage sludge land application fee by multiplying the number of dry tons of sewage sludge that it reported under subsection (2) by the generation fee and adding the administrative fee.

(4) The department of environmental quality shall assess interest on all fee payments submitted under this section after the due date. The permittee shall pay an additional amount equal to 0.75% of the payment due for each month or portion of a month the payment remains past due. The failure by a person to timely pay a fee imposed by this section is a violation of this part.

(5) The sewage sludge land application fund is created in the state treasury. The department of environmental quality shall forward all fees collected under this section to the state treasurer for deposit into the fund. The state treasurer may receive money or other assets from any source for deposit into the fund. The state treasurer shall direct the investment of the fund. The state treasurer shall credit to the fund interest and earnings from fund investments. An unexpended balance within the fund at the close of the state fiscal year shall be carried forward to the following state fiscal year. The fund shall be allocated solely for the administration of this section and sections 3131 and 3133, including, but not limited to, education of the farmers, sewage sludge generators, sewage sludge distributors, and the general public about land application of sewage sludge and sewage sludge derivatives and the requirements of this section and sections 3131 and 3133. The director of the department of environmental quality may contract with a nonprofit educational organization to administer the educational components of this section. Ten percent of the fund shall be allocated to the department of agriculture to provide persons involved in or affected by land application of sewage sludge or sewage sludge derivatives with education and technical assistance relating to land application of sewage sludge or sewage sludge derivatives.

(6) A local unit may enact, maintain, and enforce an ordinance that prohibits the land application of sewage sludge or a sewage sludge derivative if monitoring indicates a pollutant concentration in excess of that provided in table 1 of 40 C.F.R. 503.13 until subsequent monitoring indicates that pollutant concentrations do not exceed those provided in table 1 of 40 C.F.R. 503.13.

History: Add. 1997, Act 29, Imd. Eff. June 18, 1997.

Popular name: Act 451

Popular name: NREPA

324.3133 Local ordinances, regulations, or resolutions; preemption; contracts with local units; enactment and enforcement of local standards; compliance with conditions of approval; submission of resolution by local unit to department; public meeting; issuance of opinion and approval by department.

Sec. 3133. (1) Except as otherwise provided in this section, sections 3131 and 3132 preempt a local ordinance, regulation, or resolution of a local unit that would duplicate, extend, revise, or conflict with section 3131 or 3132. Except as otherwise provided for in this section, a local unit shall not enact, maintain, or enforce an ordinance, regulation, or resolution that duplicates, extends, revises, or conflicts with section 3131 or 3132.

(2) The director of the department of environmental quality may contract with a local unit to act as its agent for the purpose of enforcing this section and sections 3131 and 3132. The department shall have sole authority to assess fees. If a local unit is under contract with the department of environmental quality to act as its agent or the local unit has received prior written authorization from the department, then the local unit may pass an ordinance that is identical to section 3132 and rules promulgated under section 3131, except as prohibited in subsection (4).

(3) A local unit may enact an ordinance prescribing standards in addition to or more stringent than those contained in section 3132 or in rules promulgated under section 3131 and which regulate a sewage sludge or sewage sludge derivative land application site under either or both of the following circumstances:

(a) The operation of a sewage sludge or sewage sludge derivative land application site within that local unit will result in unreasonable adverse effects on the environment or public health within the local unit. The determination that unreasonable adverse effects on the environment or public health will exist shall take into consideration specific populations whose health may be adversely affected within the local unit.

(b) The operation of a sewage sludge or sewage sludge derivative land application site within that local unit has resulted or will result in the local unit being in violation of other existing state laws or federal laws.

(4) An ordinance enacted pursuant to subsection (2) or (3) shall not conflict with existing state laws or federal laws. An ordinance enacted pursuant to subsection (3) shall not be enforced by a local unit until approved or conditionally approved by the director of the department of environmental quality under subsection (5). The local unit shall comply with any conditions of approval.

(5) If the legislative body of a local unit submits to the department of environmental quality a resolution identifying how the requirements of subsection (3)(a) or (b) are met, the department shall hold a public meeting in the local unit within 60 days after the submission of the resolution to assist the department in determining whether the requirements of subsection (3)(a) or (b) are met. Within 45 days after the public meeting, the department shall issue a detailed opinion on whether the requirements of subsection (3)(a) or (b) are met as identified by the resolution of the local unit and shall approve, conditionally approve, or disapprove the ordinance accordingly. If the department fails to satisfy the requirements of this subsection, the ordinance is considered to be approved.

History: Add. 1997, Act 29, Imd. Eff. June 18, 1997.

Popular name: Act 451

Popular name: NREPA

324.3134 Operator training and certification fund.

Sec. 3134. (1) The operator training and certification fund is created within the state treasury.

(2) The state treasurer may receive money or other assets from any source for deposit into the fund. The state treasurer shall direct the investment of the fund. The state treasurer shall credit to the fund interest and earnings from fund investments.

(3) Money in the fund at the close of the fiscal year shall remain in the fund and shall not lapse to the general fund.

(4) The department shall be the administrator of the fund for auditing purposes.

(5) The department shall expend money from the fund, upon appropriation, only to administer this part,

part 41, and the safe drinking water act, 1976 PA 399, MCL 325.1001 to 325.1023, including all of the following:

(a) Licensing, examination, compliance assistance, education, training, and other certification activities directly related to this part, part 41, and the safe drinking water act, 1976 PA 399, MCL 325.1001 to 325.1023.

(b) Maintenance of program data.

(c) Development of program-related databases and software.

(d) Program administration activities.

(6) By January 1 of each year until January 1, 2017, the department shall prepare and submit to the governor, the chairs of the standing committees of the senate and house of representatives with primary responsibility for issues related to natural resources and the environment, and the chairs of the subcommittees of the senate and house appropriations committees with primary responsibility for appropriations to the department a report that details the department's administration of the operator training and certification program under section 3110, section 4104, and section 9 of the safe drinking water act, 1976 PA 399, MCL 325.1009, in the previous fiscal year. This report shall include, at a minimum, all of the following as itemized for each operator training and certification program:

(a) The type and number of training programs offered by the department, including the total number of participants in each type of training program.

(b) The type and number of certification exams given.

(c) The type and number of certifications awarded.

(d) The amount of revenue in the fund at the end of the fiscal year.

History: Add. 2011, Act 148, Imd. Eff. Sept. 21, 2011.

Popular name: Act 451

Popular name: NREPA

DEPARTMENT OF ENVIRONMENTAL QUALITY
WATER BUREAU
WATER RESOURCES PROTECTION

Filed with the Secretary of State on January 13, 2006

These rules become effective immediately upon filing with the Secretary of State unless adopted under sections 33, 44, 45a(6), or 48 of 1969 PA 306. Rules adopted under these sections become effective 7 days after filing with the Secretary of State.

(By authority conferred on the department of environmental quality by sections 3103 and 3106 of 1994 PA 451, MCL 324.3103 and 324.3106)

R 323.1041, R 323.1043, R 323.1044, R 323.1050, R 323.1053, R 323.1055, R 323.1057, R 323.1060, R 323.1062, R 323.1064, R 323.1065, R 323.1069, R 323.1082, R 323.1090, R 323.1092, R 323.1096, R 323.1097, R 323.1100, R 323.1105, R 323.1116, and R 323.1117 of the Michigan Administrative Code are amended as follows:

PART 4. WATER QUALITY STANDARDS

R 323.1041 Purpose.

Rule 41. The purpose of the water quality standards as prescribed by these rules is to establish water quality requirements applicable to the Great Lakes, the connecting waters, and all other surface waters of the state, to protect the public health and welfare, to enhance and maintain the quality of water, to protect the state's natural resources, and to serve the purposes of Public Law 92-500, as amended, 33 U.S.C. 1251 et seq., Part 31, Water Resources Protection, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended, MCL 324.3101 to 324.3119, and the Great Lakes water quality agreement enacted November 22, 1978, and amended in 1987. These standards may not reflect current water quality in all cases. Water quality of certain surface waters of the state may not meet standards as a result of natural causes or conditions unrelated to human influence. Where surface waters of the state may have been degraded due to past human activities and attainment of standards in the near future is not economically or technically achievable, these standards shall be used to improve water quality. These standards are the minimum water quality requirements by which the surface waters of the state shall be managed.

R 323.1043 Definitions; A to L.

Rule 43. As used in this part:

(a) "Acceptable daily exposure (ADE)" means an estimate of the maximum daily dose of a substance that is not expected to result in adverse noncancer effects to the general human population, including sensitive subgroups.

(b) "Acceptable wildlife endpoints" means subchronic and chronic endpoints that affect reproductive or developmental success, organismal viability, or growth or any other endpoint that is, or is directly related to, a parameter that influences population dynamics.

(c) "Acute-chronic ratio (ACR)" means a standard measure of the acute toxicity of a material divided by an appropriate measure of the chronic toxicity of the same material under comparable conditions.

(d) "Adverse effect" means any deleterious effect to organisms due to exposure to a substance. The term includes effects that are or may become debilitating, harmful, or toxic to the normal functions of the organism. The term does not include nonharmful effects such as tissue discoloration alone or the induction of enzymes involved in the metabolism of the substance.

(e) "Agriculture use" means a use of water for agricultural purposes, including livestock watering, irrigation, and crop spraying.

(f) "Anadromous salmonids" means trout and salmon that ascend streams to spawn.

(g) "Aquatic maximum value (AMV)" means the highest concentration of a material in the ambient water column to which an aquatic community can be exposed briefly without resulting in unacceptable effects, calculated according to the methodology specified in R 323.1057(2). The AMV is equal to 1/2 of the tier I or tier II final acute value (FAV).

(h) "Baseline bioaccumulation factor" means, for organic chemicals, a BAF that is based on the concentration of freely dissolved chemicals in the ambient water and takes into account the partitioning of the chemical within the organism. For inorganic chemicals, the term means a BAF that is based on the wet weight of the tissue.

(i) "Baseline bioconcentration factor" means, for organic chemicals, a BCF that is based on the concentration of freely dissolved chemicals in the ambient water and takes into account the partitioning of the chemical within the organism. For inorganic chemicals, the term means a BCF that is based on the wet weight of the tissue.

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

(k) "Bioaccumulation factor (BAF)" means the ratio, in liters per kilogram, of a substance's concentration in tissue of an aquatic organism to its concentration in the ambient water where both the organism and its food are exposed and the ratio does not change substantially over time.

(l) "Bioaccumulative chemical of concern (BCC)" means a chemical which, upon entering the surface waters, by itself or as its toxic transformation product, accumulates in aquatic organisms by a human health bioaccumulation factor of more than 1,000 after considering metabolism and other physiochemical properties that might enhance or inhibit bioaccumulation. The human health bioaccumulation factor shall be derived according to R 323.1057(5). Chemicals with half-lives of less than 8 weeks in the water column, sediment, and biota are not BCCs. The minimum BAF information needed to define an organic chemical as a BCC is either a field-measured BAF or a BAF derived using the biota-sediment accumulation factor (BSAF) methodology. The minimum BAF information needed to define an inorganic chemical as a BCC, including an organometal, is either a field-measured BAF or a laboratory-measured bioconcentration factor (BCF). The BCCs to which these rules apply are identified in table 5 of R 323.1057.

(m) "Bioconcentration" means the net accumulation of a substance by an aquatic organism as a result of uptake directly from the ambient water through gill membranes or other external body surfaces.

(n) "Bioconcentration factor (BCF)" means the ratio, in liters per kilogram, of a substance's concentration in tissue of an aquatic organism to its concentration in the ambient water in situations where the organism is exposed through the water only and the ratio does not change substantially over time.

(o) "Biota-sediment accumulation factor (BSAF)" means the ratio, in kilograms of organic carbon per kilogram of lipid, of a substance's lipid-normalized concentration in tissue of an aquatic organism to its organic carbon-normalized concentration in surface sediment in situations where the ratio does not change substantially over time, both the organism and its

food are exposed, and the surface sediment is representative of average surface sediment in the vicinity of the organism.

(p) "Carcinogen" means a substance which causes an increased incidence of benign or malignant neoplasms in animals or humans or that substantially decreases the time in which neoplasms develop in animals or humans.

(q) "Chronic effect" means an adverse effect that is measured by assessing an acceptable endpoint and results from continual exposure over several generations or at least over a significant part of the test species' projected life span or life stage.

(r) "Coldwater fishery use" means the ability of a waterbody to support a balanced, integrated, adaptive community of fish-species which thrive in relatively cold water, generally including any of the following:

(i) Trout.

(ii) Salmon.

(iii) Whitefish.

(iv) Cisco.

(s) "Connecting waters" means any of the following:

(i) The St. Marys river.

(ii) The Keweenaw waterway.

(iii) The Detroit river.

(iv) The St. Clair river.

(v) Lake St. Clair.

(t) "Control document" means any authorization issued by the department to any source of pollutants to surface waters of the state that specifies conditions under which the source is allowed to operate.

(u) "Conversion factor" means the decimal fraction of a metal corresponding to an estimate of the percent total recoverable metal that was dissolved in the aquatic toxicity tests that were most important in the derivation of the tier I or tier II aquatic life value for that metal.

(v) "Department" means the director of the Michigan department of environmental quality or his or her designee to whom the director delegates a power or duty by written instrument.

(w) "Depuration" means the loss of a substance from an organism as a result of any active or passive process.

(x) "Designated use" means those uses of the surface waters of the state as established by R 323.1100 whether or not they are being attained.

(y) "Discharge-induced mixing" means the mixing of a discharge and receiving water that occurs due to discharge momentum and buoyancy up to the point where mixing is controlled by ambient turbulence.

(z) "Dissolved oxygen" means the amount of oxygen dissolved in water and is commonly expressed as a concentration in terms of milligrams per liter.

(aa) "Dissolved solids" means the amount of materials dissolved in water and is commonly expressed as a concentration in terms of milligrams per liter.

(bb) "EC50" means a statistically or graphically estimated concentration that is expected to cause 1 or more specified effects in 50% of a group of organisms under specified conditions.

(cc) "Effluent" means a wastewater discharge from a point source to the surface waters of the state.

(dd) "Endangered species act (ESA)" means the endangered species act of 1973, as amended, 16 U.S.C. §1531 et seq.

(ee) "Endangered or threatened species" means Michigan species that have been identified as endangered or threatened pursuant to section 4 of the endangered species act and listed in 50 C.F.R. §17 (2000).

(ff) "Fecal coliform" means a type of coliform bacteria found in the intestinal tract of humans and other warm-blooded animals.

(gg) "Final acute value (FAV)" means the level of a chemical or mixture of chemicals that does not allow the mortality or other specified response of aquatic organisms to exceed 50% when exposed for 96 hours, except where a shorter time period is appropriate for certain species. The FAV shall be calculated under R 323.1057(2) if appropriate for the chemical.

(hh) "Final chronic value (FCV)" means the level of a substance or a mixture of substances that does not allow injurious or debilitating effects in an aquatic organism resulting from repeated long-term exposure to a substance relative to the organism's lifespan, calculated using the methodology specified in R 323.1057(2).

(ii) "Fish consumption use" means the ability of a surface water of the state to provide a fishery for human consumption that is consistent with the level of protection provided by these rules.

(jj) "Food chain multiplier (FCM)" means the ratio of a BAF to an appropriate BCF.

(kk) "Harmonic mean flow" means the number of daily flow measurements divided by the sum of the reciprocals of the flows.

(ll) "Human cancer value (HCV)" means the maximum ambient water concentration of a substance at which a lifetime of exposure from either drinking the water, consuming fish from the water, and conducting water-related recreation activities or consuming fish from the water and conducting water-related recreation activities will represent a plausible upper bound risk of contracting cancer of 1 in 100,000 using the exposure assumptions and methodology specified in R 323.1057(4).

(mm) "Human noncancer value (HNV)" means the maximum ambient water concentration of a substance at which adverse noncancer effects are not likely to occur in the human population from lifetime exposure through either drinking the water, consuming fish from the water, and conducting water-related recreation activities or consuming fish from the water and conducting water-related recreation activities, using the exposure assumptions and methodology specified in R 323.1057(4).

(nn) "Industrial water supply" means a water source intended for use in commercial or industrial applications or for noncontact food processing.

(oo) "Inland lake" means a surface water of the state that is an inland body of standing water situated in a topographic depression other than an artificial agricultural pond that is less than 1 acre, unless otherwise determined by the department. The department may designate a dammed river channel or an impoundment as an inland lake based on aquatic resources to be protected.

(pp) "Keweenaw waterway" means the entire Keweenaw waterway, including Portage lake, Houghton county.

(qq) "Lake Superior basin-bioaccumulative substances of immediate concern (LSB-BSIC)" means substances identified in the September 1991 binational program to restore and protect the Lake Superior basin, including all of the following:

(i) 2,3,7,8-tetrachlorodibenzo-p-dioxin (2,3,7,8-TCDD).

(ii) Octachlorostyrene.

(iii) Hexachlorobenzene.

(iv) Chlordane.

(v) Dichloro-diphenyl-trichloroethane (DDT) and metabolites.

(vi) Dieldrin.

(vii) Toxaphene.
(viii) Polychlorinated biphenyls (PCBs).
(ix) Mercury.
(rr) "LC50" means a statistically or graphically estimated concentration that is expected to be lethal to 50% of a group of organisms under specified conditions.
(ss) "Linearized multistage model" means a conservative mathematical model for cancer risk assessment. The model fits linear dose-response curves to low doses. The model is consistent with a no-threshold model of carcinogenesis.
(tt) "Loading capacity" means the greatest amount of pollutant loading that a water can receive without violating water quality standards.
(uu) "Lowest observed adverse effect level (LOAEL)" means the lowest tested dose or concentration of a substance that results in an observed adverse effect in exposed test organisms when all higher doses or concentrations result in the same or more severe effects.
(vv) "Lotic" means surface waters of the state that exhibit flow.

R 323.1044 Definitions; M to W.
Rule 44. As used in this part:
(a) "Maximum acceptable toxicant concentration (MATC)" means the concentration obtained by calculating the geometric mean of the lower and upper chronic limits from a chronic test. A lower chronic limit is the highest tested concentration that did not cause the occurrence of a specific adverse effect. An upper chronic limit is the lowest tested concentration which did cause the occurrence of a specific adverse effect and above which all tested concentrations caused such an occurrence.
(b) "Mixing zone" means the portion of a water body in which a point source discharge or venting groundwater is mixed with the receiving water.
(c) "Natural water temperature" means the temperature of a body of water without an influence from an artificial source or a temperature as otherwise determined by the department.
(d) "New discharge" means any building, structure, facility, or installation from which there is or may be a discharge of substances to the surface waters of the state, the construction of which commenced after July 29, 1997.
(e) "No observed adverse effect level (NOAEL)" means the highest tested dose or concentration of a substance that results in no observed adverse effect in exposed test organisms where higher doses or concentrations result in an adverse effect.
(f) "Nonpoint source" means a source of material to the surface waters of the state other than a source defined as a point source.
(g) "Octanol-water partition coefficient (K_{ow})" means the ratio of the concentration of a substance in the n-octanol phase to its concentration in the aqueous phase in an equilibrated 2-phase octanol-water system. For log K_{ow}, the log of the octanol-water partition coefficient is a base 10 logarithm.
(h) "Palatable" means the state of being agreeable or acceptable to the sense of sight, taste, or smell.
(i) "Partial body contact recreation" means any activities normally involving direct contact of some part of the body with water, but not normally involving immersion of the head or ingesting water, including fishing, wading, hunting, and dry boating.
(j) "Plant nutrients" means the chemicals, including nitrogen and phosphorus, necessary for the growth and reproduction of aquatic rooted, attached, and floating plants, fungi, or bacteria.

(k) "Point source" means a discharge that is released to the surface waters of the state by a discernible, confined, and discrete conveyance, including any of the following from which wastewater is or may be discharged:

(i) A pipe.

(ii) A ditch.

(iii) A channel.

(iv) A tunnel.

(v) A conduit.

(vi) A well.

(vii) A discrete fissure.

(viii) A container.

(ix) A concentrated animal feeding operation.

(x) A boat or other watercraft.

(l) "Public water supply sources" means the surface waters of the state at the point of water intake as identified in the publication "public water supply intakes in Michigan," dated December 9, 1999, and contiguous areas as the department determines necessary to assure protection of the source.

(m) "Receiving waters" means the surface waters of the state into which an effluent is or may be discharged.

(n) "Relative source contribution (RSC)" means the factor (percentage) used in calculating an HNV to account for all sources of exposure to a contaminant. The RSC reflects the percent of total exposure that can be attributed to surface water through water intake and fish consumption.

(o) "Risk associated dose (RAD)" means a dose of a known or presumed carcinogenic substance, in milligrams per kilogram per day, that, over a lifetime of exposure, is estimated to be associated with a plausible upper bound incremental cancer risk equal to 1 in 100,000.

(p) "Sanitary sewage" means treated or untreated effluent that contains human metabolic and domestic wastes.

(q) "Significant industrial user (SIU)" means either of the following:

(i) A nondomestic user subject to categorical pretreatment standards under 40 C.F.R. §403 (1992) and 40 C.F.R. chapter I, subchapter N (1990).

(ii) A nondomestic user to which 1 of the following provisions applies:

(A) The user discharges an average of 25,000 gallons per day or more of process wastewater to the publicly owned treatment works, excluding sanitary, noncontact cooling, and boiler blowdown wastewater.

(B) The user contributes a process wastestream that makes up 5% or more of the average dry weather hydraulic or organic capacity of the publicly owned treatment works.

(C) The user is designated as a significant industrial user by the control authority on the basis that the user has a potential for adversely affecting the publicly owned treatment works' operation or for violating any pretreatment standard or requirement.

Upon a finding that a nondomestic user meeting the criteria in this subdivision has no reasonable potential for adversely affecting the publicly owned treatment works' operation or for violating any pretreatment standard or requirement, the control authority may, at any time, on its own initiative or in response to a petition received from a nondomestic user or publicly owned treatment works, determine that a nondomestic user is not a significant nondomestic user.

(r) "Slope factor" means the incremental rate of cancer development calculated using a linearized multistage model or other appropriate model. It is expressed in milligrams per kilogram per day of exposure to the chemical in question and is also known as q_1*.

(s) "Standard" means a definite numerical value or narrative statement promulgated by the department to maintain or restore water quality to provide for, and fully protect, a designated use of the surface waters of the state.

(t) "Subchronic effect" means an adverse effect, measured by assessing an acceptable endpoint resulting from continual exposure for a period of time less than the time deemed necessary for a chronic test.

(u) "Surface waters of the state" means all of the following, but does not include drainage ways and ponds used solely for wastewater conveyance, treatment, or control:

(i) The Great Lakes and their connecting waters.

(ii) All inland lakes.

(iii) Rivers.

(iv) Streams.

(v) Impoundments.

(vi) Open drains.

(vii) Wetlands.

(viii) Other surface bodies of water within the confines of the state.

(v) "Suspended solids" means the amount of materials suspended in water and is commonly expressed as a concentration in terms of milligrams per liter.

(w) "Threshold effect" means an effect of a substance for which there is a theoretical or empirically established dose or concentration below which the effect does not occur.

(x) "Total body contact recreation" means any activities normally involving direct contact with water to the point of complete submergence, particularly immersion of the head, with considerable risk of ingesting water, including swimming.

(y) "Total maximum daily load (TMDL)" means an allowable pollutant loading to a surface water of the state as defined in R 323.1207.

(z) "Toxic substance" means a substance, except for heat, that is present in sufficient a concentration or quantity that is or may be harmful to plant life, animal life, or designated uses.

(aa) "Uncertainty factor (UF)" means one of several numeric factors used in operationally deriving criteria from experimental data to account for the quality or quantity of the available data.

(bb) "Uptake" means the acquisition of a substance from the environment by an organism as a result of any active or passive process.

(cc) "Venting groundwater" means groundwater that is entering a surface water of the state from a facility, as defined in section 20101 of 1994 PA 451, MCL 324.20101.

(dd) "Warmwater fishery use" means the ability of a waterbody to support a balanced, integrated, adaptive community of fish species which thrive in relatively warm water, including any of the following:

(i) Bass.

(ii) Pike.

(iii) Walleye.

(iv) Panfish.

(ee) "Wasteload allocation (WLA)" means the allocation for an individual point source which ensures that the level of water quality to be achieved by the point source complies with these rules.

(ff) "Wastewater" means any of the following:

(i) Storm water runoff that could result in injury to a use designated in R 323.1100.

(ii) Liquid waste resulting from commercial, institutional, domestic, industrial, and agricultural activities, including cooling and condensing waters.

(iii) Sanitary sewage.

(iv) Industrial waste.

(gg) "Water quality value" means a tier I or tier II aquatic life or human health value or tier I wildlife value developed under R 323.1057.

(hh) "Watershed" means the geographic region within which water drains into a particular river, stream, or body of water.

(ii) "Wetland" means land characterized by the presence of water at a frequency and duration sufficient to support, and that under normal circumstances does support, wetland vegetation or aquatic life.

(jj) "Whole effluent toxicity" means the total toxic effect of an effluent measured directly with a toxicity test under R 323.1219.

(kk) "Wildlife use" means that a waterbody will not likely cause population-level impacts to mammalian and avian wildlife populations from lifetime exposure to the waterbody as a source of drinking water and aquatic food, consistent with the level of protection provided by these rules.

(ll) "Wildlife value" means the maximum ambient water concentration of a substance at which adverse effects are not likely to result in population-level impacts to mammalian and avian wildlife populations from lifetime exposure through drinking water and aquatic food supply, using the methodology specified in R 323.1057(3).

R 323.1050 Physical characteristics.

Rule 50. The surface waters of the state shall not have any of the following physical properties in unnatural quantities which are or may become injurious to any designated use:

(a) Turbidity.

(b) Color.

(c) Oil films.

(d) Floating solids.

(e) Foams.

(f) Settleable solids.

(g) Suspended solids.

(h) Deposits.

R 323.1051 Dissolved solids.

Rule 51. (1) The addition of any dissolved solids shall not exceed concentrations which are or may become injurious to any designated use. Point sources containing dissolved solids shall be considered by the commission on a case-by-case basis and increases of dissolved solids in the waters of the state shall be limited through the application of best practicable control technology currently available as prescribed by the administrator of the United States environmental protection agency pursuant to section 304(b) of Public Law 92-500, as amended, 33 U.S.C. §466 et seq., except that in no instance shall total dissolved solids in the waters of the state exceed a concentration of 500 milligrams per liter as a monthly average nor more than 750 milligrams per liter at any time, as a result of controllable point sources.

(2) The waters of the state designated as a public water supply source shall not exceed 125 milligrams per liter of chlorides as a monthly average, except for the Great Lakes and connecting waters, where chlorides shall not exceed 50 milligrams per liter as a monthly average.

R 323.1053 Hydrogen ion concentration.

Rule 53. The hydrogen ion concentration expressed as pH shall be maintained within the range of 6.5 to 9.0 S.U. in all surface waters of the state, except for those waters where the background pH lies outside the range of 6.5 to 9.0 S.U. Any requests to artificially induce a pH change greater than 0.5 S.U. in surface waters where the background pH lies outside the range of 6.5 to 9.0 S.U., shall be considered by the department on a case-by-case basis.

R 323.1055 Taste- or odor-producing substances.

Rule 55. The surface waters of the state shall contain no taste-producing or odor-producing substances in concentrations which impair or may impair their use for a public, industrial, or agricultural water supply source or which impair the palatability of fish as measured by test procedures approved by the department.

R 323.1057 Toxic substances.

Rule 57. (1) Toxic substances shall not be present in the surface waters of the state at levels that are or may become injurious to the public health, safety, or welfare, plant and animal life, or the designated uses of the waters. As a minimum level of protection, toxic substances shall not exceed the water quality values specified in, or developed pursuant to, the provisions of subrules (2) to (4) of this rule or conditions set forth by the provisions of subrule (6) of this rule. A variance to these values may be granted consistent with the provisions of R 323.1103.

(2) Levels of toxic substances in the surface waters of the state shall not exceed the aquatic life values specified in tables 1 and 2, or, in the absence of such values, values derived according to the following processes, unless site-specific modifications have been developed pursuant to subdivision (r) of this subrule:

(a) Minimum data requirements to derive a tier I final acute value (FAV), which is used to calculate a tier I aquatic maximum value (AMV), include the results of acceptable acute tests for 1 freshwater species from each of the following:

(i) The family salmonidae in the class Osteichthyes.

(ii) One other family, preferably a commercially or recreationally important warmwater species, in the class Osteichthyes.

(iii) A third family in the phylum Chordata.

(iv) A planktonic crustacean.

(v) A benthic crustacean.

(vi) An insect.

(vii) A family in a phylum other than Arthropoda or Chordata.

(viii) A family in any order of insect or any phylum not already represented.

(b) Minimum data requirements to derive a tier I final chronic value (FCV) include acceptable chronic tests for the data requirements in subdivision (a) of this subrule or acute-to-chronic ratios (ACRs) shall be available with at least 1 species of aquatic animal in at least 3 different families provided that, of the 3 species, all of the following provisions apply:

(i) At least 1 is a fish.

(ii) At least 1 is an invertebrate.

(iii) At least 1 is an acutely sensitive freshwater species. The other 2 may be saltwater species.

(c) The following are acute test types to be used in the development of acute values:

(i) Daphnids, other cladocerans, and midges. Tests with daphnids and other cladocerans shall be started with organisms less than 24 hours old and tests with midges shall be started with second or third instar larvae. The results shall be a 48-hour EC50 based on the total percentage of organisms killed and immobilized. If the results of a 48-hour EC50 based on the total percentage of organisms killed and immobilized are not available, then the results shall be a 48-hour LC50. Tests longer than 48 hours are acceptable if the animals were not fed and the control animals were acceptable at the end of the test.

(ii) Bivalve mollusc embryos and larvae. Results of a 96-hour EC50 based on the percentage of organisms that have incompletely developed shells plus the percentage of organisms killed. If the results of a 96-hour EC50 based on the percentage of organisms that have incompletely developed shells plus the percentage of organisms killed are not available, then the lowest of the following shall be used:

(A) A 48-hour to 96-hour EC50 based on the percentage of organisms that have incompletely developed shells plus the percentage of organisms killed.

(B) A 48-hour to 96-hour EC50 based upon the percentage of organisms that have incompletely developed shells.

(C) A 48-hour to 96-hour LC50.

(iii) All other aquatic animal species. Results of a 96-hour EC50 based on the percentage of organisms exhibiting loss of equilibrium plus the percentage of organisms immobilized plus the percentage of organisms killed. If results of a 96-hour EC50 based on the percentage of organisms exhibiting loss of equilibrium plus the percentage of organisms immobilized plus the percentage of organisms killed are not available, then the lowest of the following shall be used:

(A) The 96-hour EC50 based on the percentage of organisms exhibiting loss of equilibrium plus the percentage of organisms immobilized.

(B) The 96-hour LC50.

(d) The following are chronic test types to be used in the development of chronic values:

(i) Life cycle toxicity tests. Tests with fish should begin with embryos or newly hatched young that are less than 48 hours old, continue through maturation and reproduction, and end not less than 24 days, or 90 days for salmonids, after the hatching of the next generation. Tests with daphnids should begin with young that are less than 24 hours old and last for not less than 21 days, or for ceriodaphnids not less than 7 days. Tests with mysids should begin with young that are less than 24 hours old and continue until 7 days past the median time of first brood release in the controls.

(ii) Partial life cycle toxicity tests for fishes. Exposure to the test material should begin with immature juveniles not less than 2 months before active gonad development, continue through maturation and reproduction, and end not less than 24 days, or 90 days for salmonids, after the hatching of the next generation.

(iii) Early life stage toxicity tests for fishes. Test durations are 28 to 32 days, or 60 days post hatch for salmonids, beginning shortly after fertilization and continuing through embryonic, larval, and early juvenile development.

(iv) Larval survival and growth test for fathead minnows, Pimephales promelas. The test is a static-renewal test 7 days in duration beginning with larvae that are less than 24 hours old. The tests shall be used on a case-by-case basis where the discharger demonstrates to the department, or the department determines, that the results of the tests are comparable to test results produced by any of the test methods identified in paragraphs (i) to (iii) of this subdivision.

(e) All of the following provisions apply in the selection of data for use in aquatic life value development:

(i) All data that are used shall be typed and dated and be accompanied by enough supporting information to indicate that acceptable test procedures, such as the procedures of the american society of testing and materials and the procedures of the United States EPA, were used and that the results are reliable.

(ii) Questionable data, data on formulated mixtures and emulsifiable concentrates, data on species that are nonresident to North America, and data obtained with previously exposed organisms shall not be used in the derivation of chemical-specific aquatic life values.

(iii) Acute values reported as "greater than" values and acute values that are above the solubility of the test material shall be used by assuming that the acute value is equal to the greater than value or the upper limit of the test material solubility, respectively.

(iv) The agreement of the data within and between species shall be considered. Acute values that appear to be questionable in comparison with other acute and chronic data for the same species and for other species in the same genus shall not be used.

(v) If the data indicate that 1 or more life stages are at least a factor of 2 more resistant than 1 or more other life stages of the same species, then the data for the more resistant life stages shall not be used in the calculation of an FAV.

(vi) Chronic values shall be based on the results of flow-through chronic tests in which the concentration of test material in the test solutions was measured at appropriate times during the test. However, renewal tests are acceptable for daphnids or the 7-day fathead minnow test.

(f) Where appropriate and where sufficient dissolved toxicological data or conversion factors are available, aquatic life water quality values for metals shall be expressed as dissolved to better approximate the bioavailable fraction in the water column.

(g) If the acute toxicity of the chemical has not been adequately shown to be related to hardness, pH, or other water quality characteristics, a tier I FAV shall be calculated using the following procedures:

(i) For each species for which at least 1 acceptable acute test result is available, the species mean acute value (SMAV) shall be calculated as the geometric mean of the results of all acceptable flow-through acute toxicity tests in which the concentrations of test material were measured with the most sensitive tested life stage of the species. For a species for which an acceptable flow-through acute toxicity test in which the concentrations of the test material were measured is not available, the SMAV shall be calculated as the geometric mean of all acceptable acute toxicity tests with the most sensitive tested life stage.

(ii) For each genus for which 1 or more SMAVs are available, the genus mean acute value (GMAV) shall be calculated as the geometric mean of the SMAVs.

(iii) Order the GMAVs from high to low.

(iv) Assign ranks, r, to the GMAVs from "1" for the lowest to "n" for the highest. If 2 or more GMAVs are identical, then assign them successive ranks.

(v) Calculate the cumulative probability, P, for each GMAV as r/(n + 1).

(vi) Select the 4 GMAVs that have cumulative probabilities closest to 0.05. If there are fewer than 59 GMAVs, the 4 GMAVs that have cumulative probabilities closest to 0.05 will always be the 4 lowest GMAVs.

(vii) Using the 4 selected GMAVs, and Ps, calculate the tier I FAV as follows:

$$S^2 = \frac{\sum((\ln GMAV)^2) - \frac{(\sum(\ln GMAV))^2}{4}}{\sum(P) - \frac{(\sum(\sqrt{P}))^2}{4}}$$

$$L = \frac{\sum(\ln GMAV) - S(\sum(\sqrt{P}))}{4}$$

$$A = S(\sqrt{0.05}) + L$$

$$\text{Tier I FAV} = e^{A}.$$

(h) If data for the chemical are available to show that the acute toxicity of at least 1 fish and 1 invertebrate species is related to a water quality characteristic, then a tier I FAV equation shall be calculated using the following procedures:

(i) For each species for which comparable acute toxicity values are available at 2 or more different values of the water quality characteristic, perform a least squares regression of the acute toxicity values on the corresponding values of the water quality characteristic to obtain the slope and its 95% confidence limits for each species. Because the best documented water quality relationship is between hardness and acute toxicity of metals in fresh water and a log-log relationship fits these data, geometric means and natural logarithms of both toxicity and water quality shall be used. For relationships based on other water quality characteristics, no transformation or a different transformation might fit the data better, and appropriate changes shall be made.

(ii) Decide whether the data for each species are relevant taking into account the range and number of the tested values of the water quality characteristic and the degree of agreement within and between species.

(iii) If useful slopes are not available for at least 1 fish and 1 invertebrate, if the useful slopes are too dissimilar, or if too few data are available to adequately define the relationship between acute toxicity and the water quality characteristic, then return to the provisions of subdivision (g) of this subrule, using the results of tests conducted under conditions and in waters similar to those commonly used for toxicity tests with the species.

(iv) For each species, calculate the geometric mean, W, of the acute values and then divide each of the acute values for each species by W. This normalizes the acute values so that the geometric mean of the normalized values for each species individually and for any combination of species is 1.0. To select tests for calculating W, use the data preference requirements described in subdivision (e)(i) of this subrule.

(v) For each species, calculate the geometric mean, X, of the water quality characteristic data points and then divide each of the data points for each species by X. This normalizes the water quality characteristic data points so that the geometric mean of the normalized data points for each species individually and for any combination of data points is 1.0.

(vi) For each species, perform a least squares regression of the normalized acute values on the normalized water quality characteristic. The resulting slopes and 95% confidence limits will be identical to those obtained in paragraph (i) of this subdivision.

(vii) Perform a least squares regression of all of the normalized acute values on the corresponding normalized values of the water quality characteristic to obtain the pooled acute slope, V, and its 95% confidence limits.

(viii) For each species, calculate the logarithm, Y, of the SMAV at a selected value, Z, of the water quality characteristic using the equation:

$$Y = \ln W - V(\ln X - \ln Z).$$

(ix) For each species, calculate the SMAV at Z using the equation:

$$\text{SMAV} = e^{Y}.$$

(x) For each species for which at least 1 acceptable acute test result is available, the species mean acute value (SMAV) shall be calculated as the geometric mean of the results of all acceptable flow-through acute toxicity tests in which the concentrations of test material were measured with the most sensitive tested life stage of the species. For a species for which an acceptable flow-through acute toxicity test in which the concentrations of the test

material was measured is not available, the SMAV shall be calculated as the geometric mean of all acceptable acute toxicity tests with the most sensitive tested life stage.

(xi) Obtain the tier I FAV at Z by using the procedure described in subdivision (g)(ii) to (vii) of this subrule.

(xii) The tier I FAV equation for any selected value of a water quality characteristic is:

$$\text{tier I FAV} = e^{(V[\ln(\text{water quality characteristic})] + A - V[\ln Z])}$$

Where:

V = pooled acute slope.

A = ln(tier 1 FAV at Z).

Z = selected value of the water quality characteristic as used in paragraph (viii) of this subdivision.

(i) If the acute and chronic toxicity of the chemical has not been adequately shown to be related to hardness, pH, or other water quality characteristics, then a tier I final chronic value (FCV) shall be calculated using the following procedures:

(i) If at least 1 maximum acceptable toxicant concentration (MATC) is available to meet each of the minimum data requirements as described in subdivision (a) of this subrule, then a species mean chronic value (SMCV) shall be determined for each species by calculating the geometric mean of the MATCs selected from acceptable tests in the following order of preference:

(A) All life cycle and partial life cycle toxicity tests with the species.

(B) All early life stage tests.

(C) All 7-day larval survival and growth tests for fathead minnows. Genus mean chronic values (GMCV) shall then be calculated as the geometric mean of the SMCVs for the genus. The tier I FCV shall be obtained using the procedure described in subdivision (g)(i) to (vii) of this subrule substituting FCV for FAV, chronic for acute, SMCV for SMAV, and GMCV for GMAV.

(ii) If MATCs are not available to meet the minimum data requirements as described in subdivision (a) of this subrule, then the tier I FCV shall be calculated as follows:

(A) For each MATC for which at least 1 corresponding acute value is available, calculate an acute-to-chronic ratio (ACR). An ACR is calculated by dividing the geometric mean of the results of all acceptable flow-through acute tests in which the concentrations are measured by the MATC. Static tests are acceptable for daphnids and midges. For fish, the acute test or tests should be conducted with juveniles. Tests used to develop an ACR shall meet 1 of the following conditions and be used in the following order of preference:

(1) The acute test or tests are part of the same study as the chronic test.

(2) The acute test or tests were conducted as part of a different study as the chronic tests, but in the same laboratory and dilution water.

(3) The acute and chronic tests were conducted in the same dilution water, but in different laboratories.

(B) For each species, calculate the species mean ACR (SMACR) as the geometric mean of all ACRs available for that species.

(C) The tier I ACR can be obtained in the following 3 ways, depending on the data available:

(1) If the species mean ACR seems to increase or decrease as the SMAVs increase, then the tier I ACR shall be calculated as the geometric mean of the ACRs for species that have SMAVs which are close to the FAV.

(2) If a major trend is not apparent and the ACRs for all species are within a factor of 10, then the tier I ACR shall be calculated as the geometric mean of all of the SMACRs.

(3) If the SMACRs are less than 2.0, and especially if they are less than 1.0, acclimation has probably occurred during the chronic test. In this situation, because continuous exposure and acclimation cannot be assured to provide adequate protection in field situations, the tier I ACR shall be assumed to be 2, so that the tier I FCV is equal to the aquatic maximum value (AMV).

(D) Calculate the tier I FCV by dividing the tier I FAV by the tier I ACR.

(j) If data for the chemical are available to show acute or chronic toxicity to at least 1 species is related to a water quality characteristic, then a tier I FCV equation shall be calculated using the following procedures:

(i) If MATCs are available to meet the minimum data requirements described in subdivision (a) of this subrule, then a tier I FAV equation shall be derived as follows:

(A) For each species for which comparable MATCs are available at 2 or more different values of the water quality characteristic, perform a least squares regression of the MATCs on the corresponding values of the water quality characteristic to obtain the slope and its 95% confidence limits for each species. Because the best documented water quality relationship is that between hardness and chronic toxicity of metals in fresh water and a log-log relationship fits these data, geometric means and natural logarithms of both toxicity and water quality shall be used. For relationships based on other water quality characteristics, no transformation or a different transformation might fit the data better, and appropriate changes shall be made.

(B) Decide whether the data for each species are relevant, taking into account the range and number of the tested values of the water quality characteristic and the degree of agreement within and between species.

(C) If a useful chronic slope is not available for at least 1 species or if the available slopes are too dissimilar or if too few data are available to adequately define the relationship between the MATC and the water quality characteristic, then assume that the chronic slope is the same as the acute slope, or return to subdivision (i) of this subrule, using the results of tests conducted under conditions and in water similar to conditions and water commonly used for toxicity tests with the species.

(D) For each species, calculate the geometric mean of the available MATCs, M, and then divide each MATC for a species by the mean for the species. This normalizes the MATCs so that the geometric mean of the normalized values for each species individually, and for any combination of species, is 1.0. To select tests for calculating M, use the data preference requirements described in subdivision (i)(i) of this subrule.

(E) For each species, calculate the geometric mean, P, of the water quality characteristic data points and then divide each of the data points for each species by P. This normalizes the water quality characteristic data points so that the geometric mean of the normalized data points for each species individually and for any combination of data points is 1.0.

(F) For each species, perform a least squares regression of the normalized chronic toxicity values on the corresponding normalized values of the water quality characteristic.

(G) Perform a least squares regression of all the normalized chronic values on the corresponding normalized values of the water quality characteristic to obtain the pooled chronic slope, L, and its 95% confidence limits.

(H) For each species, calculate the logarithm, Q, of the SMCV at a selected value, Z, of the water quality characteristic using the equation:

$$Q = \ln M - L(\ln P - \ln Z).$$

(I) For each species, calculate an SMCV at Z using the equation:

$$SMCV = e^{Q}.$$

(J) Obtain the tier I FCV at Z by using the procedure described in subdivision (g)(ii) to (vii) of this subrule.

(K) The tier I FCV equation is written as follows:

$$\text{tier I FCV} = e^{(L[\ln \text{water quality characteristic}]) + S - L[\ln Z])}$$

Where:
L = pooled chronic slope.
S = ln(tier I FCV at Z).
Z = selected value of the water quality characteristic as used in subparagraph (h) of this paragraph.

(ii) If MATCs are not available to meet the minimum data requirements described in subdivision (a) of this subrule, then the tier I FCV equation shall be calculated as follows:

(A) If ACRs are available for enough species at enough values of the water quality characteristic to indicate that the ACR appears to be the same for all species and appears to be independent of the water quality characteristic, then calculate the tier I ACR as the geometric mean of the available SMACRs. The ACR shall be derived using the provisions in subdivision (i)(ii) of this subrule.

(B) Calculate the tier I FCV at the selected value Z of the water quality characteristic by dividing the tier I FAV at Z, derived in subdivision (h) of this subrule, by the tier I ACR.

(C) Use V = pooled acute slope as L = pooled chronic slope.

(D) The tier I FCV equation is written as follows:

$$\text{tier I FCV} = e^{(L[\ln \text{water quality characteristic}]) + S - L[\ln Z])}$$

Where:
L = pooled chronic slope.
S = ln(tier I FCV at Z).
Z = selected value of the water quality characteristic as used in subparagraph (B) of this paragraph.

(k) If the minimum data requirements in subdivision (a) of this subrule are not available to derive a tier I FAV, it is possible to derive a tier II FAV if the data base for the chemical contains a GMAV for Ceriodaphnia sp., Daphnia sp., or Simocephalus sp. and 1 other freshwater species that meets any additional minimum requirements of subdivision (a) of this subrule. To select tests for calculating a tier II FAV, use the data preference requirements described in subdivision (g)(i) of this subrule. The tier II FAV shall be calculated for a chemical as follows:

(i) The lowest GMAV in the database is divided by the tier II acute factor (AF) from table 3 corresponding to the number of satisfied tier I minimum data requirements listed in subdivision (a) of this subrule.

(ii) If appropriate, the tier II FAV shall be made a function of a water quality characteristic in a manner similar to that described in subdivision (h) of this subrule.

(l) If the minimum data requirements in subdivision (b) of this subrule are not available to derive a tier I FCV, it is possible to derive a tier II FCV for a chemical by 1 of the following methods listed in order of preference:

(i) $\text{Tier II FCV} = \dfrac{\text{tier I FAV}}{\text{tier II ACR}}$

Where:
Tier II ACR = tier II acute-chronic ratio determined by assuming enough ACRs of 18 so that the total number of ACRs for the chemical equals 3. The tier II ACR is the geometric mean of the 3 ACRs.

(ii) Tier II FCV = $\frac{\text{tier II FAV}}{\text{tier I ACR}}$

Where:

Tier I ACR = the final acute-chronic ratio for the chemical derived using the provisions in subdivision (i)(ii) of this subrule.

(iii) Tier II FCV = $\frac{\text{tier II FAV}}{\text{tier II ACR}}$

(iv) If appropriate, the tier II FCV shall be made a function of a water quality characteristic in a manner similar to that described in subdivision (j) of this subrule.

(m) If, for a commercially or recreationally important species of the surface waters of the state, the geometric mean of the acute values or chronic values from a flow-through test in which the concentrations of the test materials were measured is lower than the calculated FAV or FCV, then that geometric mean shall be used as the FAV or FCV instead of the calculated FAV or FCV. For chemicals that have final acute or chronic value equations, if the SMAV or SMCV at Z of a commercially or recreationally important species of the surface waters of the state is lower than the calculated FAV or FCV at Z, then that SMAV or SMCV shall be used as the FAV or FCV at Z.

(n) The tier I or tier II aquatic maximum value (AMV) shall be derived by dividing the tier I or tier II FAV by 2.

(o) A water concentration protective of aquatic plants shall be evaluated for a chemical on a case-by-case basis if data are available from tests with an important aquatic plants species in which the concentration of test material is measured and the endpoint is biologically important. If appropriate, the tier I or tier II FCV shall be lowered to be protective of aquatic plants.

(p) On the basis of all available pertinent laboratory and field information, determine if the tier I and tier II aquatic life values are consistent with sound scientific evidence. If the values are not consistent with sound scientific evidence, then the values shall be adjusted to more appropriately reflect the weight of scientific evidence.

(q) The tier I or tier II AMV shall be applied as a 24-hour average and compliance shall be based on the average of all samples taken at a site within the same 24-hour period. The tier I or tier II FCV shall be applied as a monthly average and compliance shall be based on the average of all daily measurements taken at a site within the same calendar month.

(r) Aquatic life values may be modified on a site-specific basis to be more or less stringent to reflect local environmental conditions. All of the following provisions apply to aquatic life values modification:

(i) Less stringent modifications shall be based on sound scientific rationale, shall be protective of designated uses of the surface waters of the state, and shall not jeopardize the continued existence of endangered or threatened species listed or proposed under section 4 of the endangered species act or result in the destruction or adverse modification of the species' critical habitat.

(ii) Modifications may be derived using the recalculation procedure, water effect ratio procedure, or resident species procedure described in section 3.7 entitled "Site-Specific Aquatic Life Criteria" in chapter 3 of the United States EPA Water Quality Standards Handbook, second edition - revised (1994). In addition, modifications may be derived using the procedure entitled "Streamlined Water Effect Ratio Procedure for Discharges of Copper" (United States EPA, 2001).

(iii) For the purposes of implementing the recalculation and resident species procedures described under paragraph (ii) of this subdivision, species that occur at a site include species to which any of the following provisions apply:

(A) The species are present at the site at any time of the year or are determined by a representative sampling regime.

(B) The species are present at the site only seasonally due to migration.

(C) The species are present intermittently because they periodically return to or extend their ranges into the site.

(D) The species were present at the site in the past, are not currently present at the site due to degraded conditions, and are expected to return to the site when conditions improve.

(E) The species are present in nearby bodies of water, are not currently present at the site due to degraded conditions, and are expected to be present at the site when conditions improve.

(iv) For the purposes of implementing the recalculation and resident species procedures described under paragraph (ii) of this subdivision, the species that occur at a site do not include species which were once present at the site, but which cannot exist at the site now due to permanent physical alteration of the habitat at the site.

(v) More stringent modifications to protect endangered or threatened species listed or proposed under section 4 of the endangered species act may be accomplished using either of the following procedures:

(A) For a listed or proposed species or for a surrogate of a listed or proposed species, if the SMAV or SMCV is lower than the calculated FAV or FCV, the lower SMAV or SMCV may be used instead of the calculated FAV or FCV in developing site-specific modified criteria.

(B) The recalculation procedure described in section 3.7 entitled "Site-Specific Aquatic Life Criteria" in chapter 3 of the United States EPA Water Quality Standards Handbook, second edition-revised (1994).

(vi) Any site-specific modifications developed pursuant to this subdivision shall be approved by the department.

(3) Levels of toxic substances in the surface waters of the state shall not exceed the wildlife values specified in table 4 or, in the absence of such values, the wildlife values derived according to the following process, unless site-specific modifications have been developed pursuant to subdivision (n) of this subrule:

(a) Tier I wildlife values for the BCCs listed in table 5, with the exception of the wildlife values listed in table 4, shall be calculated using the following equation:

$$WV = \frac{\frac{TD}{UF_A \times UF_S \times UF_L} \times Wt}{W + \sum(F_{TLi} \times BAF_{TLi}^{WL})}$$

Where:

WV = wildlife value in milligrams of substance per liter (mg/L).

TD = test dose (TD) in milligrams of substance per kilograms per day (mg/kg/d) for the test species. This shall be either a NOAEL or a LOAEL.

UF_A = uncertainty factor (UF) for extrapolating toxicity data across species (unitless). A species-specific UF shall be selected and applied to each representative species, consistent with the equation.

UF_S = UF for extrapolating from subchronic to chronic exposures (unitless).

UF_L = UF for LOAEL to NOAEL extrapolations (unitless).

Wt = average weight in kilograms (kg) for the representative species.

W = average daily volume of water consumed in liters per day (L/d) by the representative species.

F_{TLi} = average daily amount of food consumed from trophic level i in kilograms per day (kg/d) by the representative species.

BAF^{WL}_{TLi} = bioaccumulation factor (BAF) for wildlife food in trophic level i in liters per kilogram (L/kg), developed using the BAF methodology in subrule (5) of this rule. For consumption of piscivorous birds by other birds, for example herring gulls by eagles, the BAF is derived by multiplying the trophic level 3 BAF for fish by a biomagnification factor to account for the biomagnification from fish to the consumed birds.

(b) Piscivorous species are identified as the focus of concern for wildlife values. Three avian species - eagle, kingfisher, and herring gull - and 2 mammalian species - mink and otter - are used as representative species for protection. The TD obtained from toxicity data for each taxonomic class is used to calculate WVs for each of the 5 representative species.

(c) The avian WV is the geometric mean of the WVs calculated for the 3 representative avian species. The mammalian WV is the geometric mean of the WVs calculated for the 2 representative mammalian species. The lower of the mammalian and avian WVs shall be the final WV.

(d) A TD value is required for WV calculation. To derive a WV, the data set shall be sufficient to generate a subchronic or chronic dose-response curve for any given substance for both mammalian and avian species using acceptable wildlife endpoints. In reviewing the toxicity data available that meet the minimum data requirements for each taxonomic class, data from peer-reviewed field studies of wildlife species take precedence over other types of studies where the studies are of adequate quality. An acceptable field study shall be of subchronic or chronic duration, provide a defensible, chemical-specific dose-response curve in which cause and effect are clearly established, and assess acceptable wildlife endpoints. When acceptable wildlife field studies are not available or are determined to be of inadequate quality, the needed toxicity information may come from peer-reviewed laboratory studies. When laboratory studies are used, preference shall be given to laboratory studies with wildlife species over traditional laboratory animals to reduce uncertainties in making interspecies extrapolations. All available laboratory data and field studies shall be reviewed to corroborate the final WV, to assess the reasonableness of the toxicity value used, and to assess the appropriateness of any UFs that are applied. All of the following requirements apply when evaluating the studies from which a TD is derived:

(i) The mammalian data shall come from at least 1 well-conducted study of 90 days or more that is designed to observe acceptable wildlife endpoints.

(ii) The avian data shall come from at least 1 well-conducted study of 70 days or more that is designed to observe acceptable wildlife endpoints.

(iii) In reviewing the studies from which a TD is derived for use in calculating a WV, studies involving exposure routes other than oral may be considered only when an equivalent oral daily dose can be estimated and technically justified. The WV calculations are based on an oral route of exposure.

(iv) In assessing the studies that meet the minimum data requirements, preference should be given to studies that assess effects on developmental or reproductive endpoints because, in general, these are more important endpoints in ensuring that a population's productivity is maintained.

(e) In selecting data to be used in the derivation of WVs, the evaluation of acceptable endpoints will be the primary selection criterion. All data that are not part of the selected subset may be used to assess the reasonableness of the toxicity value and the appropriateness of the UFs. In addition, the following provisions shall apply:

(i) If more than 1 TD value based on different endpoints of toxicity is available within a taxonomic class, then that TD, which is likely to reflect best potential impacts to wildlife populations through resultant changes in mortality or fecundity rates, shall be used for the calculation of WVs.

(ii) If more than 1 TD based on the same endpoint toxicity is available within a taxonomic class, then the TD from the most sensitive species shall be used.

(iii) If more than 1 TD based on the same endpoint of toxicity is available for a given species, then the TD for that species shall be calculated using the geometric mean of the TDs for the same endpoint of toxicity.

(f) If a TD is available in units other than milligrams of substance per kilograms per day (mg/kg/d), then the following procedures shall be used to convert the TD to the appropriate units before calculating a WV:

(i) If the TD is given in milligrams of toxicant per liter of water consumed by the test animals (mg/L), then the TD shall be multiplied by the daily average volume of water consumed by the test animals in liters per day (L/d) and divided by the average weight of the test animals in kilograms (kg).

(ii) If the TD is given in milligrams of toxicant per kilogram of food consumed by the test animals (mg/kg), then the TD shall be multiplied by the average amount of food in kilograms consumed daily by the test animals (kg/d) and divided by the average weight of the test animals in kilograms (kg).

(g) When drinking and feeding rates and body weight are needed to express the TD in milligrams of substance per kilograms per day (mg/kg/d), they are obtained from the study from which the TD was derived. If not already determined, body weight and drinking and feeding rates are to be converted to a wet weight basis. If the study does not provide the needed values, then the values shall be determined as follows:

(i) For studies done with domestic laboratory animals, use either the publication entitled "Registry of Toxic Effects, a Comprehensive Guide," 1993, United States Department of Health and Human Services, NIOSH Publication No. 97-119, or the publication entitled "Recommendations for and Documentation of Biological Values for use in Risk Assessment," United States EPA, 1988 NTIS-PB88-179874.

(ii) If the references in paragraph (i) of this subdivision do not contain the information for the species used in a given study, then the following allometric equations shall be used:

(A) For mammalian species, the general allometric equations are as follows:

(1) $F = 0.0687 \times (Wt)^{0.82}$

Where:

F = feeding rate of mammalian species in kilograms per day (kg/d) dry weight.

Wt = average weight in kilograms (kg) of the test animals.

(2) $W = 0.099 \times (Wt)^{0.90}$

Where:

W = drinking rate of mammalian species in liters per day (L/d).

Wt = average weight in kilograms (kg) of the test animals.

(B) For avian species, the general allometric equations are as follows:

(1) $F = 0.0582 (Wt)^{0.65}$

Where:

F = feeding rate of avian species in kilograms per day (kg/d) dry weight.

Wt = average weight in kilograms (kg) of the test animals.

(2) $W = 0.059 \times (Wt)^{0.67}$

Where:

W = drinking rate of avian species in liters per day (L/d).

Wt = average weight in kilograms (kg) of the test animals.

(h) If an NOAEL is unavailable as the TD and an LOAEL is available, then the LOAEL may be used to estimate the NOAEL. If used, the LOAEL shall be divided by a UF to estimate an NOAEL for use in deriving WVs. The value of the UF shall not be less than 1

and should not exceed 10, depending on the dose-response curve and any other available data, and is represented by UF_L in the equation expressed in subdivision (a) of this subrule.

(i) If only subchronic data are available, then the TD may be derived from subchronic data. In such cases, the TD shall be divided by a UF to extrapolate from subchronic to chronic levels. The value of the UF shall not be less than 1 and should not exceed 10, and is represented by UF_S in the equation expressed in subdivision (a) of this subrule. This UF is to be used when assessing highly bioaccumulative substances where toxicokinetic considerations suggest that a bioassay of limited length underestimates chronic effects.

(j) The selection of the UF_A shall be based on the available toxicological data and on available data concerning the physicochemical, toxicokinetic, and toxicodynamic properties of the substance in question and the amount and quality of available data. This UF_A is a UF that is intended to account for differences in toxicological sensitivity among species and both of the following provisions apply:

(i) The UF_A shall not be less than 1 and should not exceed 100 and shall be applied to each of the 5 representative species based on existing data and best professional judgment. The value of UF_A may differ for each of the representative species.

(ii) The UF_A shall be used only for extrapolating toxicity data across species within a taxonomic class; however, an interclass extrapolation employing a UF_A may be used for a given chemical if it can be supported by a validated biologically-based dose-response model or by an analysis of interclass toxicological data, considering acceptable endpoints, for a chemical analog that acts under the same mode of toxic action.

(k) The body weights (Wt), feeding rates (F_{TLi}), drinking rates (W), and trophic level dietary composition (as food ingestion rate and percent in diet) for each of the 5 representative species are presented in table 6. The methodology for development of bioaccumulation factors is presented in subrule (5) of this rule. Trophic level 3 and 4 BAFs are used to derive WVs because these are the trophic levels at which the representative species feed.

(l) Determine, on the basis of all pertinent data available, whether the wildlife values derived are consistent with sound scientific evidence. If they are not, the values shall be adjusted to more appropriately reflect the weight of available scientific evidence.

(m) The WVs shall be applied as a monthly average and compliance shall be based on the average of all daily measurements taken at a site within the same calendar month.

(n) Wildlife values may be modified on a site-specific basis to be more or less stringent to reflect local environmental conditions. The modifications shall be derived by making appropriate site-specific adjustments to the methodology in this subrule. The following provisions shall apply:

(i) Less stringent modifications shall be protective of designated uses of the surface waters of the state, shall be based on sound scientific rationale, shall not jeopardize the continued existence of endangered or threatened species listed or proposed under section 4 of the endangered species act or result in the destruction or adverse modification of the species' critical habitat, and shall consider the mobility of both the prey organisms and wildlife populations in defining the site for which criteria are developed.

(ii) More stringent modifications to protect endangered or threatened species listed or proposed under section 4 of the endangered species act may be accomplished by the use of an intraspecies uncertainty factor to account for protection of individuals within a wildlife population.

(iii) Any site-specific modifications developed pursuant to this subdivision shall be approved by the department.

(4) Levels of toxic substances in the surface waters of the state shall not exceed the human health values specified in tables 7 and 8 or, in the absence of such values, the

values derived according to the following process, unless site-specific modifications have been developed pursuant to subdivision (h) of this subrule:

(a) Human cancer values (HCVs) and human noncancer values (HNVs) shall be derived based on either a tier I or tier II classification. The 2 tiers are primarily distinguished by the amount of toxicity data available for deriving the concentration levels and the quantity and quality of data on bioaccumulation. The best available toxicity data on the adverse health effects of a chemical and the best data on bioaccumulation factors shall be used when developing human health values. The toxicity data shall include data from well-conducted epidemiological studies or animal studies, or both, that provide, for carcinogens, an adequate weight of evidence of potential human carcinogenicity and, for tier I values for noncarcinogens, a dose-response relationship involving critical effects biologically relevant to humans. These data shall be obtained from sources described in 40 C.F.R. §132, appendix C, item II, "Minimum Data Requirements" (1995), including the integrated risk information system (IRIS), the scientific literature, and other informational databases, studies, or reports that contain adverse health effects data of adequate quality for use in this procedure. Strong consideration shall be given to the most currently available guidance provided by IRIS in deriving values, supplemented with any recent data not incorporated into IRIS. Minimum data requirements to derive the human health values are as follows:

(i) HCVs shall be derived if there is adequate evidence of potential human carcinogenic effects for a chemical. Carcinogens shall be classified, depending on the weight of evidence, as either human carcinogens, probable human carcinogens, or possible human carcinogens. To develop tier I and tier II human cancer values, the following minimum data sets are necessary:

(A) Weight of evidence of potential human carcinogenic effects sufficient to derive a tier I HCV shall generally include human carcinogens and probable human carcinogens and can include, on a case-by-case basis, possible human carcinogens if studies have been well-conducted, although based on limited evidence, when compared to studies used in classifying human and probable human carcinogens. The decision to use data on a possible human carcinogen for deriving tier I values shall be a case-by-case determination. In determining whether to derive a tier I HCV, available information on mode of action, such as mutagenicity/genotoxicity (determinations of whether the chemical interacts directly with DNA), structure activity, and metabolism shall also be considered.

(B) Weight of evidence of possible human carcinogenic effects sufficient to derive a tier II HCV shall include the possible human carcinogens for which, at a minimum, there are data sufficient for quantitative risk assessment, but for which data are inadequate for tier I value development due to a tumor response of marginal statistical significance or inability to derive a strong dose-response relationship. In determining whether to derive tier II human cancer values, available information on mode of action, such as mutagenicity/genotoxicity (determinations of whether the chemical interacts directly with DNA), structure activity, and metabolism shall also be considered. As with the use of data on possible human carcinogens in developing tier I values, the decision to use data on possible human carcinogens to derive tier II values shall be made on a case-by-case basis.

(ii) To derive HNVs, all available toxicity data shall be evaluated. The full range of possible health effects of a chemical shall be considered in order to best describe the dose-response relationship of the chemical, and to calculate values which will protect against the most sensitive endpoint or endpoints of toxicity. Although it is desirable to have an extensive database that considers a wide range of possible adverse effects, this type of data exists for a very limited number of chemicals. For many others, there is a range in quality and quantity of data available. To assure minimum reliability of values, it is necessary to

establish a minimum database with which to develop tier I or tier II values. The following procedures represent the minimum data sets necessary for this procedure:

(A) The minimum data set sufficient to derive a tier I HNV shall include at least 1 well-conducted epidemiologic study or animal study. A well-conducted epidemiologic study shall quantify exposure levels and demonstrate positive association between exposure to a chemical and adverse effects in humans. A well-conducted study in animals shall demonstrate a dose-response relationship involving 1 or more critical effects biologically relevant to humans. Ideally, the duration of a study should span multiple generations of exposed test species or at least a major portion of the lifespan of 1 generation. This type of data is currently very limited. By the use of uncertainty adjustments, shorter-term studies, such as 90-day subchronic studies, with evaluation of more limited effects, may be used to extrapolate to longer exposures or to account for a variety of adverse effects. For tier I values developed pursuant to this procedure, such a limited study shall be conducted for not less than 90 days in rodents or for 10% of the lifespan of other appropriate test species and shall demonstrate a no observable adverse effect level (NOAEL). Chronic studies of 1 year or longer with rodents or 50% of the lifespan or longer with other appropriate test species that demonstrate a lowest observable adverse effect level (LOAEL) may be sufficient for use in tier I value derivation if the effects observed at the LOAEL were relatively mild and reversible as compared to effects at higher doses. This does not preclude the use of a LOAEL from a study of chronic duration with only 1 or 2 doses if the effects observed appear minimal when compared to effect levels observed at higher doses in other studies.

(B) If the minimum data for deriving tier I values are not available to meet the tier I data requirements, then a more limited data base may be considered for deriving tier II values. As with tier I, all available data shall be considered and ideally should address a range of adverse health effects with exposure over a substantial portion of the lifespan, or multiple generations, of the test species. If such data are lacking, it may be necessary to rely on less extensive data to establish a tier II value. With the use of appropriate uncertainty factors to account for a less extensive database, the minimum data sufficient to derive a tier II value shall include a NOAEL from at least 1 well-conducted short-term repeated dose study. The study shall be conducted with animals, be of not less than 28 days duration, demonstrate a dose-response, and involve effects biologically relevant to humans. Data from studies of longer duration (more than 28 days) that may demonstrate other study conditions, as well as LOAELs from the studies (more than 28 days), may be more appropriate in some cases for derivation of tier II values. Use of a LOAEL should be based on consideration of the severity of effect, the quality of the study, and the duration of the study.

(iii) Bioaccumulation factor minimum data requirements for tier determination include the following:

(A) To be considered a tier I cancer or noncancer human health value, along with satisfying the minimum toxicity data requirements of paragraphs (i)(A) and (ii)(A) of this subdivision, an organic chemical shall meet 1 of the following bioaccumulation data requirements:

(1) A field-measured BAF.

(2) A BAF derived using the BSAF methodology.

(3) A chemical that has a BAF of less than 125 regardless of what method in subrule (5) of this rule was used to derive the BAF.

(B) To be considered a tier I cancer or noncancer human health value, along with satisfying the minimum toxicity data requirements of paragraphs (i)(A) and (ii)(A) of this subdivision, an inorganic chemical, including organometals such as mercury, shall meet 1 of the following bioaccumulative data requirements:

(1) A field-measured BAF.

(2) A laboratory-measured BCF.

(C) Cancer or noncancer human health values are considered tier II if they do not meet either the minimum toxicity data requirements of paragraphs (i)(A) and (ii)(A) of this subdivision or the minimum bioaccumulation data requirements of subparagraph (A) or (B) of this paragraph.

(b) The fundamental principles for human health cancer values development are as follows:

(i) A non-threshold mechanism of carcinogenesis shall be assumed unless biological data adequately demonstrate the existence of a threshold on a chemical-specific basis.

(ii) All appropriate human epidemiologic data and animal cancer bioassay data shall be considered. Data specific to an environmentally appropriate route of exposure shall be used. Oral exposure is preferred over dermal and inhalation exposure since, in most cases, the exposure routes of greatest concern are fish consumption and drinking water/incidental ingestion. The risk associated dose shall be set at a level corresponding to an incremental cancer risk of 1 in 100,000. If acceptable human epidemiologic data are available for a chemical, then the data shall be used to derive the risk associated dose. If acceptable human epidemiologic data are not available, then the risk associated dose shall be derived from available animal bioassay data. Data from a species that is considered most biologically relevant to humans, that is, responds most like humans, is preferred where all other considerations regarding quality of data are equal. In the absence of data to distinguish the most relevant species, data from the most sensitive species tested, that is, the species showing a carcinogenic effect at the lowest administered dose, shall generally be used.

(iii) If animal bioassay data are used and a non-threshold mechanism of carcinogenicity is assumed, then the data are fitted to a linearized multistage computer model, for example, a GLOBAL ’86 or equivalent model. GLOBAL ’86 is the linearized multistage model which was derived by Howe, Crump, and Van Landingham (1986) which the Unites States EPA uses to determine cancer potencies (Howe et al., 1986). The upper-bound 95% confidence limit on risk, or the lower 95% confidence limit on dose, at the 1 in 100,000 risk level shall be used to calculate a risk associated dose (RAD) for individual chemicals. Other models, including modifications or variations of the linear multistage model that are more appropriate to the available data may be used where scientifically justified.

(iv) If the duration of the study is significantly less than the natural lifespan of the test animal, then the slope may be adjusted on a case-by-case basis to compensate for latent tumors that were not expressed.

(v) A species scaling factor shall be used to account for differences between test species and humans. It shall be assumed that milligrams per surface area per day is an equivalent dose between species. All doses presented in mg/kg bodyweight will be converted to an equivalent surface area dose by raising the mg/kg dose to the 3/4 power. However, if adequate pharmacokinetic and metabolism studies are available, then these data may be factored into the adjustment for species differences on a case-by-case basis.

(vi) Additional data selection and adjustment decisions shall also be made in the process of quantifying risk. Consideration shall be given to tumor selection for modeling, that is, pooling estimates for multiple tumor types and identifying and combining benign and malignant tumors. All doses shall be adjusted to give an average daily dose over the study duration. Adjustments in the rate of tumor response shall be made for early mortality in test species. The goodness-of-fit of the model to the data shall also be assessed.

(vii) If a linear, non-threshold dose-response relationship is assumed, then the RAD shall be calculated using the following equation:

$$RAD = \frac{0.00001}{q1^*}$$

Where:

RAD = risk associated dose in milligrams of toxicant per kilogram body weight per day (mg/kg/day).

0.00001 (1×10^{-5}) = incremental risk of developing cancer equal to 1 in 100,000.

q_1^* = slope factor $(mg/kg/day)^{-1}$.

(viii) If human epidemiologic data or other biological data (animal), or both, indicate that a chemical causes cancer via a threshold mechanism, then the risk associated dose may, on a case-by-case basis, be calculated using a method that assumes a threshold mechanism is operative.

(c) The fundamental principles for human health noncancer value development are as follows:

(i) Noncarcinogens shall generally be assumed to have a threshold dose or concentration below which no adverse effects should be observed. Therefore, the noncancer value is the maximum water concentration of a substance at or below which a lifetime exposure from drinking the water, consuming fish caught in the water, and ingesting water as a result of participating in water-related recreation activities is likely to be without appreciable risk of deleterious effects.

(ii) For some noncarcinogens, there may not be a threshold dose below which no adverse effects should be observed. Chemicals acting as genotoxic teratogens and germline mutagens are thought to possibly produce reproductive or developmental effects, or both, through a genetically linked mechanism that may have no threshold. Other chemicals also may not demonstrate a threshold. Values for these types of chemicals will be established on a case-by-case basis using appropriate assumptions reflecting the likelihood that no threshold exists.

(iii) All appropriate human and animal toxicologic data shall be reviewed and evaluated. To the maximum extent possible, data most specific to the environmentally relevant route of exposure shall be used. Oral exposure is preferred over dermal and inhalation exposure since, in most cases, the exposure routes of greatest concern are fish consumption and drinking water/incidental ingestion. If acceptable human epidemiologic data are not available, then animal data from species most biologically relevant to humans shall be used. In the absence of data to distinguish the most relevant species, data from the most sensitive animal species tested, that is, the species showing a toxic effect at the lowest administered dose given a relevant route of exposure should generally be used.

(iv) Minimum data requirements are specified in subdivision (a)(ii)(A) of this subrule. The experimental exposure level representing the highest level tested at which no adverse effects were demonstrated (NOAEL) from studies satisfying the minimum data requirements shall be used for value calculations. In the absence of a NOAEL, a LOAEL from studies satisfying the minimum data requirements may be used if based on relatively mild and reversible effects.

(v) Uncertainty factors shall be used to account for the uncertainties in predicting acceptable dose levels for the general human population based upon experimental animal data or limited human data. The uncertainty factors shall be determined as follows:

(A) An uncertainty factor of 1 to 10 shall be used when extrapolating from valid experimental results from studies on prolonged exposure to average healthy humans. This factor of up to tenfold is used to protect sensitive members of the human population.

(B) An uncertainty factor of 1 to 10 shall be used when extrapolating from valid results of long-term studies on experimental animals when results of studies of human exposure are not available or are inadequate. When considered with subparagraph (A) of this paragraph,

a factor of up to one hundredfold is used in extrapolating data from the average animal to protect sensitive members of the human population.

(C) An uncertainty factor of 1 to 10 shall be used when extrapolating from animal studies for which the exposure duration is less than chronic, but more than subchronic (90 days or more in length), or when other significant deficiencies in study quality are present, and when useful long-term human data are not available. When considered with subparagraphs (A) and (B) of this paragraph, a factor of up to one thousandfold is used in extrapolating data from less than chronic, but more than subchronic, studies for average animals to protect sensitive members of the human population from chronic exposure.

(D) An uncertainty factor of 1 to 3 shall be used when extrapolating from animal studies for which the exposure duration is less than subchronic (less than 90 days). When considered with subparagraphs (A), (B), and (C) of this paragraph, a factor of up to 3 thousandfold is used in extrapolating data from less than subchronic studies for average animals to protect sensitive members of the human population from chronic exposure.

(E) An additional uncertainty factor of 1 to 10 may be used when deriving a value from a LOAEL. The UF accounts for the lack of an identifiable NOAEL. The level of additional uncertainty applied may depend upon the severity and the incidence of the observed adverse effect.

(F) An additional uncertainty factor of 1 to 10 may be applied when there are limited effects data or incomplete subacute or chronic toxicity data, for example, reproductive/developmental data. The level of quality and quantity of the experimental data available and structure-activity relationships may be used to determine the factor selected.

(G) When deriving a UF for use in developing an HNV, the total uncertainty, as calculated following subparagraphs (A) to (F) of this paragraph, shall not exceed 10,000 for tier I values and 30,000 for tier II values.

(vi) All study results shall be converted, as necessary, to the standard unit for acceptable daily exposure of milligrams of toxicant per kilogram of body weight per day (mg/kg/day). Doses shall be adjusted for continuous exposure (7 days/week, 24 hours/day).

(vii) The acceptable daily exposure (ADE) shall be calculated as follows:

$$ADE = \frac{\text{NOAEL or LOAEL}}{UF}$$

Where:

ADE = acceptable daily exposure in milligrams of toxicant per kilogram body weight per day (mg/kg/day).

NOAEL/LOAEL = the study NOAEL or LOAEL.

UF = the uncertainty factor derived in paragraph (v) of this subdivision.

(d) Human health cancer values shall be derived using the following equation:

$$HCV = \frac{RAD \times BW}{WC + [(FC_{TL3} \times BAF_3) + (FC_{TL4} \times BAF_4)]}$$

Where:

HCV = human cancer value in milligrams per liter (mg/L).

RAD = risk associated dose in milligrams toxicant per kilogram body weight per day (mg/kg/day) that is associated with a lifetime incremental cancer risk equal to 1 in 100,000 for individual chemicals.

BW = weight of an average human (BW = 70 kg).

WC_d = per capita water consumption, both drinking and incidental exposure, for surface waters specified in R 323.1100(8) = 2 liters/day, or

WC_r = per capita incidental daily water ingestion for surface waters not specified in R 323.1100(8) = 0.01 liters/day.

FC_{TL3} = consumption of regionally caught trophic level 3 fish = 0.0036 kg/day.

FC_{TL4} = consumption of regionally caught trophic level 4 fish = 0.0114 kg/day.

BAF_3 = bioaccumulation factor for trophic level 3 fish, as derived using the BAF methodology in subrule (5) of this rule.

BAF_4 = bioaccumulation factor for trophic level 4 fish, as derived using the BAF methodology in subrule (5) of this rule.

(e) Human noncancer values shall be derived using the following equation:

$$HNV = \frac{ADE \times BW \times RSC}{WC + [(FC_{TL3} \times BAF_3) + (FC_{TL4} \times BAF_4)]}$$

Where:

HNV = human noncancer value in milligrams per liter (mg/l).

ADE = acceptable daily exposure in milligrams toxicant per kilogram body weight per day (mg/kg/day).

RSC = relative source contribution factor of 0.8. An RSC derived from actual exposure data may be developed on a case-by-case basis.

BW = weight of an average human (BW = 70 kg).

WC_d = per capita water consumption, both drinking and incidental exposure, for surface waters specified in R 323.1100(8) = 2 liters/day, or

WC_r = per capita incidental daily water ingestion for surface waters not specified in R 323.1100(8) = 0.01 liters/day.

FC_{TL3} = consumption of regionally caught trophic level 3 fish = 0.0036 kg/day.

FC_{TL4} = consumption of regionally caught trophic level 4 fish = 0.0114 kg/day.

BAF_3 = human health bioaccumulation factor for edible portion of trophic level 3 fish, as derived using the BAF methodology in subrule (5) of this rule.

BAF_4 = human health bioaccumulation factor for edible portion of trophic level 4 fish, as derived using the BAF methodology in subrule (5) of this rule.

(f) Determine, on the basis of all pertinent data available, whether the human health cancer and noncancer values derived are consistent with sound scientific evidence. If they are not, the values shall be adjusted to more appropriately reflect the weight of available scientific evidence.

(g) The tier I and tier II human health values shall be applied as monthly averages, and compliance shall be based on the average of all daily measurements taken at a site within the same calendar month.

(h) Human health values may be modified on a site-specific basis to be more or less stringent to reflect local environmental conditions or local human exposure. Less stringent human health values shall be protective of designated uses of the surface waters of the state and shall be based on sound scientific rationale. Any such modifications shall be derived by making appropriate site-specific adjustments to the methodology in this subrule and shall be approved by the department.

(5) Bioaccumulation factors (BAFs) used in the derivation of values in subrules (3) and (4) of this rule shall be developed according to the following process:

(a) Baseline BAFs shall be derived using the following 4 methods, listed in order of preference:

(i) A measured baseline BAF for an organic or inorganic chemical derived from a field study of acceptable quality.

(ii) A predicted baseline BAF for an organic chemical derived using field-measured biota-sediment accumulation factors (BSAFs) of acceptable quality.

(iii) A predicted baseline BAF for an organic or inorganic chemical derived from a bioconcentration factor (BCF) measured in a laboratory study of acceptable quality and a food chain multiplier (FCM).

(iv) A predicted baseline BAF for an organic chemical derived from an octanol-water partition coefficient (K_{ow}) of acceptable quality and an FCM.

(b) Selection of data for deriving BAFs shall be conducted as follows:

(i) Procedural and quality assurance requirements shall be met for field-measured BAFs as follows:

(A) The field studies used shall be limited to studies conducted in the Great Lakes system with fish at or near the top of the aquatic food chain (trophic levels 3 or 4 or 3 and 4).

(B) The trophic level of the fish species shall be determined.

(C) The site of the field study should not be so unique that the BAF cannot be extrapolated to other locations where the values will apply.

(D) For organic chemicals, the percent lipid shall be either measured or reliably estimated for the tissue used in the determination of the BAF.

(E) The concentration of the chemical in the water shall be measured in a way that can be related to particulate organic carbon (POC) or dissolved organic carbon (DOC), or both, and should be relatively constant during the steady-state time period.

(F) For organic chemicals that have a log K_{ow} of more than 4, the concentrations of POC and DOC in the ambient water shall be either measured or reliably estimated.

(G) For inorganic and organic chemicals, BAFs shall be used only if they are expressed on a wet weight basis. BAFs reported on a dry weight basis cannot be converted to wet weight unless a conversion factor is measured or reliably estimated for the tissue used in the determination of the BAF.

(ii) All of the following procedural and quality assurance requirements shall be met for field-measured BSAFs:

(A) The field studies used shall be limited to studies conducted in the Great Lakes system with fish at or near the top of the aquatic food chain, for example, in trophic levels 3 or 4 or 3 and 4.

(B) Samples of surface sediments (0 to 1 centimeters is ideal) shall be from locations in which there is net deposition of fine sediment and is representative of average surface sediment in the vicinity of the organism.

(C) The K_{ow}s used shall be of acceptable quality as described in paragraph (v) of this subdivision.

(D) The site of the field study should not be so unique that the resulting BAF cannot be extrapolated to other locations where the values will apply.

(E) The trophic level of the fish species shall be determined.

(F) The percent lipid shall be either measured or reliably estimated for the tissue used in the determination of the BAF.

(iii) The following procedural and quality assurance requirements shall be met for laboratory-measured BCFs:

(A) The test organism shall not be diseased, unhealthy, or adversely affected by the concentration of the chemical.

(B) The total concentration of the chemical in the water shall be measured and should be relatively constant during the steady-state time period.

(C) The organisms shall be exposed to the chemical using a flow-through or renewal procedure.

(D) For organic chemicals, the percent lipid shall be either measured or reliably estimated for the tissue used in the determination of the BCF.

(E) For organic chemicals that have a log K_{ow} of more than 4, the concentrations of POC and DOC in the test solution shall be either measured or reliably estimated.

(F) Laboratory-measured BCFs should be determined using fish species, but BCFs determined with molluscs and other invertebrates may be used with caution. For example, because invertebrates metabolize some chemicals less efficiently than vertebrates, a baseline BCF determined for such a chemical using invertebrates is expected to be higher than a comparable baseline BCF determined using fish.

(G) If laboratory-measured BCFs increase or decrease as the concentration of the chemical increases in the test solutions in a bioconcentration test, then the BCF measured at the lowest test concentration that is above concentrations existing in the control water shall be used. A BCF should not be calculated from a control treatment. The concentrations of an inorganic chemical in a bioconcentration test should be greater than normal background levels and greater than levels required for normal nutrition of the test species if the chemical is a micronutrient, but below levels that adversely affect the species. Bioaccumulation of an inorganic chemical might be overestimated if concentrations are at or below normal background levels due to, for example, nutritional requirements of the test organisms.

(H) For inorganic and organic chemicals, BCFs shall be used only if they are expressed on a wet weight basis. BCFs reported on a dry weight basis cannot be converted to wet weight unless a conversion factor is measured or reliably estimated for the tissue used in the determination of the BAF.

(I) BCFs for organic chemicals may be based on measurement of radioactivity only when the BCF is intended to include metabolites or when there is confidence that there is no interference due to metabolites.

(J) The calculation of the BCF shall appropriately address growth dilution.

(K) Other aspects of the methodology used should be similar to the aspects of the methodology described in the american society for testing and materials (ASTM) standard entitled "Standard Guide for Conducting Bioconcentration Tests with Fishes and Saltwater Bivalve Molluscs," Standard E 1022-94 (1994), which is adopted by reference in R 323.1117.

(iv) The following procedural and quality assurance requirements shall be met for predicted BCFs:

(A) The K_{ow} used shall be of acceptable quality as described in paragraph (v) of this subdivision.

(B) The predicted baseline BCF shall be calculated using the following equation:

$$\text{Predicted baseline BCF} = K_{ow}$$

Where:

K_{ow} = octanol-water partition coefficient.

(v) The value of K_{ow} used for an organic chemical shall be determined by giving priority to the experimental and computational techniques used as follows:

Log K_{ow} <4:	Priority	Technique
	1	Slow-stir
	1	Generator-column
	1	Shake-flask
	2	Reverse-phase liquid chromatography on C18 chromatography packing with extrapolation to 0% solvent

	3	Reverse-phase liquid chromatography on C18 chromatography packing without extrapolation to 0% solvent
	4	Calculated by the CLOGP program

Log K_{ow} >4:	Priority	Technique
	1	Slow-stir
	1	Generator-column
	2	Reverse-phase liquid chromatography on C18 chromatography packing with extrapolation to 0% solvent
	3	Reverse-phase liquid chromatography on C18 chromatography packing without extrapolation to 0% solvent
	4	Shake-flask
	5	Calculated by the CLOGP program

The CLOGP program is a computer program available from Pomona College. A value of K_{ow} that seems to be different from the others should be considered an outlier and not used. The value of K_{ow} used for an organic chemical shall be the geometric mean of the available K_{ow}s with highest priority or can be calculated from the arithmetic mean of the available log K_{ow}s with the highest priority. Because it is an intermediate value in the derivation of a BAF, the value used for the K_{ow} of a chemical shall not be rounded to fewer than 3 significant digits, and a value for log K_{ow} shall not be rounded to fewer than 3 significant digits after the decimal point.

(c) It is assumed that BAFs and BCFs for organic chemicals can be extrapolated on the basis of percent lipid from one tissue to another and from one aquatic species to another in most cases. Because BAFs and BCFs for organic chemicals are related to the percent lipid, it does not make any difference whether the tissue sample is whole body or edible portion, but both the BAF (or BCF) and the percent lipid shall be determined for the same tissue. The percent lipid of the tissue should be measured during the BAF or BCF study, but in some cases the percent lipid can be reliably estimated from measurements on tissue from other organisms. If percent lipid is not reported for the test organisms in the original study, then it may be obtained from the author or, in the case of a laboratory study, lipid data for the same or a comparable laboratory population of test organisms that were used in the original study may be used. The lipid-normalized concentration, C_ℓ, of a chemical in tissue is defined using the following equation:

$$C_\ell = \frac{C_B}{f_\ell}$$

Where:

C_B = concentration of the organic chemical in the tissue of aquatic biota (either whole organism or specified tissue) (mg/g).

f_ℓ = fraction of the tissue that is lipid.

(d) By definition, baseline BAFs and BCFs for organic chemicals, whether measured or predicted, are based on the concentration of the chemical that is freely dissolved in the ambient water in order to account for bioavailability. The relationship between the total concentration of the chemical in the water, that is, that which is freely dissolved plus that which is sorbed to particulate organic carbon or to dissolved organic carbon, to the freely dissolved concentration of the chemical in the ambient water shall be calculated using the following equation:

$$C_w^{fd} = (f_{fd})(C_w^t)$$

Where:

C_w^{fd} = freely dissolved concentration of the organic chemical in the ambient water.

C_w^t = total concentration of the organic chemical in the ambient water.

f_{fd} = fraction of the total chemical in the ambient water that is freely dissolved.

The fraction of the total chemical in the ambient water that is freely dissolved, f_{fd}, shall be calculated using the following equation:

$$f_{fd} = \frac{1}{1 + \frac{(DOC)(K_{OW})}{10} + (POC)(K_{OW})}$$

Where:

DOC = concentration of dissolved organic carbon, kg of dissolved organic carbon/L of water.

K_{ow} = octanol-water partition coefficient of the chemical.

POC = concentration of particulate organic carbon, kg of particulate organic carbon/L of water.

(e) In the absence of a field-measured BAF or a predicted BAF derived from a BSAF, an FCM shall be used to calculate the baseline BAF for trophic levels 3 and 4 from a laboratory-measured or predicted BCF. For an organic chemical, the FCM used shall be derived from table 9 using the chemical's log K_{ow} and linear interpolation. An FCM of more than 1.0 applies to most organic chemicals that have a log K_{ow} of 4 or more. The trophic level used shall take into account the age or size of the fish species consumed by the human, avian, or mammalian predator because for some species of fish the young are in trophic level 3 whereas the adults are in trophic level 4.

(f) A baseline BAF shall be calculated from a field-measured BAF of acceptable quality using the following equation:

$$\text{Baseline BAF} = \left[\frac{\text{Measured } BAF_T^t}{f_{fd}} - 1 \right] \left(\frac{1}{f_\ell} \right)$$

Where:

BAF_T^t = BAF based on total concentration in tissue and water.

f_ℓ = fraction of the tissue that is lipid.

f_{fd} = fraction of the total chemical that is freely dissolved in the ambient water.

The trophic level to which the baseline BAF applies is the same as the trophic level of the organisms used in the determination of the field-measured BAF. For each trophic level, a species mean measured baseline BAF shall be calculated as the geometric mean if more than 1 measured baseline BAF is available for a given species. For each trophic level, the geometric mean of the species mean measured baseline BAFs shall be calculated. If a baseline BAF based on a measured BAF is available for either trophic level 3 or 4, but not both, then a measured baseline BAF for the other trophic level shall be calculated using the ratio of the FCMs that are obtained by linear interpolation from table 9 for the chemical.

(g) A baseline BAF for organic chemical "i" shall be calculated from a field-measured BSAF of acceptable quality using the following equation:

$$(\text{Baseline BAF})_i = (\text{Baseline BAF})_r \bullet \frac{(BSAF)_i \bullet (K_{OW})_i}{(BSAF)_r \bullet (K_{OW})_r}$$

Where:
$(BSAF)_i$ = BSAF for chemical i.
$(BSAF)_r$ = BSAF for the reference chemical r.
$(K_{ow})_i$ = octanol-water partition coefficient for chemical i.
$(K_{ow})_r$ = octanol-water partition coefficient for the reference chemical r.
A BSAF shall be calculated using the following equation:

$$BSAF = \frac{C_\ell}{C_{SOC}}$$

Where:
C_ℓ = the lipid-normalized concentration of the chemical in tissue.
C_{soc} = the organic carbon-normalized concentration of the chemical in sediment.
The organic carbon-normalized concentration of a chemical in sediment, C_{soc}, shall be calculated using the following equation:

$$C_{SOC} = \frac{C_S}{f_{OC}}$$

Where:
C_s = concentration of chemical in sediment (mg/g sediment).
f_{oc} = fraction of the sediment that is organic carbon.
Predicting BAFs from BSAFs requires data from a steady-state or near steady-state condition between sediment and ambient water for both a reference chemical "r" with a field-measured BAF_ℓ^{fd} and other chemicals "n=i" for which BSAFs are to be determined.
The trophic level to which the baseline BAF applies is the same as the trophic level of the organisms used in the determination of the BSAF. For each trophic level, a species mean baseline BAF shall be calculated as the geometric mean if more than 1 baseline BAF is predicted from BSAFs for a given species. For each trophic level, the geometric mean of the species mean baseline BAFs derived using BSAFs shall be calculated. If a baseline BAF based on a measured BSAF is available for either trophic level 3 or 4, but not both, a baseline BAF for the other trophic level shall be calculated using the ratio of the FCMs that are obtained by linear interpolation from table 9 for the chemical.
(h) A baseline BAF for trophic level 3 and a baseline BAF for trophic level 4 shall be calculated from a laboratory-measured BCF of acceptable quality and an FCM using the following equation:

$$\text{Baseline BAF} = (FCM)\left[\frac{\text{Measured } BCF_T^t}{f_{fd}} - 1\right]\left(\frac{1}{f_\ell}\right)$$

Where:
BCF_T^t = BCF based on total concentration in tissue and water.
f_ℓ = fraction of the tissue that is lipid.
f_{fd} = fraction of the total chemical in the test water that is freely dissolved.
FCM = the food chain multiplier obtained from table 9 by linear interpolation for trophic level 3 or 4, as necessary.
For each trophic level, a species mean baseline BAF shall be calculated as the geometric mean if more than 1 baseline BAF is predicted from laboratory-measured BCFs for a given species. For each trophic level, the geometric mean of the species mean baseline BAFs based on laboratory-measured BCFs shall be calculated.
(i) A baseline BAF for trophic level 3 and a baseline BAF for trophic level 4 shall be calculated from a K_{ow} of acceptable quality and an FCM using the following equation:

$$\text{Baseline BAF} = (FCM)(\text{predicted baseline BCF}) = (FCM)(K_{OW})$$

Where:

FCM = the food chain multiplier obtained from table 9 by linear interpolation for trophic level 3 or 4, as necessary.

K_{ow} = octanol-water partition coefficient.

(j) Human health and wildlife BAFs for organic chemicals shall be derived as follows:

(i) The K_{ow} of the chemical shall be used with a POC concentration of 0.00000004 kg/l and a DOC concentration of 0.000002 kg/l to yield the fraction freely dissolved:

$$f_{fd} = \frac{1}{1 + \frac{(DOC)(Kow)}{10} + (POC)(K_{ow})}$$

$$= \frac{1}{1 + \frac{(0.000002\ kg/L)(Kow)}{10} + (0.00000004\ kg/L)(K_{ow})}$$

$$= \frac{1}{1 + (0.00000024\ kg/L)(K_{ow})}$$

(ii) The human health BAF for an organic chemical shall be calculated using the following equations:

(A) For trophic level 3:

$$\text{Human health BAF}^{HH}_{TL\ 3} = [(\text{baseline BAF})(0.0182) + 1](f_{fd})$$

(B) For trophic level 4:

$$\text{Human health BAF}^{HH}_{TL\ 4} = [(\text{baseline BAF})(0.0310) + 1](f_{fd})$$

Where:

0.0182 and 0.0310 are the standardized fraction lipid values for trophic levels 3 and 4, respectively, that are used to derive human health values.

(iii) The wildlife BAF for an organic chemical shall be calculated using the following equations:

(A) For trophic level 3:

$$\text{Wildlife BAF}^{WL}_{TL\ 3} = [(\text{baseline BAF})(0.0646) + 1](f_{fd})$$

(B) For trophic level 4:

$$\text{Wildlife BAF}^{WL}_{TL\ 4} = [(\text{baseline BAF})(0.1031) + 1](f_{fd})$$

Where:

0.0646 and 0.1031 are the standardized fraction lipid values for trophic levels 3 and 4, respectively, that are used to derive wildlife values.

(k) To calculate human health and wildlife BAFs for inorganic chemicals, the baseline BAFs for trophic levels 3 and 4 are both assumed to equal the BCF determined for the chemical with fish. The FCM is assumed to be 1 for both trophic levels 3 and 4. However, an FCM greater than 1 might be applicable to some metals, such as mercury, if, for example, an organometallic form of the metal biomagnifies. The process specified in paragraphs (i) and (ii) of this subdivision shall be followed:

(i) The human health BAFs for inorganic chemicals shall be calculated as follows:

(A) Measured BAFs and BCFs used to determine human health BAFs for inorganic chemicals shall be based on edible tissue of freshwater fish unless it is demonstrated that whole-body BAFs or BCFs are similar to edible-tissue BAFs or BCFs. BCFs and BAFs based on measurements of aquatic plants and invertebrates shall not be used in the derivation of human health values.

(B) If 1 or more field-measured baseline BAFs for an inorganic chemical are available from studies conducted in the Great Lakes system with the muscle of fish, for each trophic

level, a species mean measured baseline BAF shall be calculated as the geometric mean if more than 1 measured BAF is available for a given species; and the geometric mean of the species mean measured baseline BAFs shall be used as the human health BAF for that chemical.

(C) If an acceptable measured baseline BAF is not available for an inorganic chemical and 1 or more acceptable edible-portion laboratory-measured BCFs are available for the chemical, then a predicted baseline BAF shall be calculated by multiplying the geometric mean of the BCFs times an FCM. The FCM will be 1.0 unless chemical-specific biomagnification data support using a multiplier other than 1.0. The predicted baseline BAF shall be used as the human health BAF for that chemical.

(ii) The wildlife BAFs for inorganic chemicals shall be calculated as follows:

(A) Measured BAFs and BCFs used to determine wildlife BAFs for inorganic chemicals shall be based on whole-body freshwater fish and invertebrate data unless it is demonstrated that edible-tissue BAFs or BCFs are similar to whole-body BAFs or BCFs.

(B) If 1 or more field-measured baseline BAFs for an inorganic chemical are available from studies conducted in the Great Lakes system with the whole body of fish or invertebrates, for each trophic level, a species mean measured baseline BAF shall be calculated as the geometric mean if more than 1 measured BAF is available for a given species; and the geometric mean of the species mean measured baseline BAFs shall be used as the wildlife BAF for that chemical.

(C) If an acceptable measured baseline BAF is not available for an inorganic chemical and 1 or more acceptable whole-body laboratory-measured BCFs are available for the chemical, then a predicted baseline BAF shall be calculated by multiplying the geometric mean of the BCFs times an FCM. The FCM will be 1.0 unless chemical-specific biomagnification data support using a multiplier other than 1.0. The predicted baseline BAF shall be used as the wildlife BAF for that chemical.

(l) For both organic and inorganic chemicals, human health and wildlife BAFs for both trophic levels shall be reviewed for consistency with all available data concerning the bioaccumulation, bioconcentration, and metabolism of the chemical. For example, information concerning octanol-water partitioning, molecular size, or other physicochemical properties that might enhance or inhibit bioaccumulation should be considered for organic chemicals. BAFs derived in accordance with the methodology specified in this subrule shall be modified if changes are justified by available data.

(m) BAFs may be modified on a site-specific basis to be higher or lower to reflect local environmental conditions. Any site-specific modifications shall be derived by making appropriate site-specific adjustments to the methodology in this subrule and shall be approved by the department. Lower BAFs shall be protective of designated uses of the surface waters of the state and shall be based on sound scientific rationale to address site-specific factors, including all of the following factors:

(i) The fraction of the total chemical that is freely dissolved in the ambient water is different than that used to derive the statewide BAFs.

(ii) Input parameters of the Gobas model and the disequilibrium constant are different at the site than the input parameters and the disequilibrium constant used to derive the statewide BAFs.

(iii) The percent lipid of aquatic organisms that are consumed and occur at the site is different than the percent lipid of aquatic organisms used to derive the statewide BAFs.

(iv) Site-specific field-measured BAFs or BSAFs are determined.

(6) In addition to the values derived by the method set forth in subrule (2) of this rule, biological techniques, including whole effluent toxicity requirements, may be used to assure

that the acute and chronic aquatic life requirements of these rules are met in the surface waters of the state.

(7) If new information becomes available for the department to make a determination that any of the water quality values in tables 1, 2, 4, 7, and 8 should be revised, then a rule change shall be initiated by the department to modify the values. The revised values will be considered for the purposes of developing water quality-based effluent limits for national pollutant discharge elimination system permits and appropriate adjustments shall be made when the permit is reissued.

(8) Tables 1 to 9 read as follows:

Table 1. Aquatic Maximum Values for Protection of Aquatic Life in Ambient Waters.

Chemical	AMV[1] (ug/L)	Conversion Factor (CF)
Arsenic[2]	340	1.0
Cadmium[2]	$(e^{1.128(\ln H)-3.6867})(CF)$	1.136672-(lnH)(0.041838)
Chromium (III)[2]	$(e^{0.819(\ln H)+3.7256})(CF)$	0.316
Chromium (VI)[2]	16	0.982
Copper[2]	$(e^{0.9422(\ln H)-1.7})(CF)$	0.96
Cyanide[3]	22	n/a
Dieldrin[4]	0.24	n/a
Endrin[4]	0.086	n/a
Lindane[4]	0.95	n/a
Mercury[2]	1.4	0.85
Nickel[2]	$(e^{0.846(\ln H)+2.255})(CF)$	0.998
Parathion[4]	0.065	n/a
Pentachlorophenol[4]	$e^{1.005(pH)-4.869}$	n/a
Zinc[2]	$(e^{0.8473(\ln H)+0.884})(CF)$	0.978

[1]AMV is the aquatic maximum value and is equal to 1/2 the FAV. The AMV shall be rounded to 2 significant digits.
[2]Value is expressed as a dissolved concentration calculated using the specified conversion factor.
[3]Value is expressed as free cyanide.
[4]Value is expressed as a total concentration.

Note: The term "lnH" is the natural log of hardness, expressed as mg/L $CaCO_3$.
The term "n/a" means not applicable.

Table 2. Chronic Water Quality Values for Protection of Aquatic Life in Ambient Waters.

Chemical	FCV[1] (ug/L)	Conversion Factor (CF)
Arsenic[2]	150	1.0
Cadmium[2]	$(e^{0.7852(lnH)-2.715})(CF)$	1.101672-(lnH)(0.041838)
Chromium (III)[2]	$(e^{0.819(lnH)+0.6848})(CF)$	0.86
Chromium (VI)[2]	11	0.962
Copper[2]	$(e^{0.8545(lnH)-1.702})(CF)$	0.96
Cyanide[3]	5.2	n/a
Dieldrin[4]	0.056	n/a
Endrin[4]	0.036	n/a
Mercury[2]	0.77	0.85
Nickel[2]	$(e^{0.846(lnH)+0.0584})(CF)$	0.997
Parathion[4]	0.013	n/a
Pentachlorophenol[4]	$e^{1.005(pH)-5.134}$	n/a
Selenium[5]	5	n/a
Zinc[2]	$(e^{0.8473(lnH)+0.884})(CF)$	0.986

[1]FCV is the final chronic value. The FCV shall be rounded to 2 significant digits.
[2]Value is expressed as a dissolved concentration calculated using the specified conversion factor.
[3]Value is expressed as free cyanide.
[4]Value is expressed as a total concentration.
[5]Value is expressed as a total recoverable concentration.

Note: The term "lnH" is the natural log of hardness, as expressed in mg/L $CaCO_3$.
The term "n/a" means not applicable.

Table 3. Tier II Acute Factors.

Number of minimum data requirements satisfied	Acute Factor
2.....	13.0
3.....	8.0
4.....	7.0
5.....	6.1
6.....	5.2
7.....	4.3

Table 4. Water Quality Values for Protection of Wildlife.

Chemical	Wildlife Value (ug/L)
DDT and metabolites	0.000011
Mercury, including methylmercury	0.0013
PCBs (class)	0.00012
2,3,7,8-TCDD	0.0000000031

Table 5. Bioaccumulative Chemicals of Concern.

Chlordane
4,4’-DDD
4,4’-DDE
4,4’-DDT
Dieldrin
Hexachlorobenzene
Hexachlorobutadiene
Hexachlorocyclohexanes
alpha-Hexachlorocyclohexane
beta-Hexachlorocyclohexane
delta-Hexachlorocyclohexane
Lindane
Mercury
Mirex
Octachlorostyrene
Polychlorinated biphenyls (PCBs)
Pentachlorobenzene
Photomirex
2,3,7,8-TCDD
1,2,3,4-Tetrachlorobenzene
1,2,4,5-tetrachlorobenzene
Toxaphene

Table 6. Exposure Parameters for the 5 Representative Species Identified for Protection.

Species	Adult Body Weight	Water Ingestion Rate	Food Ingestion Rate of Prey in Each Trophic Level	Trophic Level of Prey
Units	kg	L/day	kg/day	Percent of diet
Mink	0.80	0.081	TL3: 0.159 Other: 0.0177	TL3: 90 % Other: 10 %
Otter	7.4	0.600	TL3: 0.977 TL4: 0.244	TL3: 80 % TL4: 20 %
Kingfisher	0.15	0.017	TL3: 0.0672	TL3: 100 %
Herring gull	1.1	0.063	TL3: 0.192 TL4: 0.0480 Other: 0.0267	Fish: 90 % TL3: 80 % TL4: 20 % Other: 10 %
Bald eagle	4.6	0.160	TL3: 0.371 TL4: 0.0929 PB: 0.0283 Other: 0.0121	Fish: 92 % TL3: 80 % TL4: 20 % Birds: 8 % PB: 70 % Non-aquatic: 30 %

Note: TL3 = trophic level 3 fish.
TL4 = trophic level 4 fish.
PB = piscivorous birds.
Other = nonaquatic birds and mammals.

Table 7. Human Noncancer Values for Protection of Human Health.

Chemical	HNV (ug/L) Drinking	Nondrinking
Benzene	19	510
Chlordane	0.0014	0.0014
Chlorobenzene	470	3200
Cyanides	600	48000
DDT	0.002	0.002
Dieldrin	0.00041	0.00041
2,4-dimethylphenol	450	8700
2,4-dinitrophenol	55	2800
Hexachlorobenzene	0.046	0.046
Hexachloroethane	6.0	7.6
Lindane	0.47	0.50
Mercury (including methylmercury)	0.0018	0.0018
Methylene chloride	1600	90000
2,3,7,8-TCDD	0.000000067	0.000000067
Toluene	5600	51000

Table 8. Human Cancer Values for the Protection of Human Health.

Chemical	HCV (ug/L) Drinking	Nondrinking
Benzene	12	310
Chlordane	0.00025	0.00025
DDT	0.00015	0.00015
Dieldrin	0.0000065	0.0000065
Hexachlorobenzene	0.00045	0.00045
Hexachloroethane	5.3	6.7
Methylene chloride	47	2600
PCBs (class)	0.000026	0.000026
2,3,7,8-TCDD	0.0000000086	0.0000000086
Toxaphene	0.000068	0.000068
Trichloroethylene	29	370

Table 9. Food Chain Multipliers for Trophic Levels 2, 3, and 4.

Log K_{ow}	Trophic Level 2	Trophic[a] Level 3	Trophic Level 4
2.0	1.000	1.005	1.000
2.5	1.000	1.010	1.002
3.0	1.000	1.028	1.007
3.1	1.000	1.034	1.007
3.2	1.000	1.042	1.009
3.3	1.000	1.053	1.012
3.4	1.000	1.067	1.014
3.5	1.000	1.083	1.019
3.6	1.000	1.103	1.023
3.7	1.000	1.128	1.033
3.8	1.000	1.161	1.042
3.9	1.000	1.202	1.054
4.0	1.000	1.253	1.072
4.1	1.000	1.315	1.096
4.2	1.000	1.380	1.130
4.3	1.000	1.491	1.178
4.4	1.000	1.614	1.242
4.5	1.000	1.766	1.334
4.6	1.000	1.950	1.459
4.7	1.000	2.175	1.633
4.8	1.000	2.452	1.871
4.9	1.000	2.780	2.193
5.0	1.000	3.181	2.612
5.1	1.000	3.643	3.162
5.2	1.000	4.188	3.873
5.3	1.000	4.803	4.742
5.4	1.000	5.502	5.821
5.5	1.000	6.266	7.079
5.6	1.000	7.096	8.551
5.7	1.000	7.962	10.209
5.8	1.000	8.841	12.050
5.9	1.000	9.716	13.964
6.0	1.000	10.556	15.996
6.1	1.000	11.337	17.783
6.2	1.000	12.064	19.907
6.3	1.000	12.691	21.677
6.4	1.000	13.228	23.281
6.5	1.000	13.662	24.604
6.6	1.000	13.980	25.645
6.7	1.000	14.223	26.363
6.8	1.000	14.355	26.669
6.9	1.000	14.388	26.669

Table 9. Continued.

Log K_{ow}	Trophic Level 2	Trophic[a] Level 3	Trophic Level 4
7.0	1.000	14.305	26.242
7.1	1.000	14.142	25.468
7.2	1.000	13.852	24.322
7.3	1.000	13.474	22.856
7.4	1.000	12.987	21.038
7.5	1.000	12.517	18.967
7.6	1.000	11.708	16.749
7.7	1.000	10.914	14.388
7.8	1.000	10.069	12.050
7.9	1.000	9.162	9.840
8.0	1.000	8.222	7.798
8.1	1.000	7.278	6.012
8.2	1.000	6.361	4.519
8.3	1.000	5.489	3.311
8.4	1.000	4.683	2.371
8.5	1.000	3.296	1.146
8.7	1.000	2.732	0.778
8.8	1.000	2.246	0.521
8.9	1.000	1.837	0.345
9.0	1.000	1.493	0.226

[a] The FCMs for trophic level 3 are the geometric mean of the FCMs for sculpin and alewife.

R 323.1058 Radioactive substances.

Rule 58. The control and regulation of radioactive substances discharged to the waters of the state shall be pursuant to the criteria, standards, or requirements prescribed by the United States nuclear regulatory commission in 10 C.F.R. §20.1 et seq. and by the United States environmental protection agency.

R 323.1060 Plant nutrients.

Rule 60. (1) Consistent with Great Lakes protection, phosphorus which is or may readily become available as a plant nutrient shall be controlled from point source discharges to achieve 1 milligram per liter of total phosphorus as a maximum monthly average effluent concentration unless other limits, either higher or lower, are deemed necessary and appropriate by the department.

(2) In addition to the protection provided under subrule (1) of this rule, nutrients shall be limited to the extent necessary to prevent stimulation of growths of aquatic rooted, attached, suspended, and floating plants, fungi or bacteria which are or may become injurious to the designated uses of the surface waters of the state.

R 323.1062 Microorganisms.

Rule 62. (1) All surface waters of the state protected for total body contact recreation shall not contain more than 130 Escherichia coli (E. coli) per 100 milliliters, as a 30-day geometric mean. Compliance shall be based on the geometric mean of all individual samples taken during 5 or more sampling events representatively spread over a 30-day period. Each sampling event shall consist of 3 or more samples taken at representative locations within a defined sampling area. At no time shall the surface waters of the state protected for total body contact recreation contain more than a maximum of 300 E. coli per 100 milliliters. Compliance shall be based on the geometric mean of 3 or more samples taken during the same sampling event at representative locations within a defined sampling area.

(2) All surface waters of the state protected for partial body contact recreation shall not contain more than a maximum of 1,000 E. coli per 100 milliliters. Compliance shall be based on the geometric mean of 3 or more samples, taken during the same sampling event, at representative locations within a defined sampling area.

(3) Discharges containing treated or untreated human sewage shall not contain more than 200 fecal coliform bacteria per 100 milliliters, based on the geometric mean of all of 5 or more samples taken over a 30-day period, nor more than 400 fecal coliform bacteria per 100 milliliters, based on the geometric mean of all of 3 or more samples taken during any period of discharge not to exceed 7 days. Other indicators of adequate disinfection may be utilized where approved by the department.

(4) The department may suspend the provisions of subrule (3) of this rule, for the purpose of discharge permit issuance, from November 1 to April 30, upon an adequate demonstration by the applicant that designated uses will be protected. At a minimum, the provisions of subrule (2) of this rule shall be met.

(5) Acceptable levels of infectious organisms that are not specifically addressed by the provisions of subrules (1), (2), and (3) of this rule shall be established by the department on a case-by-case basis to assure that designated uses are protected.

R 323.1064 Dissolved oxygen in Great Lakes, connecting waters, and inland streams.

Rule 64. (1) A minimum of 7 milligrams per liter of dissolved oxygen in all Great Lakes and connecting waterways shall be maintained, and, except for inland lakes as prescribed in R 323.1065, a minimum of 7 milligrams per liter of dissolved oxygen shall be maintained at all times in all inland waters designated by these rules to be protected for coldwater fish. In all other waters, except for inland lakes as prescribed by R 323.1065, a minimum of 5 milligrams per liter of dissolved oxygen shall be maintained. These standards do not apply for a limited warmwater fishery use subcategory or limited coldwater fishery use subcategory established pursuant to R 323.1100(11) or during those periods when the standards specified in subrule (2) of this rule apply.

(2) Surface waters of the state which do not meet the standards set forth in subrule (1) of this rule shall be upgraded to meet those standards. The department may issue permits pursuant to R 323.2145 which establish schedules to achieve the standards set forth in subrule (1) of this rule for point source discharges to surface waters which do not meet the standards set forth in subrule (1) of this rule and which commenced discharge before December 2, 1986. For point source discharges which commenced before December 2, 1986, the dischargers may demonstrate to the department that the dissolved oxygen standards specified in subrule (1) of this rule are not attainable through further feasible and prudent reductions in their discharges or that the diurnal variation between the daily average and daily minimum dissolved oxygen concentrations in those waters exceeds 1 milligram per liter, further reductions in oxygen-consuming substances from such discharges will not be required, except as necessary to meet the interim standards specified in this subrule, until comprehensive plans to upgrade these waters to the standards specified in subrule (1) of this rule have been approved by the department and orders, permits, or other actions necessary to implement the approved plans have been issued by the department. In the interim, all of the following standards apply:

(a) For surface waters of the state designated for use for coldwater fish, except for inland lakes as prescribed in R 323.1065, the dissolved oxygen shall not be lowered below a minimum of 6 milligrams per liter at the design flow during the warm weather season in accordance with R 323.1090(2) and (3). At the design flows during other seasonal periods, as provided in R 323.1090(3), a minimum of 7 milligrams per liter shall be maintained. At flows greater than the design flows, dissolved oxygen shall be higher than the respective minimum values specified in this subdivision.

(b) For surface waters of the state designated for use for warmwater fish and other aquatic life, except for inland lakes as prescribed in R 323.1065, the dissolved oxygen shall not be lowered below a minimum of 4 milligrams per liter, or below 5 milligrams per liter as a daily average, at the design flow during the warm weather season in accordance with R 323.1090(3) and (4). At the design flows during other seasonal periods as provided in R 323.1090(3), a minimum of 5 milligrams per liter shall be maintained. At flows greater than the design flows, dissolved oxygen shall be higher than the respective minimum values specified in this subdivision.

(c) For surface waters of the state designated for use for warmwater fish and other aquatic life, but also designated as principal migratory routes for anadromous salmonids, except for inland lakes as prescribed in R 323.1065, the dissolved oxygen shall not be lowered below 5 milligrams per liter as a minimum during periods of migration.

(3) The department may cause a comprehensive plan to be prepared to upgrade waters to the standards specified in subrule (1) of this rule taking into consideration all factors affecting dissolved oxygen in these waters and the cost effectiveness of control measures to upgrade these waters and, after notice and hearing, approve the plan. After notice and hearing, the department may amend a comprehensive plan for cause. In undertaking the

comprehensive planning effort the department shall provide for and encourage participation by interested and impacted persons in the affected area. Persons directly or indirectly discharging substances which contribute towards these waters not meeting the standards specified in subrule (1) of this rule may be required after notice and order to provide necessary information to assist in the development or amendment of the comprehensive plan. Upon notice and order, permit, or other action of the department, persons directly or indirectly discharging substances which contribute toward these waters not meeting the standards specified in subrule (1) of this rule shall take the necessary actions consistent with the approved comprehensive plan to control these discharges to upgrade these waters to the standards specified in subrule (1) of this rule.

R 323.1065 Dissolved oxygen; inland lakes.

Rule 65. (1) The following standards for dissolved oxygen shall apply to the lakes designated for coldwater fish in R 323.1100(4) and (6):

(a) In stratified coldwater lakes which have dissolved oxygen concentrations less than 7 milligrams per liter in the upper half of the hypolimnion, a minimum of 7 milligrams per liter dissolved oxygen shall be maintained throughout the epilimnion and upper 1/3 of the thermocline during stratification. Lakes capable of sustaining oxygen throughout the hypolimnion shall maintain oxygen throughout the hypolimnion. At all other times, dissolved oxygen concentrations greater than 7 milligrams per liter shall be maintained.

(b) Except for lakes described in subdivision (c) of this subrule, in stratified coldwater lakes which have dissolved oxygen concentrations greater than 7 milligrams per liter in the upper half of the hypolimnion, a minimum of 7 milligrams per liter of dissolved oxygen shall be maintained in the epilimnion, thermocline, and upper half of the hypolimnion. Lakes capable of sustaining oxygen throughout the hypolimnion shall maintain oxygen throughout the hypolimnion. At all other times, dissolved oxygen concentrations greater than 7 milligrams per liter shall be maintained.

(c) In stratified coldwater lakes which have dissolved oxygen concentrations greater than 7 milligrams per liter throughout the hypolimnion, a minimum of 7 milligrams per liter shall be maintained throughout the lake.

(d) In unstratified coldwater lakes, a minimum of 7 milligrams per liter of dissolved oxygen shall be maintained throughout the lake.

(2) For all other inland lakes not specified in subrule (1) of this rule, during stratification, a minimum dissolved oxygen concentration of 5 milligrams per liter shall be maintained throughout the epilimnion. At all other times, dissolved oxygen concentrations greater than 5 milligrams per liter shall be maintained.

R 323.1069 Temperature; general considerations.

Rule 69. (1) In all surface waters of the state, the points of temperature measurement normally shall be in the surface 1 meter; however, where turbulence, sinking plumes, discharge inertia or other phenomena upset the natural thermal distribution patterns of receiving waters, temperature measurements shall be required to identify the spatial characteristics of the thermal profile.

(2) Monthly maximum temperatures, based on the ninetieth percentile occurrence of natural water temperatures plus the increase allowed at the edge of the mixing zone and in part on long-term physiological needs of fish, may be exceeded for short periods when natural water temperatures exceed the ninetieth percentile occurrence. Temperature increases during these periods may be permitted by the department, but in all cases shall

not be greater than the natural water temperature plus the increase allowed at the edge of the mixing zone.

(3) Natural daily and seasonal temperature fluctuations of the receiving waters shall be preserved.

R 323.1070 Temperature of Great Lakes and connecting waters.

Rule 70. (1) The Great Lakes and connecting waters shall not receive a heat load which would warm the receiving water at the edge of the mixing zone more than 3 degrees Fahrenheit above the existing natural water temperature.

(2) The Great Lakes and connecting waters shall not receive a heat load which would warm the receiving water at the edge of the mixing zone to temperatures in degrees Fahrenheit higher than the following monthly maximum temperature:

(a) Lake Michigan north of a line due west from the city of Pentwater.

J	F	M	A	M	J	J	A	S	O	N	D
40	40	40	50	55	70	75	75	75	65	60	45

(b) Lake Michigan south of a line due west from the city of Pentwater.

J	F	M	A	M	J	J	A	S	0	N	D
45	45	45	55	60	70	80	80	80	65	60	50

(c) Lake Superior and the St. Marys river:

J	F	M	A	M	J	J	A	S	0	N	D
38	36	39	46	53	61	71	74	71	61	49	42

(d) Lake Huron north of a line due east from Tawas point:

J	F	M	A	M	J	J	A	S	0	N	D
40	40	40	50	60	70	75	80	75	65	55	45

(e) Lake Huron south of a line due east from Tawas point, except Saginaw bay.

J	F	M	A	M	J	J	A	S	0	N	D
40	40	40	55	60	75	80	80	80	65	55	45

(f) Lake Huron, Saginaw bay:

J	F	M	A	M	J	J	A	S	0	N	D
45	45	45	60	70	75	80	85	78	65	55	45

(g) St. Clair river:

J	F	M	A	M	J	J	A	S	0	N	D
40	40	40	50	60	70	75	80	75	65	55	50

(h) Lake St. Clair:

J	F	M	A	M	J	J	A	S	0	N	D
40	40	45	55	70	75	80	83	80	70	55	45

(i) Detroit river:

J	F	M	A	M	J	J	A	S	0	N	D
40	40	45	60	70	75	80	83	80	70	55	45

(j) Lake Erie:

J	F	M	A	M	J	J	A	S	0	N	D
45	45	45	60	70	75	80	85	80	70	60	50

R 323.1072 Temperature: inland lakes, general standards.

Rule 72. Inland lakes shall not receive a heat load which would:

(a) Increase the temperature of the thermocline or hypolimnion or decrease the volume thereof.

(b) Increase the temperature of the receiving waters at the edge of the mixing zone more than 3 degrees Fahrenheit above the existing natural water temperature.

(c) Increase the temperature of the receiving waters at the edge of the mixing zone to temperatures greater than the following monthly maximum temperatures:

J	F	M	A	M	J	J	A	S	0	N	D
45	45	50	60	70	75	80	85	80	70	60	50

R 323.1073 Temperature; inland lakes, anadromous salmonid migrations.

Rule 73. Warmwater inland lakes which serve as principal migratory routes for anadromous salmonids shall not receive a heat load during periods of migration at such locations and in a manner which may adversely affect salmonid migration or raise the receiving water temperature at the edge of the mixing zone more than 3 degrees Fahrenheit above the existing natural water temperature.

R 323.1075 Temperature of rivers, streams, and impoundments.

Rule 75. (1) Rivers, streams, and impoundments naturally capable of supporting coldwater fish shall not receive a heat load which would do either of the following:

(a) Increase the temperature of the receiving waters at the edge of the mixing zone more than 2 degrees Fahrenheit above the existing natural water temperature.

(b) Increase the temperature of the receiving waters at the edge of the mixing zone to temperatures greater than the following monthly maximum temperatures:

J	F	M	A	M	J	J	A	S	0	N	D
38	38	43	54	65	68	68	68	63	56	48	40

(2) Rivers, streams, and impoundments naturally capable of supporting warmwater fish shall not receive a heat load which would warm the receiving water at the edge of the mixing zone more than 5 degrees Fahrenheit above the existing natural water temperature.

(3) Rivers, streams, and impoundments naturally capable of supporting warmwater fish shall not receive a heat load which would warm the receiving water at the edge of the mixing zone to temperatures greater than the following monthly maximum temperatures:

(a) For rivers, streams, and impoundments north of a line between Bay City, Midland, Alma and North Muskegon:

J	F	M	A	M	J	J	A	S	0	N	D
38	38	41	56	70	80	83	81	74	64	49	39

(b) For rivers, streams, and impoundments south of a line between Bay City, Midland, Alma, and North Muskegon, except the St. Joseph river:

J	F	M	A	M	J	J	A	S	0	N	D
41	40	50	63	76	84	85	85	79	68	55	43

(c) St. Joseph river:

J	F	M	A	M	J	J	A	S	0	N	D
50	50	55	65	75	85	85	85	85	70	60	50

(4) Non-trout rivers and streams that serve as principal migratory routes for anadromous salmonids shall not receive a heat load during periods of migration at such locations and in a manner which may adversely affect salmonid migration or raise the receiving water temperature at the edge of the mixing zone more than 5 degrees Fahrenheit above the existing natural water temperature.

R 323.1082 Mixing zones.

Rule 82. (1) A mixing zone is that portion of a water body allocated by the department where a point source or venting groundwater discharge is mixed with the surface waters of the state. Exposure in mixing zones shall not result in deleterious effects to populations of aquatic life or wildlife. As a minimum restriction, the final acute value (FAV) for aquatic life shall not be exceeded when determining a wasteload allocation (WLA) for acute aquatic life protection, unless it is determined by the department that a higher level is acceptable or it can be demonstrated to the department that an acute mixing zone is acceptable consistent with subrule (7) of this rule. The mixing zone shall not prevent the passage of fish or fish food organisms in a manner that would result in adverse impacts on the immediate or future populations of the fish or fish food organisms. The area of mixing zones shall be minimized. To this end, devices for rapid mixing, dilution, and dispersion are encouraged where practicable. A watercourse or portions of a watercourse that, without 1 or more point source discharges, would have no flow except during periods of surface runoff may be considered as a mixing zone for a point source discharge. A mixing zone established in this manner shall not apply to pollutants of initial focus specified in 40 C.F.R. §132 (1995) unless a site-specific determination under R 323.1057(2) has been conducted that shows that the existing and expected aquatic life in the watercourse will be adequately protected in the absence of chronic aquatic life water quality values.

(2) Unless otherwise stated in this rule, not more than 25% of the receiving water design flow for lotic systems, as stated in R 323.1090(2), shall be used when determining a whole effluent toxicity limit or a wasteload allocation for a toxic substance, in the absence of, or consistent with, a total maximum daily load, unless it can be demonstrated to the department that the use of a larger volume is acceptable consistent with subrule (7) of this rule.

(3) For ammonia and substances not included in subrule (2) of this rule, the design flow for lotic systems, as stated in R 323.1090(2)(a) or (3), shall be used when determining WLAs if the provisions in subrule (1) of this rule are met, unless the department determines that a more restrictive volume is necessary.

(4) For all substances, physical mixing zone boundaries may be established and shall be determined by the department on a case-by-case basis.

(5) Mixing zones in the Great Lakes and inland lakes for the purpose of determining WLAs and WET limits shall assume no greater dilution than 1 part effluent to 10 parts receiving water, unless it can be demonstrated to the department that use of a larger volume is acceptable consistent with subrule (7) of this rule. Except for ammonia, a larger mixing zone shall not be granted if it exceeds the area where discharge-induced mixing occurs*.* Mixing zones established under this subrule for thermal discharges to meet the Great Lakes and inland lake requirements of R 323.1069, R 323.1070, R 323.1072, R 323.1073, and R 323.1075 shall be determined by the department on a case-by-case basis.

(6) In addition to subrules (1), (2), (4), and (5) of this rule, the following provisions are applicable to bioaccumulative chemicals of concern (BCCs) when establishing WLAs:

(a) There shall be no mixing zones available for new discharges of BCCs to the surface waters of the state.

(b) Mixing zones for BCCs may be allowed for existing discharges to the surface waters of the state through November 14, 2010, pursuant to the provisions of this rule. After this date, except as provided in subdivisions (c) and (d) of this subrule, permits shall not authorize mixing zones for existing discharges of BCCs to the surface waters of the state, and WLAs for such discharges shall be set equal to the most stringent water quality value for that BCC.

(c) The department may grant mixing zones for any existing discharge of BCCs to the surface waters of the state where it can be demonstrated, on a case-by-case basis, that failure to grant a mixing zone would preclude water conservation measures that would lead to overall load reductions in BCCs.

(d) Upon the request of an existing discharger of a BCC to the surface waters of the state, the department may grant mixing zones beyond November 14, 2010, based upon technical and economic considerations, subject to all of the following provisions:

(i) The department must determine that all of the following provisions are satisfied:

(A) The discharger is in compliance with, and will continue to implement, all applicable technology-based treatment and pretreatment requirements of the clean water act of 1972, as amended, 33 U.S.C. §§301, 302, 304, 306, 307, 401, and 402, and is in compliance with its existing NPDES WQBELs, including those based on a mixing zone.

(B) The discharger has reduced, and will continue to reduce, to the maximum extent possible, the loading of the BCC for which a mixing zone is requested, by the use of cost-effective controls or pollution-prevention alternatives that have been adequately demonstrated and are reasonably available to the discharger.

(C) The discharger has evaluated alternative means of reducing the BCC elsewhere in the watershed.

(ii) In making the determination in paragraph (i) of this subdivision, the department shall consider all of the following factors:

(A) The availability and feasibility, including cost effectiveness, of additional controls or pollution prevention measures for reducing and ultimately eliminating BCCs for the discharger, including additional controls or pollution prevention measures used by similar dischargers for reducing and ultimately eliminating BCCs.

(B) Whether the discharger or affected communities will suffer unreasonable economic effects if the mixing zone is eliminated.

(C) The extent to which the discharger will implement an ambient monitoring plan to ensure compliance with water quality values at the edge of any authorized mixing zone.

(D) Other information the department deems appropriate.

(iii) Any exceptions to the mixing zone elimination provision for existing discharges of BCCs granted pursuant to this subdivision shall comply with all of the following provisions:

(A) Not result in any less stringent limitations than the limitations that existed on July 29, 1997.

(B) Be limited to 1 permit term unless the department makes a new determination in accordance with this subrule for each successive permit application in which a mixing zone for the BCC is sought.

(C) Not likely jeopardize the continued existence of any endangered or threatened species listed or proposed under section 4 of the endangered species act or result in the destruction or adverse modification of the species' critical habitat.

(iv) For each draft NPDES permit that allows a mixing zone for a BCC after November 14, 2010, the NPDES fact sheet shall specify relevant information used to establish the mixing zone, including the mixing provisions used in calculating the permit limits and the identity of each BCC for which a mixing zone is proposed.

(7) For purposes of establishing a mixing zone other than as specified in subrules (1), (2), and (5) of this rule, a mixing zone demonstration shall be submitted to the department for approval and all of the following provisions apply:

(a) The mixing zone demonstration shall include all of the following:

(i) A description of the amount of dilution occurring 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.

(ii) For sources discharging to the Great Lakes and inland lakes, a definition of the location at which discharge-induced mixing ceases.

(iii) Documentation of the substrate character within the mixing zone.

(iv) Confirmation that the mixing zone does not interfere with or block the passage of fish or aquatic life.

(v) Confirmation that the mixing zone would not likely jeopardize the continued existence of any endangered or threatened species listed or proposed under section 4 of the endangered species act or result in the destruction or adverse modification of the species' critical habitat.

(vi) Confirmation that the mixing zone does not extend to a public water supply source pursuant to R 323.1100(8).

(vii) Confirmation that the mixing zone would not interfere with the designated or existing uses of the receiving water or downstream waters.

(viii) Documentation of background water quality concentrations.

(ix) Confirmation that the mixing zone does not promote undesirable aquatic life or result in a dominance of nuisance species.

(x) Confirmation that, by allowing additional mixing/dilution, the following will not occur:

(A) The formation of objectionable deposits.

(B) The concentration of floating debris, oil, scum, and other matter in concentrations that form nuisances.

(C) The production of objectionable color, odor, taste, or turbidity.

(b) The mixing zone demonstration shall also address all of the following items:

(i) Whether or not adjacent mixing zones overlap.

(ii) Whether organisms would be attracted to the area of mixing as a result of the effluent character.

(iii) Whether the habitat supports endemic or naturally occurring species.

(iv) Why an increased mixing zone is necessary.

(v) Describe any pollution prevention measures that were evaluated to eliminate the need for an increased mixing zone.

(c) The mixing zone demonstration shall be based on the assumption that environmental fate or other physical, chemical, or biological factors do not affect the concentration of the toxic substance in the water column, within the proposed mixing zone, unless both of the following occur:

(i) Scientifically valid field studies or other relevant information demonstrate that degradation of the toxic substance is expected to occur during typical environmental conditions expected to be encountered.

(ii) Scientifically valid field studies or other relevant information address other factors that affect the level of toxic substances in the water column, including all of the following factors:

(A) Sediment release or resuspension.

(B) Chemical speciation.

(C) Biological and chemical transformation.

R 323.1090 Applicability of water quality standards.

Rule 90. (1) The requirements prescribed by these rules shall not apply within mixing zones, except for the requirements prescribed in R 323.1050, or as otherwise specified by these rules.

(2) Water quality standards prescribed by these rules are minimally acceptable water quality conditions and shall apply at all flows equal to or exceeding the design flows, except where the department determines that a more restrictive design flow is necessary. The design flows in lotic systems shall be as follows:

(a) Unless otherwise stated in this rule, the design flow is equal to the lowest of the 12 monthly 95% exceedance flows. The 95% exceedance flow is the flow equal to or exceeded 95% of the time for the specified month.

(b) For human health values, the design flow is equal to the harmonic mean flow.

(c) For wildlife values, the design flow is equal to the 90-day, 10-year low flow (90Q10).

(3) A maximum of 4 seasonal design flows may be granted when determining surface water effluent limitations for ammonia or substances not addressed by R 323.1057 if it is determined by the department that the use of such design flows will protect water quality and be consistent with the protection of the public health, safety, and welfare. The seasonal design flows shall be the lowest of the monthly 95% exceedance flow for the months in each season.

(4) Alternate design flows may be used for intermittent wet weather discharges as necessary to protect the designated uses of the receiving water.

R 323.1092 Applicability of water quality standards to dredging or construction activities.
Rule 92. Unless the department determines, after consideration of dilution and dispersion, that such activities result in unacceptable adverse impacts on designated uses, the water quality standards prescribed by these rules shall not apply to dredging or construction activities within the surface waters of the state where such activities occur or during the periods of time when the aftereffects of dredging or construction activities degrade water quality within such waters of the state, if the dredging operations or construction activities have been authorized by the United States army corps of engineers or the department. The water quality standards shall apply, however, in nonconfined surface waters of the state utilized for the disposal of spoil from dredging operations, except within spoil disposal sites specifically defined by the United States army corps of engineers or the department.

R 323.1096 Determinations of compliance with water quality standards.
Rule 96. Analysis of the surface waters of the state to determine compliance with the water quality standards prescribed by these rules shall be made pursuant to procedures outlined in 40 C.F.R. §136 (2000), which are adopted by reference in R 323.1117 or other methods prescribed or approved by the department.

R 323.1097 Materials applications not subject to standards.
Rule 97. The application of materials for water resource management projects pursuant to state statutory provisions is not subject to the standards prescribed by these rules, but all projects shall be reviewed and approved by the department before application.

R 323.1098 Antidegradation.
Rule 98. (1) This rule applies to any action or activity pursuant to part 31 of Act No. 451 of the Public Acts of 1994, as amended, being §324.3101 et seq. of the Michigan Compiled Laws, that is anticipated to result in a new or increased loading of pollutants by any source to surface waters of the state and for which independent regulatory authority exists requiring compliance with water quality standards.
(2) For all waters, the level of water quality necessary to protect existing uses shall be maintained and protected. Where designated uses of the water body are not attained, there shall be no lowering of the water quality with respect to the pollutant or pollutants that are causing the nonattainment.
(3) Where, for individual pollutants, the quality of the waters is better than the water quality standards prescribed by these rules, that water shall be considered high quality and that quality shall be maintained and protected unless allowing lower water quality is necessary to accommodate important economic or social development in the area in which the waters are located. For high quality waters, no action resulting in the lowering of water quality shall occur unless the provisions of this rule have been complied with.
(4) A person applying for a control document in a high quality water or a Lake Superior basin - outstanding international resource water for a new or increased loading of pollutants shall show how the discharge is exempted under subrule (8) or (9) of this rule or provide a demonstration as follows:
(a) The applicant shall identify the social or economic development and the benefits to the area in which the waters are located that would be foregone if the new or increased loading of pollutants is not allowed. The factors to be addressed may include any of the following:
(i) Employment increases.

(ii) Production level increases.
(iii) Employment reductions avoidance.
(iv) Efficiency increases.
(v) Industrial, commercial, or residential growth.
(vi) Environmental or public health problem corrections.
(vii) Economic or social benefits to the community.

(b) For discharges of BCCs that result from operations at the facility, the applicant shall include an identification of the alternatives evaluated and the alternatives to be implemented to comply with the following requirements:

(i) The discharger shall minimize the new or increased loading of the BCC by implementation of any cost-effective pollution prevention alternatives and techniques which have been adequately demonstrated and which are reasonably available to the discharger that would eliminate or significantly reduce the new or increased loading of the BCC.

(ii) If pollution prevention alternatives implemented under paragraph (i) of this subdivision do not eliminate the new or increased loading of the BCC, then the discharger shall evaluate alternative or enhanced treatment techniques which have been adequately demonstrated and which are reasonably available to the discharger that would eliminate the new or increased loading of the BCC and shall implement the techniques that have a cost that is reasonable relative to the cost of treatment necessary to achieve applicable effluent limitations.

(iii) If the new or increased loading is a point source discharge to a Lake Superior basin-outstanding international resource water as defined in subrule (7) of this rule and if the BCC of concern is a LSB-BSIC, then the requirements of paragraph (ii) of this subdivision do not apply. If the pollution prevention alternatives implemented under paragraph (i) of this subdivision do not eliminate the new or increased loading of the LSB-BSIC to a Lake Superior basin-outstanding international resource water, then the discharger shall evaluate and implement the best technology in process and treatment (BTPT) that would eliminate or reduce the new or increased loading of the LSB-BSIC. BTPT shall be the most advanced treatment techniques which have been adequately demonstrated and which are reasonably available to the discharger. However, innovative or experimental technology shall also be considered if proposed by the discharger. Upon demonstration by the permittee, the requirement to implement BTPT may be waived by the department for new or increased loadings of LSB-BSICs that occur as trace contaminants in naturally occurring raw materials at the facility. If the BTPT requirement is waived, then the requirements of paragraph (ii) of this subdivision shall apply.

(5) If the department determines that the antidegradation demonstration information from subrule (4) of this rule shows that lowering of water quality is necessary to support important social and economic development in the area and that, if applicable, BTPT will be implemented consistent with subrule (4)(b)(iii) of this rule, then the department shall authorize the lowering of water quality through issuance of the control document. In no event may this decision allow water quality to be lowered below the minimum level required to fully support the designated uses. The antidegradation demonstration shall be available to the public for review during any public comment period on the control document.

(6) If high quality water bodies are designated outstanding state resource waters (OSRW) by the department, then controls shall be applied on pollutant sources to the OSRW or tributaries so that the water quality is not lowered in the OSRW. A short-term, temporary, for example, weeks or months, lowering of water quality in the OSRW may be permitted by the department on a case-by-case basis. The following water bodies are designated as OSRWs:

(a) The following water bodies designated as wild rivers pursuant to the Michigan scenic rivers act of 1991, 16 U.S.C. §1271 et seq:

(i) The Carp river (Mackinac county) - the 7.5-mile segment from Michigan state highway 123, T42N, R5W, section 2, to 1/4 of a mile upstream from forest development road 3119, T42N, R4W, section 4.

(ii) The Carp river (Mackinac county) - the 4.9-mile segment from 1/4 of a mile downstream of forest development road 3119, T42N, R4W, section 3, to McDonald rapids.

(iii) The east branch of the Ontonagon river (Houghton and Ontonagon counties) - the 25.5-mile segment from the east branch of the Ontonagon river's confluence with an unnamed stream in T48N, R37W, section 30, to the Ottawa national forest boundary, T50W, R38W, section 33.

(iv) The middle branch of the Ontonagon river (Ontonagon county) - the 17.4-mile segment from Trout creek, T48N, R38W, section 20, to the northern boundary of the Ottawa national forest, T50N, R39W, section 12.

(v) The Sturgeon river (Baraga and Houghton counties) - the 16.5-mile segment from the Sturgeon river's entry into the Ottawa national forest, T48N, R35W, section 12, to Prickett lake.

(vi) The east branch of the Tahquamenon river (Chippewa county) - the 3.2-mile segment from the center of T46N, R6W, section 20, to the boundary of the Hiawatha national forest, T46N, R6W, section 19.

(vii) The Yellow Dog river (Marquette county) - the 4-mile segment from the Yellow Dog river's origin at the outlet of Bulldog lake dam, T50N, R29W, section 31, to the boundary of the Ottawa national forest, T50N, R29W, section 17.

(b) The main, north, south, east, and west branches of the Two-Hearted river and Dawson creek from their headwaters to the mouth of the river at Lake Superior, which are designated as wilderness rivers pursuant to part 305 of Act No. 451 of the Public Acts of 1994, as amended, being §324.30501 et seq. of the Michigan Compiled Laws.

(c) Water bodies within the designated boundaries of the following national parks or national lakeshores:

(i) Sleeping bear dunes national lakeshore.

(ii) Pictured rocks national lakeshore.

(iii) Isle royale national park.

(7) All surface waters of the Lake Superior basin that are not identified as OSRWs are designated as Lake Superior basin - outstanding international resource waters (LSB-OIRW). Under the LSB-OIRW designation, new or increased loadings of any LSB-BSIC from point sources to the surface waters of the Lake Superior basin are prohibited unless the new or increased loading of a LSB-BSIC is consistent with the requirements of this rule.

(8) Except for water bodies designated as OSRWs, or as the department may determine on a case-by-case basis that the application of the procedures in this rule are required to adequately protect water quality, the following do not constitute a lowering of water quality.

(a) The short-term, temporary, for example, weeks or months, lowering of water quality.

(b) Bypasses that are not prohibited by regulations set forth in 40 C.F.R. §122.41(m) (1995).

(c) Response actions undertaken to alleviate a release into the environment of pollutants that may pose an imminent and substantial danger to the public health or welfare under any of the following:

(i) The comprehensive environmental response, compensation and liability act of 1980, (CERCLA), as amended, 42 U.S.C. §9601 et seq.

(ii) The resource conservation and resource recovery act of 1976, as amended, 42 U.S.C. §6901 et seq.

(iii) Part 201 of Act No. 451 of the Public Acts of 1994, as amended, being §§324.20101 to 324.20141 of the Michigan Compiled Laws.

(iv) Part 213 of Act No. 451 of the Public Acts of 1994, as amended, being §§324.21301 to 324.21331 of the Michigan Compiled Laws.

(v) Part 31 of Act No. 451 of the Public Acts of 1994, as amended, being §§324.3101 to 324.3119 of the Michigan Compiled Laws.

(d) Discharges of pollutant quantities from the intake water at a facility proposing a new or increased loading of a pollutant, if the intake and discharge are on the same body of water.

(e) Increasing the sewered area, connecting new sewers and customers, or accepting trucked-in wastes, such as septage and holding tank wastes, by a publicly owned treatment works, if the increase is within the design flow of the facility, there is no increased loading due to nondomestic wastes from a significant industrial user for BCCs that are not specifically limited in the current permit, and there is no significant change expected in the characteristics of the wastewater collected.

(f) Intermittent increased loadings related to wet-weather conditions.

(g) New or increased loadings due to implementation of department-approved industrial or municipal controls on wet-weather related flows, including combined sewer overflows and industrial storm water.

(h) New or increased loadings authorized by certificates of coverage under NPDES general permits and notices of coverage for storm water from construction activities.

(i) Increased non-BCC loadings within the authorized levels of a limit in an existing control document.

(j) Increased BCC loadings within the authorized levels of a limit in an existing control document, except for those BCC loadings that result from actions by the permittee that would otherwise require submittal of an increased use request.

(k) New or increased loadings at a site where there is a simultaneous enforceable decrease in the allowed loading of the pollutant under consideration from sources contributing to the receiving water body, such that there is no net increase in the loading of the pollutant to the water body at that site consistent with trading rules established by the department.

(9) Except for water bodies designated as OSRWs, the following do not constitute a lowering of water quality:

(a) Increased loadings within the existing capacity and processes that are covered by the existing applicable control document, including the following:

(i) Normal operational variability.

(ii) Changes in intake water pollutants.

(iii) Increasing the production hours of the facility, for example, adding a second shift.

(iv) Increasing the rate of production.

(b) Changes in a control document that are not a result of changes in pollutant loading, but are the result of any of the following:

(i) Improved monitoring data.

(ii) New or improved analytical methods or sensitivity.

(iii) New or modified water quality values.

(c) Increased loadings of a pollutant which do not involve a BCC and which use less than 10% of the unused loading capacity that exists at the time of the request.

R 323.1099 Rescinded.

R 323.1100 Designated uses.

Rule 100. (1) At a minimum, all surface waters of the state are designated and protected for all of the following uses:

(a) Agriculture.

(b) Navigation.

(c) Industrial water supply.

(d) Warmwater fishery.

(e) Other indigenous aquatic life and wildlife.

(f) Partial body contact recreation.

(g) Fish consumption.

(2) All surface waters of the state are designated and protected for total body contact recreation from May 1 to October 31 in accordance with the provisions of R 323.1062. Total body contact recreation immediately downstream of wastewater discharges, areas of significant urban runoff, combined sewer overflows, and areas influenced by certain agricultural practices is contrary to prudent public health and safety practices, even though water quality standards may be met.

(3) If designated uses are interrupted due to uncontrollable circumstances during or following flood conditions, accidental spillages, or other emergencies, then notice shall be served upon entities affected by the interruption in accordance with procedures established by the department. Prompt corrective action shall be taken by the discharger to restore the designated uses.

(4) All inland lakes identified in the publication entitled "Coldwater Lakes of Michigan," as published in 1976 by the department of natural resources, are designated and protected for coldwater fisheries.

(5) All Great Lakes and their connecting waters, except for the entire Keweenaw waterway, including Portage lake, Houghton county, and Lake St. Clair, are designated and protected for coldwater fisheries.

(6) All lakes listed in the publication entitled "Designated Trout Lakes and Regulations," issued September 10, 1998, by the director of the department of natural resources under the authority of part 411 of 1994 PA 451, MCL 324.41101 et seq., are designated and protected for coldwater fisheries.

(7) All waters listed in the publication entitled "Designated Trout Streams for the State of Michigan," Director’s Order No. DFI-101.97, by the director of the department of natural resources under the authority of section 48701(m) of 1994 PA 451, MCL 324.48701(m) are designated and protected for coldwater fisheries.

(8) All surface waters of the state that are identified in the publication "Public Water Supply Intakes in Michigan," dated December 9, 1999, are designated and protected as public water supply sources at the point of water intake and in such contiguous areas as the department may determine necessary for assured protection. In addition, all Michigan waters of the Great Lakes and connecting waters shall meet the human cancer and human noncancer values for drinking water established pursuant to R 323.1057(4). The requirement to meet the human cancer and human noncancer values for drinking water shall not apply to pollutant loadings from a tributary in an area where a tributary mixes with the Great Lake, connecting water, or a waterbody that has been designated for use as a public water supply source, unless a water intake was located in this area on April 2, 1999.

(9) Water quality of all surface waters of the state serving as migratory routes for anadromous salmonids shall be protected as necessary to assure that migration is not adversely affected.

(10) Effluent discharges to wetlands that result in water quality that is inconsistent with that prescribed by these rules may be permitted after a use attainability analysis shows that designated uses are not and cannot be attained and shows that attainable uses will be protected.

(11) After completion of a comprehensive plan developed under R 323.1064(3), upon petition by a municipality or other person, and in conformance with the requirements of 40 C.F.R. §131.10 (1995), designation of uses, which are adopted by reference in R 323.1117, the department may determine that attainment of the dissolved oxygen standards of R 323.1064(1) is not feasible and designate, by amendment to this rule, a limited warmwater fishery use subcategory of the warmwater fishery use or a limited coldwater fishery use subcategory of coldwater fishery use. For waters so designated, the dissolved oxygen standards specified in the provisions of R 323.1064(2) and all other applicable standards of these rules apply. For waters so designated, the dissolved oxygen standards specified in R 323.1064(1) do not apply. Not less than 60 days before a municipality or other person files a petition pursuant to this subrule, a petitioner shall provide written notice to the department and the clerk of the municipalities in which the affected waters are located of the petitioner's intent to file a petition.

R 323.1103 Variances.

Rule 103. (1) A variance may be granted from any water quality standard (WQS) that is the basis of a water quality-based effluent limitation in a national pollutant discharge elimination system (NPDES) permit, as restricted by the following provisions:

(a) A WQS variance applies only to the permittee or permittees requesting the variance and only to the pollutant or pollutants specified in the variance. The variance does not modify the water quality standards for the water body as a whole.

(b) A variance shall not apply to new dischargers unless the proposed discharge is necessary to alleviate an imminent and substantial danger to the public health or welfare.

(c) A WQS variance shall not be granted that would likely jeopardize the continued existence of any endangered or threatened species listed under section 4 of the endangered species act or result in the destruction or adverse modification of the species' critical habitat.

(d) A WQS variance shall not be granted if the standard in the receiving water will be attained by implementing the treatment technology requirements under the clean water act of 1972, as amended, 33 U.S.C. §§301(b) and 306, and by the discharger implementing cost-effective and reasonable best management practices for nonpoint sources over which the discharger has control within the vicinity of the facility.

(e) The duration of a WQS variance shall not exceed the term of the NPDES permit. If the time frame of the variance is the same as the permit term, then the variance shall stay in effect until the permit is reissued or revoked.

(2) A variance may be granted if the permittee demonstrates to the department that attaining the WQS is not feasible for any of the following reasons:

(a) Naturally occurring pollutant concentrations prevent the attainment of the WQS.

(b) Natural, ephemeral, intermittent, or low flow conditions or water levels prevent the attainment of the WQS.

(c) Human-caused conditions or sources of pollution prevent the attainment of the WQS and cannot be remedied or more environmental damage would occur in correcting the conditions or sources of pollution than would occur by leaving the conditions or sources in place.

(d) Dams, diversions, or other types of hydrologic modifications preclude the attainment of the WQS, and it is not feasible to restore the water body to its original condition or to operate the modification in a way that would result in the attainment of the WQS.

(e) Physical conditions related to the natural features of the water body preclude attainment of WQS.

(f) Controls more stringent than the treatment technology requirements in the clean water act of 1972, as amended, 33 U.S.C. §§301(b) and 306 would result in unreasonable economic effects on the discharger and affected communities.

(3) In addition to the requirements of subrule (2) of this rule, a permittee shall do both of the following:

(a) Show that the variance requested conforms to the antidegradation demonstration requirements of R 323.1098.

(b) Characterize the extent of any increased risk to human health and the environment associated with granting the variance compared with compliance with WQS without the variance in a way that enables the department to conclude that the increased risk is consistent with the protection of the public health, safety, and welfare.

(4) A permittee may request a variance when a NPDES permit application is submitted or during permit development. A variance request may also be submitted with a request for a permit modification. The variance request to the department shall include the following information:

(a) All relevant information which demonstrates that attaining the WQS is not feasible based on 1 or more of the conditions in subrule (2) of this rule.

(b) All relevant information which demonstrates compliance with subrule (3) of this rule.

(5) The variance request shall be available to the public for review during the public comment period on the draft NPDES permit. The preliminary decision regarding the variance shall be included in the public notice of the draft NPDES permit. The department will notify the other Great Lakes states of the preliminary variance decision.

(6) If the department determines, based on the conditions of subrules (2) and (3) of this rule, that the variance request demonstrates that attaining the WQS is not feasible, then the department shall authorize the variance through issuance of the NPDES permit. The permit shall contain all conditions needed to implement the variance, including, at a minimum, all of the following conditions:

(a) That compliance with an effluent limitation that, at the time the variance is granted, represents the level currently achievable by the permittee. For an existing discharge, the effluent limitation shall be no less stringent than that achieved under the previous permit.

(b) That reasonable progress be made in effluent quality toward attaining the water quality standards. If the variance is approved for any BCC, a pollutant minimization program shall be conducted consistent with the provisions in paragraphs (i) through (iv) of R 323.1213(d). The department shall consider cost-effectiveness during the development and implementation of the pollutant minimization program.

(c) That if the duration of a variance is shorter than the duration of a permit, then compliance with an effluent limitation that is sufficient to meet the underlying water quality standard shall be achieved when the variance expires.

(7) The department shall deny a variance request through action on the NPDES permit if a permittee fails to make the demonstrations required under subrules (2) and (3) of this rule.

(8) A variance may be renewed, subject to the requirements of subrules (1) through (7) of this rule. As part of any renewal application, a permittee shall again demonstrate that attaining WQS is not feasible based on the requirements of subrules (2) and (3) of this rule. A permittee's application shall also contain information concerning the permittee's

compliance with the conditions incorporated into the permittee's permit as part of the original variance pursuant to subrule (6) of this rule.

(9) Notwithstanding the provision in subrule (1)(a) of this rule, the department may grant multiple discharger variances. If the department determines that a multiple discharger variance is necessary to address widespread WQS compliance issues, including the presence of ubiquitous pollutants or naturally high background levels of pollutants in a watershed, then the department may waive the variance demonstration requirements in subrules (2), (3), and (4) of this rule. A permittee that is included in the multiple discharger variance will be subject to the permit requirements of subrule (6) of this rule if it is determined under R 323.1211 that there is reasonable potential for the pollutant to exceed a permit limitation developed under to R 323.1209.

R 323.1105 Multiple designated uses.

Rule 105. When a particular portion of the surface waters of the state is designated for more than 1 use, the most restrictive water quality standards for 1 or more of those designated uses shall apply to that portion.

R 323.1116 Availability of documents.

Rule 116. The following documents referenced in this part are available for inspection at, and may be obtained at no cost from, the Lansing Office of the Department of Environmental Quality, P.O. Box 30458, Lansing, Michigan 48909:

(a) "Designated Trout Lakes and Regulations," September 10, 1998.

(b) "Coldwater Lakes of Michigan," August 1976.

(c) "Designated Trout Streams for the State of Michigan," Director's Order No. DFI-101.97.

(d) "Public Water Supply Intakes in Michigan," December 9, 1999.

R 323.1117 Adoption of standards by reference.

Rule 117. All of the following standards are adopted by reference in these rules. Copies are available for inspection at the Lansing office of the Department of Environmental Quality, may be obtained from the Department of Environmental Quality, P.O. Box 30458, Lansing, Michigan 48909, at a cost as of the time of adoption of these rules of 5 cents per page and a labor rate of $20.18 per hour, or may be otherwise obtained as indicated:

(a) "Guidelines Establishing Test Procedures for Analysis of Pollutants," 40 C.F.R. §136 et seq. (2000). Copies may be obtained from the Superintendent of Documents, Government Printing Office, Washington, DC 20402, at a cost as of the time of adoption of these rules of $61.00, or via the internet at http://www.access.gpo.gov/nara.

(b) "Standards for Protection Against Radiation," 10 C.F.R. §20 et seq. (1995). Copies may be obtained from the Superintendent of Documents, Government Printing Office, Washington, DC 20402, at a cost as of the time of adoption of these rules of $61.00, or via the internet at http://www.access.gpo.gov/nara.

(c) "Designation of Uses," 40 C.F.R. §131.10 (1995). Copies may be obtained from the Superintendent of Documents, Government Printing Office, Washington, DC 20402, at a cost as of the time of adoption of these rules of $43.00, or via the internet at http://www.access.gpo.gov/nara.

(d) "Standard Guide for Conducting Bioconcentration Tests with Fishes and Saltwater Bivalve Molluscs" ASTM standard E 1022-94, 1994. Copies may be obtained from the

American Society for Testing and Materials, 100 Barr Harbor Drive, West Conshohocken, Pennsylvania 19428-2959, at a cost as of the time of adoption of these rules of $45.60.

(e) "Conditions Applicable to all Permits," 40 C.F.R. §122.41(m) (1995). Copies may be obtained from the Superintendent of Documents, Government Printing Office, Washington, DC 20402, at a cost as of the time of adoption of these rules of $43.00, or via the internet at http://www.access.gpo.gov/nara.

(f) Gobas, F.A.P.C. 1993. "A Model for Predicting the Bioaccumulation of Hydrophobic Organic Chemicals in Aquatic Foodwebs: Applications to Lake Ontario," Ecological Modeling, volume 69, pages 1 to 17.

(g) Howe, R.B., K.S. Crump, and C. Van Landingham (1986), Global '86, "A Computer Program to Extrapolate Quantal Animal Toxicity Data to Low Doses," United States EPA, Research Triangle Institute, K.S. Crump and Company, Inc.

(h) "Table 6. – Pollutants of Initial Focus in the Great Lakes Water Quality Initiative," 40 C.F.R. §132 (1995). Copies may be obtained from the Superintendent of Documents, Government Printing Office, Washington, DC 20402, at a cost as of the time of adoption of these rules of $43.00, or via the internet at http://www.access.gpo.gov/nara.

(i) "Water Quality Standards Handbook, Second Edition, Section 3.7 – Site-specific Aquatic Life Criteria," EPA-823-b-94-005a, August 1994. Copies may be obtained from the National Service Center for Environmental Publications, P.O. Box 42419, Cincinnati, Ohio 45242-0419, or via the internet at http://www.epa.gov/ncepihom/index.htm , at no cost.

(j) "Recommendations for and Documentation of Biological Values for use in Risk Assessment," United States EPA, EPA/600/6-87/008, 1988.

(k) "Minimum Data Requirements," 40 C.F.R. §132, Appendix C, Item II, (1995). Copies may be obtained from the Superintendent of Documents, Government Printing Office, Washington, DC 20402, at a cost as of the time of adoption of these rules of $43.00, or via the internet at http://www.access.gpo.gov/nara.

(l) "Registry of Toxic Effects of Chemical Substances (RTECS) Comprehensive Guide to the RTECS," Publication Number 97-119, United States Department of Health and Human Services, National Institute for Occupational Safety and Health, July 1997. Copies may be obtained from the National Institute for Occupational and Institutional Health, 4676 Columbia Parkway, C13, Cincinnati, OH 45226, or via the internet at http://www.cdc.gov/niosh/97-119.html, at no cost.

(m) United States EPA (2001), “Streamlined Water-Effect Ratio Procedure for Discharges of Copper”, EPA-822-R-01-005, March 2001. Copies may be obtained from the National Service Center for Environmental Publications, P.O. Box 42419, Cincinnati, Ohio 45242-0419, or via the internet at http://www.epa.gov/waterscience/criteria/copper, at no cost.