

BEFORE THE ILLINOIS POLLUTION CONTROL BOARD

IN THE MATTER OF:

WATER QUALITY STANDARDS AND)
EFFLUENT LIMITATIONS FOR THE) R08-9 (D)
CHICAGO AREA WATERWAY SYSTEM) (Rulemaking – Water)
AND THE LOWER DES PLAINES RIVER:)
PROPOSED AMENDMENTS TO 35 ILL.)
ADM. CODE PARTS 301, 302, 303 and 304)

NOTICE OF FILING

TO: Mr. John T. Therriault	Ms. Marie E. Tipsord
Assistant Clerk of the Board	Hearing Officer
Illinois Pollution Control Board	Illinois Pollution Control Board
100 West Randolph Street	100 West Randolph Street
Suite 11-500	Suite 11-500
Chicago, Illinois 60601	Chicago, Illinois 60601
(VIA ELECTRONIC MAIL)	(VIA FIRST CLASS MAIL)

(SEE PERSONS ON ATTACHED SERVICE LIST)

PLEASE TAKE NOTICE that I have today filed with the Office of the Clerk of the Illinois Pollution Control Board **RESPONSES TO REQUESTS FOR INFORMATION MADE TO EXXONMOBIL WITNESS LIAL TISCHLER AT THE DECEMBER 17, 2013 HEARING**, a copy of which is herewith served upon you.

Respectfully submitted,

EXXONMOBIL OIL CORPORATION,

Dated: February 10, 2014

By: /s/ Katherine D. Hodge
Katherine D. Hodge

Katherine D. Hodge
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CERTIFICATE OF SERVICE

I, Katherine D. Hodge, the undersigned, hereby certify that I have served the attached **RESPONSES TO REQUESTS FOR INFORMATION MADE TO EXXONMOBIL WITNESS LIAL TISCHLER AT THE DECEMBER 17, 2013**

HEARING upon:

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Assistant Clerk of the Board
Illinois Pollution Control Board
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by depositing said documents in the United States Mail, postage prepaid, in Springfield,
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/s/ Katherine D. Hodge
Katherine D. Hodge

BEFORE THE ILLINOIS POLLUTION CONTROL BOARD

IN THE MATTER OF:

WATER QUALITY STANDARDS AND)	
EFFLUENT LIMITATIONS FOR THE)	R08-9 (D)
CHICAGO AREA WATERWAY SYSTEM)	(Rulemaking – Water)
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PROPOSED AMENDMENTS TO 35 ILL.)	
ADM. CODE PARTS 301, 302, 303 and 304)	

RESPONSES TO REQUESTS FOR INFORMATION MADE TO EXXONMOBIL WITNESS LIAL TISCHLER AT THE DECEMBER 17, 2013 HEARING

NOW COMES EXXONMOBIL OIL CORPORATION (“ExxonMobil”), by and through its attorneys, HODGE DWYER & DRIVER and submits the following RESPONSES TO REQUESTS FOR INFORMATION MADE TO EXXONMOBIL WITNESS LIAL TISCHLER AT THE DECEMBER 17, 2013 HEARING (“Response”).

I. INTRODUCTION

At the Illinois Pollution Control Board (“Board”) hearing in R08-09 Subdocket D on December 17, 2013, Board Member Deanna Glosser and Anand Rao of the Board’s technical unit requested that ExxonMobil’s witness Lial Tischler submit additional information into the record.¹ This response provides that information. Specifically, the second section addresses Member Glosser’s question regarding Mr. Tischler’s assessment of the Yoder Report. The third section addresses Mr. Rao’s request for the regulatory language from mercury variance rules in Indiana, Ohio, and New York.

¹ Hearing Transcript, *In The Matter of: Water Quality Standards and Effluent Limitations for the Chicago Area Waterway System (CAWS) and the Lower Des Plaines River: Proposed Amendments to 35 Ill. Adm. Code 301, 302, 303 and 304*, R08-09(D) at 90 and 103 (Ill.Pol. Control.Bd. Dec. 17, 2013) (rulemaking hereafter cited as “R08-09”; transcript hereafter cited as “Tr.”).

II. MR. TISCHLER'S RESPONSE TO MEMBER GLOSSER'S REQUEST

During the December 17, 2013 hearing, Member Glosser asked Mr. Tischler for the following information:

On this issue of the fish in the Yoder Report, I don't think you did it in your pre-filed testimony, but could you provide greater clarification in post-hearing comments as to which exact fish – with what is the exact objection to the fish he uses and give me the list of fish that you think should have been considered?

Tr. at 90.

Mr. Tischler prepared the following response to Member Glosser's request:

In Testimony presented to the Board, I testified that the Illinois Environmental Protection Agency ("Illinois EPA") should consider resident aquatic species in its development of new temperature standards for the aquatic life use of the Upper Dresden Island Pool ("UDIP") of the Lower Des Plaines River. The proposed temperature standards at issue² are based on a report by Yoder and Rankin and upstream temperature data.³

Yoder and Rankin prepared several lists of fishes that they used to evaluate different maximum temperature standards. It is my understanding that these lists are based on the authors' assessment of fish species that would be representative of three types of habitat:

- 1) a warmwater habitat assemblage that is consistent with the Illinois General Use;
- 2) an assemblage that reflects the habitat modified conditions of the impounded portions of the Lower Des Plaines River (Modified Use); and,
- 3) an assemblage that represents significantly limited conditions that approximate the Illinois Secondary Contact/Indigenous Aquatic Life use.

² Proposed 35 Ill. Admin. Code § 302.408(d).

³ Statement of Reasons, R08-9 at 80-87 (Ill.Pol.Control.Bd. Oct. 26, 2007) (hereafter filing cited as "SOR"); Pre-Filed Testimony of Chris O. Yoder, Attachment 2, Temperature Criteria Options for the Lower Des Plaines River, R08-9 (Ill.Pol.Control.Bd. Dec. 21, 2007) (hereafter cited as "Yoder Report"); Comments of the Illinois Environmental Protection Agency on the Illinois Pollution Control Board's Subdocket C Second Notice Opinion and Order, R08-9(C) at 15 (Ill.Pol.Control.Bd. Nov. 4, 2013).

Yoder Report at 10.

The proposed maximum UDIP temperature standard is based on the "Modified Use" "resident" population of 27 species postulated by Yoder and Rankin. However, as pointed out in my testimony, this "representative" species list was apparently not compared to the actual resident species in the UDIP, which have been defined by a number of years of studies by contractors for Midwest Generation EME, LLC ("Midwest Generation") and its predecessor, Commonwealth Edison.

I was requested to provide a list of resident species that I believe would be an appropriate basis for calculating maximum temperature standards for the UDIP aquatic life use. I have prepared a list of resident fish species, based on data collected and reported in a November 2005 report prepared by EA Engineering, Science and Technology ("EA") for Midwest Generation.⁴ This list consists of species found by electrofishing and seining collections in the years 2000-2004 that were present in the UDIP in numbers exceeding 50 animals for at least two of the five years. I did not use the earlier years in the record because EA indicated that substantial improvements in water quality had substantially improved fish habitat by 2000.

This list, which totals fourteen (14) fish species, is as follows:

Gizzard Shad	Smallmouth Buffalo	Common Carp
Emerald Shiner	Spottail Shiner	Spotfin Shiner
Bluntnose Minnow	Smallmouth Bass	Largemouth Bass
Green Sunfish	Bluegill Sunfish	Freshwater Drum
Bullhead Minnow	Hybrid Sunfish	

All of these species with the exception of the Bullhead Minnow and Hybrid Sunfish are found in Table 1 of the Yoder Report, but not all are in the Modified Use category identified by them.

⁴ SOR, Attachment MM: 2004 Lower Des Plaines River Fisheries Investigation RM 274.4-285.5, EA Engineering, Science and Technology (November 2005), R08-9 (Ill.Pol.Control.Bd. Oct. 26, 2007).

I believe the above list could have been evaluated to represent actual representative species in the UDIP. It relies on actual fish data that was gathered and compiled by EA. My listing of species is simplified, by intent, because it only represents species found in significant populations in the UDIP that are adapted to the unique physical and hydrological characteristics of this water body.

III. MERCURY VARIANCE RULES AND POLICY

Pursuant to Mr. Rao's request, the regulatory language from mercury variance rules and policies is provided below. ExxonMobil is currently evaluating these three examples and researching variances from other states. It intends to provide additional input related to streamlined variances in post-hearing comments.

Indiana's streamlined mercury variance rule has been codified in the state's regulations at 327 IAC 5-3.5. It is attached to this Response as Exhibit 1. The Ohio mercury variance rule is codified at OAC 3745-33-07(D)(10). It is attached to this Response as Exhibit 2. The New York Department of Conservation's ("New York DOC") variance policy for mercury was established under New York's multiple discharger variance rule found at 6 NYCRR 702.17(h), which is attached to this Response as Exhibit 3. New York DOC's policy for implementing the multiple discharger variance for mercury is described in the New York DOC's policy document titled "DOW 1.3.10 Mercury – SPDES Permitting, Multiple Variance and Water Quality

Monitoring," which is attached to this Response as Exhibit 4.

Respectfully submitted,

EXXONMOBIL OIL CORPORATION,

Dated: February 10, 2014

By: /s/ Katherine D. Hodge
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provisions of the previous permit which correspond to the stayed provisions of the new permit and which are consistent with those provisions of the new permit that are not stayed shall continue in full force and effect until a final resolution of the adjudicatory proceeding. However, this subsection shall not apply if a timely and sufficient application for the renewal permit was not submitted in accordance with IC 13-7-10-2(e) [IC 13-7 was repealed by P.L. 1-1996, SECTION 99, effective July 1, 1996.]. (Water Pollution Control Division; 327 IAC 5-3-14; filed Sep 24, 1987, 3:00 p.m.: 11 IR 641; filed Feb 26, 1993, 5:00 p.m.: 16 IR 1762; readopted filed Jan 10, 2001, 3:23 p.m.: 24 IR 1518; readopted filed Nov 21, 2007, 1:16 p.m.: 20071219-IR-327070553BFA; readopted filed Jul 29, 2013, 9:21 a.m.: 20130828-IR-327130176BFA)

327 IAC 5-3-15 Response to comments

Authority: IC 13-1-3-4; IC 13-1-3-7; IC 13-7-7; IC 13-7-10-1
 Affected: IC 13-1-3; IC 13-7

Sec. 15. Contemporaneously with the issuance of a final permit under 327 IAC 5-3-14, the commissioner shall transmit a response to each person having commented on the draft permit. This response to comments shall contain:

- (1) a brief description of and response to all significant comments on the draft permit raised during the public comment period, or during any hearing;
- (2) a specific indication of which provisions of the draft permit have been changed in the final permit, and the reasons for the change; and
- (3) a brief explanation of the right to request an adjudicatory hearing on the final permit.

(Water Pollution Control Division; 327 IAC 5-3-15; filed Sep 24, 1987, 3:00 pm: 11 IR 641; readopted filed Jan 10, 2001, 3:23 p.m.: 24 IR 1518; readopted filed Nov 21, 2007, 1:16 p.m.: 20071219-IR-327070553BFA; readopted filed Jul 29, 2013, 9:21 a.m.: 20130828-IR-327130176BFA)

327 IAC 5-3-16 Judicial review

Authority: IC 13-1-3-4; IC 13-1-3-7; IC 13-7-7; IC 13-7-10-1
 Affected: IC 4-21.5-5

Sec. 16. Any person aggrieved by final agency action on an adjudicatory hearing or affirming the denial of a request for adjudicatory hearing may seek judicial review of said action pursuant to the provisions of IC 4-21.5-5. (Water Pollution Control Division; 327 IAC 5-3-16; filed Sep 24, 1987, 3:00 p.m.: 11 IR 642; filed Feb 26, 1993, 5:00 p.m.: 16 IR 1763; readopted filed Jan 10, 2001, 3:23 p.m.: 24 IR 1518; readopted filed Nov 21, 2007, 1:16 p.m.: 20071219-IR-327070553BFA; readopted filed Jul 29, 2013, 9:21 a.m.: 20130828-IR-327130176BFA)

Rule 3.5. Streamlined Mercury Variance Requirements and Application Process**327 IAC 5-3.5-1 Purpose**

Authority: IC 13-13-5-1; IC 13-13-5-2; IC 13-14-8; IC 13-14-9; IC 13-15-1-2; IC 13-15-2-1; IC 13-18
 Affected: IC 13-18-4

Sec. 1. The purpose of this rule is to establish a streamlined process and application requirements for obtaining a variance from a water quality criterion used to establish a water quality-based effluent limitation for mercury in an NPDES permit. (Water Pollution Control Division; 327 IAC 5-3.5-1; filed Apr 6, 2005, 4:00 p.m.: 28 IR 2349; readopted filed Jun 15, 2011, 11:15 a.m.: 20110713-IR-327110193BFA)

327 IAC 5-3.5-2 Applicability

Authority: IC 13-13-5-1; IC 13-13-5-2; IC 13-14-8; IC 13-14-9; IC 13-15-1-2; IC 13-15-2-1; IC 13-18
 Affected: IC 13-14-8-9; IC 13-18-4

Sec. 2. (a) An SMV shall be available for the duration of the NPDES permit issued to a wastewater discharging facility that

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has an NPDES permit in effect containing a discharge limitation for mercury that cannot be achieved consistently by the facility.

(b) Application for a variance under this rule meets the requirements for a variance under IC 13-14-8-9 and rules adopted by the board.

(c) An SMV is not available for the following:

(1) New or recommencing Great Lakes system dischargers except as provided under 327 IAC 2-1.5-17(a)(3).

(2) Applicants seeking an interim limit whose effluent contains mercury at an average concentration, as determined under section 8(a) of this rule, greater than thirty (30) ng/l (parts per trillion).

(Water Pollution Control Division; 327 IAC 5-3.5-2; filed Apr 6, 2005, 4:00 p.m.: 28 IR 2349; readopted filed Jun 15, 2011, 11:15 a.m.: 20110713-IR-327110193BFA)

327 IAC 5-3.5-3 Definitions

Authority: IC 13-13-5-1; IC 13-13-5-2; IC 13-14-8; IC 13-14-9; IC 13-15-1-2; IC 13-15-2-1; IC 13-18

Affected: IC 13-11-2; IC 13-18-4

Sec. 3. In addition to the definitions contained in IC 13-11-2 and this article, the following definitions apply throughout this rule:

(1) "Department" means the Indiana department of environmental management.

(2) "Facility" means any NPDES point source or any other facility or activity (including land or appurtenances thereto) that is subject to regulation under the NPDES program. For a municipality, "facility" means a POTW.

(3) "Pollutant minimization program" or "PMP" means a program developed by an SMV applicant to identify and minimize the discharge of mercury into the environment.

(4) "Pollutant minimization program plan" or "PMPP" means the plan for development and implementation of the PMP.

(5) "Publicly owned treatment works" or "POTW" means a treatment works as defined by Section 212(2) of the Federal Water Pollution Control Act owned by the state or a municipality as defined by Section 502(4) of the Federal Water Pollution Control Act.

(6) "Streamlined mercury variance" or "SMV" means a process established under this rule for obtaining a variance from the water quality criterion used to establish a water quality-based effluent limitation (WQBEL) established for mercury in an NPDES permit.

(Water Pollution Control Division; 327 IAC 5-3.5-3; filed Apr 6, 2005, 4:00 p.m.: 28 IR 2349; errata filed Jul 6, 2005, 3:15 p.m.: 28 IR 3582; readopted filed Jun 15, 2011, 11:15 a.m.: 20110713-IR-327110193BFA)

327 IAC 5-3.5-4 Initial SMV application

Authority: IC 13-13-5-1; IC 13-13-5-2; IC 13-14-8; IC 13-14-9; IC 13-15-1-2; IC 13-15-2-1; IC 13-18

Affected: IC 13-18-4

Sec. 4. (a) The initial SMV application shall be submitted on forms provided by the department.

(b) An applicant for an SMV may submit the application as a part of an application for a:

(1) new;

(2) renewed; or

(3) modified;

NPDES permit.

(c) The initial SMV application must include all information, including the PMPP, required under section 9 of this rule, PMPP requirements. Applications to renew an SMV shall comply with section 7 of this rule.

(d) Upon receipt of a complete SMV application, the department will publish a notice of completeness and availability of the SMV in accordance with section 5 of this rule, public notice of SMV application. The notice of completeness and availability will be published within thirty (30) days of receipt of a complete SMV application.

(e) In order for an application to be considered complete, the application must contain all information required under section 9 of this rule, PMPP requirements. *(Water Pollution Control Division; 327 IAC 5-3.5-4; filed Apr 6, 2005, 4:00 p.m.: 28 IR 2349; readopted filed Jun 15, 2011, 11:15 a.m.: 20110713-IR-327110193BFA)*

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327 IAC 5-3.5-5 Public notice of SMV application

Authority: IC 13-13-5-1; IC 13-13-5-2; IC 13-14-8; IC 13-14-9; IC 13-15-1-2; IC 13-15-2-1; IC 13-18

Affected: IC 4-21.5; IC 13-18-4

Sec. 5. (a) The department shall publish notice of each complete SMV application for public comment:

(1) in the newspaper with the greatest circulation in the city or county of the applicant's location; and

(2) with a thirty (30) day public comment period.

(b) Public notice may be held simultaneously with the public notice procedures of a new, renewed, or modified NPDES permit.

(c) The department may hold a public hearing on the complete SMV application if a request is received during the public comment period. The public hearing may be held simultaneously with the public hearing on a new, renewed, or modified NPDES permit.

(d) The department shall consider public comments received during:

(1) the public comment period; and

(2) the public hearing, if one is held.

(e) The department may require an applicant to modify the SMV application if it is necessary in order for the SMV application to be consistent with the requirements of this rule.

(f) If the SMV application meets the requirements of this rule, the department shall incorporate the SMV into the NPDES permit in accordance with this rule within ninety (90) days, unless the applicant agrees to a longer time frame, following the close of the later of the following:

(1) The public comment period.

(2) The public hearing.

(g) A final determination under subsection (e) is an appealable decision under IC 4-21.5. (*Water Pollution Control Division; 327 IAC 5-3.5-5; filed Apr 6, 2005, 4:00 p.m.: 28 IR 2350; readopted filed Jun 15, 2011, 11:15 a.m.: 20110713-IR-327110193BFA*)

327 IAC 5-3.5-6 Issuance of SMV

Authority: IC 13-13-5-1; IC 13-13-5-2; IC 13-14-8; IC 13-14-9; IC 13-15-1-2; IC 13-15-2-1; IC 13-18

Affected: IC 13-14-8-9; IC 13-18-4

Sec. 6. When an SMV is issued under this rule, the SMV shall be incorporated as a condition of the applicant's NPDES permit through issuance, renewal, or modification of the NPDES permit. The SMV remains in effect until the NPDES permit expires under IC 13-14-8-9. The NPDES permit shall include the requirements of the PMPP and any applicable interim discharge limitation. (*Water Pollution Control Division; 327 IAC 5-3.5-6; filed Apr 6, 2005, 4:00 p.m.: 28 IR 2350; readopted filed Jun 15, 2011, 11:15 a.m.: 20110713-IR-327110193BFA*)

327 IAC 5-3.5-7 Renewal of SMV

Authority: IC 13-13-5-1; IC 13-13-5-2; IC 13-14-8; IC 13-14-9; IC 13-15-1-2; IC 13-15-2-1; IC 13-18

Affected: IC 13-14-8-9; IC 13-18-4

Sec. 7. (a) An eligible applicant may apply for a renewal of the SMV:

(1) one hundred eighty (180) days prior to the expiration of its NPDES permit; or

(2) within one hundred eighty (180) days after issuance of a revised NPDES permit that establishes a revised mercury discharge limit based on the water quality criteria.

(b) The department may renew an initial SMV in accordance with IC 13-14-8-9 if the applicant demonstrates that implementation of the PMPP has achieved progress toward the goal of reducing mercury from its discharge except as provided in subsection (d).

(c) A renewal application shall contain the following:

(1) All information required for an initial SMV application under section 4 of this rule, including revisions to the PMPP,

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if applicable.

(2) A report on implementation of each provision of the PMPP.

(3) An analysis of the mercury concentrations determined through sampling at the facility's locations that have mercury monitoring requirements in the NPDES permit for the two (2) year period prior to the SMV renewal application.

(4) A proposed alternative mercury discharge limit, if appropriate, to be evaluated by the department according to section 8(b) of this rule, based on the most recent two (2) years of representative sampling information from the facility.

(d) A PMPP must be revised if implementation of the original PMPP does not lead to demonstrable progress in minimizing the discharge of mercury. If the applicant can provide information, as part of a revision to a PMPP, that demonstrates there is no known reasonable additional action that will reduce mercury, the PMPP may remain as previously approved.

(e) A renewal SMV shall be issued in a timely manner and in accordance with the requirements for the issuance of an initial SMV under this rule. If an applicant submits an application for a renewal SMV at least one hundred eighty (180) days prior to the expiration of its NPDES permit, the department shall make a final SMV decision, if requested by the applicant, concurrent with the final decision on the NPDES permit. (*Water Pollution Control Division; 327 IAC 5-3.5-7; filed Apr 6, 2005, 4:00 p.m.: 28 IR 2350; readopted filed Jun 15, 2011, 11:15 a.m.: 20110713-IR-327110193BFA*)

327 IAC 5-3.5-8 SMV interim discharge limit

Authority: IC 13-13-5-1; IC 13-13-5-2; IC 13-14-8; IC 13-14-9; IC 13-15-1-2; IC 13-15-2-1; IC 13-18

Affected: IC 13-18-4

Sec. 8. (a) The interim limit for mercury discharge for the duration of an SMV shall be based on representative effluent data that have been analyzed using Analytical Method 1631 or any analytical method approved by the department. The interim limit shall be expressed as the highest daily value for mercury from a data set that includes a minimum of six (6) daily values that are generally evenly spaced over the most recent twelve (12) to twenty-four (24) month period and representative of the four (4) seasons. The highest daily value will become the value for the interim limit. Compliance with the interim limit is achieved if the average of the measured effluent daily values over the rolling twelve (12) month period is less than the interim limit. An SMV is not available to an applicant that requests an interim limit greater than thirty (30) ng/l (parts per trillion).

(b) The interim discharge limit shall be evaluated upon receipt of a renewal SMV application based upon available, valid, and representative data of the effluent levels for mercury collected and analyzed over the most recent two (2) year period. Data collection and analyses must be done according to Analytical Method 1631 or the analytical method approved by the department. (*Water Pollution Control Division; 327 IAC 5-3.5-8; filed Apr 6, 2005, 4:00 p.m.: 28 IR 2351; readopted filed Jun 15, 2011, 11:15 a.m.: 20110713-IR-327110193BFA*)

327 IAC 5-3.5-9 PMPP requirements

Authority: IC 13-13-5-1; IC 13-13-5-2; IC 13-14-8; IC 13-14-9; IC 13-15-1-2; IC 13-15-2-1; IC 13-18

Affected: IC 13-18-4

Sec. 9. (a) A PMPP for a facility must be submitted with an application for an SMV. The PMPP must contain the following:

(1) Results of a preliminary inventory of potential uses and sources of mercury in all buildings and departments and a plan and schedule for providing the department results of a complete inventory.

(2) Preliminary identification of known mercury-bearing equipment, wastestreams, and mercury storage sites.

(3) A list of planned activities to be conducted to eliminate or minimize the release of mercury to the water. The list of planned activities may consider technical and economic feasibility and must include, at a minimum, the following:

(A) A review of purchasing policies and procedures.

(B) Necessary training and awareness for facility staff.

(C) Evaluation of alternatives to the use of any mercury-containing equipment or materials.

(D) Other specific activities designed to reduce or eliminate mercury loadings.

(E) An identification of the facility's responsibilities under P.L.225-2001 (also known as House Enrolled Act 1901 of the 2001 legislative session).

(4) For each activity specified in subdivision (3), the plan must contain the following:

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- (A) The goal to be accomplished.
 - (B) A measure of performance.
 - (C) A schedule for action.
- (5) All available mercury monitoring data and any information on mercury in biosolids, if required by an NPDES permit or land application permit, for the two (2) year period preceding the SMV application.
- (6) Identification of the resources and staff necessary to implement the PMPP.
- (7) Proof of completion of public notice activities required under this section.
- (8) Annual reports according to a schedule in the PMPP. Each annual report must describe the following:
- (A) The facility's progress toward fulfilling each of the requirements of the PMPP.
 - (B) The results of mercury monitoring.
 - (C) The steps taken to implement each planned activity developed under this subsection and subsection (b) to reduce or eliminate mercury from the facility's water.
- (b) In addition to subsection (a), a PMPP for a POTW must include the following:
- (1) Results of a preliminary evaluation of possible mercury sources in the facility's influent and a plan and schedule for providing the department results of a complete evaluation. The evaluation shall include, at a minimum, the following:
- (A) Medical facilities, for example, the following:
 - (i) Hospitals.
 - (ii) Clinics.
 - (iii) Nursing homes.
 - (iv) Veterinary facilities.
 - (B) Dental clinics.
 - (C) Public and private educational laboratories.
 - (D) General industry and all SIUs.
 - (E) Significant sources of residential and retail contributions of mercury, for example, the following:
 - (i) Heating, ventilation, and air conditioning contractors.
 - (ii) Automobile and appliance repair.
 - (iii) Veterinarians.
 - (iv) Others specific to the community served.
 - (F) An identification of the responsibilities under P.L.225-2001 (also known as House Enrolled Act 1901 of the 2001 legislative session) for the significant industrial users for the POTW.
- (2) A list of planned activities designed to reduce or eliminate mercury loadings from the sources identified in subdivision (1).
- (3) For each activity specified in subdivision (2), the plan must contain the following:
- (A) The goal to be accomplished.
 - (B) A measure of performance.
 - (C) A schedule for action.
- (4) In addition to activities required under subsection (a)(3), activities must also include an education program for the facility employees and the public within the service area of the facility.
- (c) Prior to submitting the PMPP to the department as part of the SMV application, an applicant shall do the following:
- (1) Publish notice of the availability of the draft PMPP in a daily or weekly newspaper of general circulation throughout the area affected by the discharge.
- (2) Post a copy of the information required by this section at the following:
- (A) Principal office of the municipality or political subdivision affected by the facility or discharge.
 - (B) The United States post office.
 - (C) If one is available, the library serving those premises.
- (d) All notices published under this section shall contain the following information:
- (1) The name and address of the applicant that prepared the PMPP.
 - (2) A general description of the elements of the PMPP.
 - (3) A brief description of the activities or operations that result in the discharge for which an SMV is being requested.

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(4) A brief description of the purpose of this notice and the comment procedures.

(5) The name of a contact person, a mailing address, an internet address, if available, and a telephone number where interested persons may obtain additional information and a copy of the PMPP.

(e) The applicant shall do the following:

(1) Provide a minimum comment period of thirty (30) days.

(2) Include a copy of the comments received and the applicant's responses to those comments in the SMV application submitted to the department.

(f) The department shall consider a PMPP to be complete if it meets the requirements of this section. (*Water Pollution Control Division; 327 IAC 5-3.5-9; filed Apr 6, 2005, 4:00 p.m.: 28 IR 2351; readopted filed Jun 15, 2011, 11:15 a.m.: 20110713-IR-327110193BFA*)

327 IAC 5-3.5-10 Transitional mercury effluent limitation

Authority: IC 13-13-5-1; IC 13-13-5-2; IC 13-14-8; IC 13-14-9; IC 13-15-1-2; IC 13-15-2-1; IC 13-18

Affected: IC 4-21.5-3; IC 13-14-1-9; IC 13-18-4

Sec. 10. (a) Either at the time a discharging facility applies for or when it receives a renewal of an NPDES permit with a previously established mercury limit from a prior NPDES permit for which a compliance schedule for mercury is not established in the renewed permit and the discharging facility has not had a prior SMV, then the following may be done to assure compliance with the renewed permit:

(1) In a written document to the department, the discharging facility should:

(A) indicate that the discharging facility is planning to apply for an SMV in accordance with this rule; and

(B) provide information to establish a transitional limit consistent with section 8 of this rule.

(2) The department may issue a transitional limit for the discharging facility through a permit modification or an order under IC 13-14-1-9 until the SMV is either approved or denied.

(b) If an SMV is denied, a discharger may request an individual variance, notwithstanding the time limitations set in 327 IAC 5-3-4.1, by doing the following:

(1) Requesting the commissioner's consideration and written determination on a request for a mercury variance from a water quality standard as provided in 327 IAC 2-1-8.8 or 327 IAC 2-1.5-17.

(2) Applying for the mercury variance up to ninety (90) days after the denial of the SMV so long as all other requirements in 327 IAC 5-3-4.1 are met. The applicant may petition the commissioner for up to an additional ninety (90) day period to submit the application.

(*Water Pollution Control Division; 327 IAC 5-3.5-10; filed Apr 6, 2005, 4:00 p.m.: 28 IR 2352; readopted filed Jun 15, 2011, 11:15 a.m.: 20110713-IR-327110193BFA*)

Rule 4. Special NPDES Programs**327 IAC 5-4-1 Purpose**

Authority: IC 13-1-3-4; IC 13-1-3-7; IC 13-7-7; IC 13-7-10-1

Affected: IC 13-1-3; IC 13-7

Sec. 1. This rule (327 IAC 5-4) describes NPDES program requirements for certain categories of point source dischargers. (*Water Pollution Control Division; 327 IAC 5-4-1; filed Sep 24, 1987, 3:00 pm: 11 IR 642*)

327 IAC 5-4-2 Underground injection of pollutants

Authority: IC 13-1-3-4; IC 13-1-3-7; IC 13-7-7; IC 13-7-10-1

Affected: IC 13-1-3; IC 13-7

Sec. 2. (a) If an applicant for an NPDES permit proposes to dispose of pollutants by underground injection as part of the overall effort to meet the requirements of the NPDES program, the commissioner shall deny the request, as this function now lies

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3745-33-07 Establishing permit conditions.

[Comment: For dates of non-regulatory government publications, publications of recognized organizations and associations, federal rules and federal statutory provisions referenced in this rule, see rule [3745-33-01](#) of the Administrative Code.]

(A) Establishing final permit conditions for physical and chemical specific parameters. Final effluent limitations and monitoring requirements shall be established in an NPDES permit in accordance with this rule and the reasonable potential recommendations determined pursuant to rule [3745-2-06](#) of the Administrative Code. The director may impose additional terms and conditions as part of an NPDES permit as are appropriate or necessary to ensure compliance with the applicable laws and to ensure adequate protection of water quality.

(1) Final effluent limitations shall be required for pollutants that meet any of the following conditions:

- (a) Pollutants assigned to group five of the pollutant assessment;
- (b) Pollutants that are treatment plant design parameters; or
- (c) Pollutants that are subject to effluent limitations established under sections 301, 306 and 307 of the act.

(2) Final effluent monitoring shall be required for pollutants

assigned to group four of the pollutant assessment. In addition, the permit shall include a tracking mechanism for all group four parameters with a projected effluent quality (PEQ) equivalent to or exceeding seventy-five per cent of the PEL. The tracking language shall contain the following:

(a) Projected effluent limit (PEL) values for applicable parameters;

(b) Requirements for the permittee to notify Ohio EPA in writing within thirty days of an effluent concentration sample result greater than the PEL. Written notification shall detail the reasons for the level being above the PEL and for expectation of continued levels above the PEL;

(c) Requirements for the permittee to reduce discharge levels to below the PEL within six months if either of the following conditions are met:

(i) The maximum detected concentration per month is greater than the maximum PEL for four or more months during a consecutive six month period; or

(ii) The thirty-day average for any pollutant is greater than the average PEL for two or more months during a consecutive six month period; and

(d) If the permittee cannot reduce discharge levels within six months to below the PEL, the permittee may request to modify the permit to contain a compliance schedule. This request shall contain a justification for the additional time necessary to reduce discharge levels.

(3) Pollutant monitoring for pollutants in groups one, two or three of the pollutant assessment may be specified by the director.

(4) Final effluent monitoring for dioxin shall be required for a minimum of twelve months when detectable levels of pentachlorophenol are present in the effluent.

(5) The director may make exceptions to the effluent limitations

under paragraph (A)(1) of this rule if the data used to determine the PEQ are invalid or unrepresentative.

(6) The director may make exceptions to the monitoring requirements under paragraph (A)(2) of this rule after consideration of other relevant factors including, but not limited to, the frequency of occurrences and variability of the levels of pollutants.

(7) The director may establish water quality-based effluent limits (WQBELs) that represent the sum of all wastestreams containing a pollutant in a discharge or group of discharges under the same NPDES permit, using the wasteload allocation (WLA) and total maximum daily load (TMDL) methods in Chapter 3745-2 of the Administrative Code and the reasonable potential procedures in rules 3745-2-06 and 3745-33-07 of the Administrative Code.

(8) Additivity of pollutant effects.

(a) When a point source discharge is subject to a WQBEL for pollutants considered additive, the permit for that discharge shall contain a limitation on the additivity of the pollutants unless:

(i) Effluent limitations needed to meet other state or federal laws or regulations result in limitations more stringent than limitations on the additivity of the pollutants; or

(ii) There is no reasonable potential for the additive effects of discharged pollutants to cause or contribute to a lifetime upper bound incremental risk greater than one in one hundred thousand of developing cancer for carcinogens or an appreciable risk of adverse human health effects (e.g. acute, subchronic, or chronic toxicity, or increased reproductive or developmental effects) during a lifetime of exposure for non-carcinogens. Reasonable potential for additive effects is determined by dividing the PEQ average for each pollutant by the human health wasteload allocation for that pollutant and adding these values for all additive pollutants. If the sum is equal to or greater than 1.0, the permit shall contain a limitation regulating the additivity of these pollutants.

(b) If a PEL for an additive pollutant is less than the

quantification level for that pollutant, the director may remove that pollutant from the consideration of additivity.

(9) Reasonable potential for noncontact cooling water. For the purposes of this paragraph, "once-through noncontact cooling water" means water used for cooling that does not come into direct contact with any raw material, intermediate product, final product or waste product, not including additives, and makes one or two passes for the purpose of removing waste heat. This paragraph shall not apply to temperature and pH.

(a) The director shall not impose WQBELs for a discharge consisting solely of once-through noncontact cooling water drawn from the same body of water that the effluent is discharged to as determined under paragraph (C) of rule 3745-2-06 of the Administrative Code, except in the following situations:

(i) The director shall require a WQBEL for a pollutant or a whole effluent toxicity (WET) limit when information is available indicating that such a limit is necessary to protect existing or designated uses, unless the discharger is able to demonstrate that the presence of the pollutant or WET is due solely to its presence in the intake water as determined under paragraph (C) of rule 3745-2-06 of the Administrative Code.

(ii) The director shall require a WQBEL for a pollutant when the pollutant concentration in the discharge exhibits reasonable potential, is higher than ambient concentrations in the receiving water due to recirculation of the cooling water in the receiving water body, and available information indicates that a limit is necessary to protect existing or designated uses.

(iii) The director shall establish a WQBEL or other requirement in the permit for the noncontact cooling water wastestream if biological index measurements or WET measurements indicate that the noncontact cooling water discharge contributes to an impairment of an existing or designated use of the receiving waters.

(iv) If a pollutant is present at elevated levels in the noncontact cooling water wastestream due to pollutants entering the cooling system, paragraph (A)(9) of this rule shall not apply to the

discharge of pollutants present at elevated levels.

(v) If the permittee uses or proposes to use additives in the noncontact cooling water wastestream, the director shall evaluate the additives to determine whether there is a reasonable potential for the additive to cause or contribute to an excursion of the water quality standards contained in Chapter 3745-1 of the Administrative Code. The director shall establish permit conditions and/or other requirements for the additives or their ingredients that ensure that Ohio water quality standards are attained.

(vi) If the source of the noncontact cooling water wastestream is contaminated groundwater, paragraph (A)(9) of this rule does not apply to the discharge of pollutants in the groundwater that exhibit reasonable potential.

(vii) If the noncontact cooling water is combined with other wastestreams prior to final discharge, the provisions of paragraph (A)(9) of this rule are restricted to the noncontact cooling water wastestream, and WQBELs shall be established on a reasonable potential analysis for the sum of the other wastestreams conducted according to rules 3745-2-06 and 3745-33-07 of the Administrative Code. If other individual wastestreams cannot be practically monitored, the director shall require WQBELs at the final discharge point.

(viii) The director shall require monitoring of the intake and any other locations necessary to verify and confirm the conclusions about reasonable potential under paragraph (A)(9)(a) of this rule.

(B) Establishing final limitations for whole effluent toxicity.

(1) The director shall evaluate whole effluent toxicity for a discharge using available data on the factors listed in paragraphs (B)(1)(a) to (B)(1)(d) of this rule and the evaluation matrix in table 1 of this rule to determine whether the discharge has the reasonable potential to cause or contribute to violations of water quality standards contained in Chapter 3745-1 of the Administrative Code. The director shall classify the toxicity hazard of the discharge in one of the four categories listed in table 1 of this rule.

(a) The magnitude, frequency and variability of toxicity discharged;

(b) The degree and type of near-field and far-field effects in the receiving water as measured by physical, chemical, toxicity or biological index measurements;

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

(d) Other relevant factors.

(2) When the director determines that the discharge has the reasonable potential to cause or contribute to an exceedance of the water quality standards contained in paragraph (D) of rule 3745-1-04 of the Administrative Code, the discharger shall be classified in hazard category 1 of table 1 of this rule, and the permit shall contain a discharge limitation for toxicity as determined using the procedures in rule 3745-2-09 of the Administrative Code, and any applicable procedures in paragraphs (B)(5) to (B)(10) of this rule.

(3) For dischargers classified in hazard category 2, the director shall require monitoring with a permit limit for WET that is triggered by events specified in the permit. As an alternative to limits, the director may require the permittee to conduct a plant performance evaluation (PPE). A PPE contains an evaluation of processes, inputs and treatment including but not limited to toxicity pass-through at the treatment plant, chemicals used in the treatment process, and the effect of plant processes or industrial users on WET discharged by the treatment plant.

(4) When the evaluation from paragraph (B)(1) of this rule using factors in paragraphs (B)(1)(a) to (B)(1)(d) of this rule indicates the discharger is classified in hazard category 3 of table 1 of this rule, the permit shall contain a monitoring requirement.

(5) Limits for acute toxicity of 1.0 TUa that are based on protecting the inside-mixing-zone water quality standard in paragraph (D) of rule 3745-1-04 of the Administrative Code may be modified if the discharger demonstrates attainment of this water quality standard using one of the following methods:

(a) An AIM study approved under rule 3745-2-08 of the Administrative Code;

(b) A correlation of effluent and near-field toxicity data for the discharge that indicates that the narrative water quality standard is being attained; or

(c) Biological index measurements taken within the area defined in paragraph (I)(1) of rule 3745-2-08 of the Administrative Code that indicate the absence of toxic conditions.

(6) Demonstrations conducted under paragraph (B)(5)(b) or (B)(5)(c) of this rule shall meet the requirements of paragraphs (C)(4) to (C)(7) and (C)(9) to (C)(13) of rule 3745-2-08 of the Administrative Code. In addition, the director may modify maximum limitations that are approved under paragraph (B)(5)(b) or (B)(5)(c) of this rule using the results of an AIM computer modeling or field study performed in accordance with rule 3745-2-08 of the Administrative Code.

(7) The director shall review demonstrations under paragraphs (B)(5) and (B)(6) of this rule using the factors in paragraphs (B)(1)(a) to (B)(1)(d) of this rule to ensure that uses are not impaired by toxicity before approving modified limitations for whole effluent toxicity.

(8) The director may modify limitations for acute or chronic toxicity that are based on protecting the water quality standard in paragraph (D) of rule 3745-1-04 of the Administrative Code if the discharger reduces effluent toxicity by a substantial amount after the issuance of the effluent limit, and if subsequent biological index measurements indicate the absence of toxic conditions downstream of the discharge or mixing zone, as appropriate.

(9) The director may modify limitations for acute toxicity for discharges to water bodies designated limited resource water under Chapter 3745-1 of the Administrative Code if the discharger demonstrates that severe habitat degradation prevents the presence of biological communities typically associated with this water body use.

(10) For the purposes of establishing whole effluent toxicity limitations, the values of 1.0 TUa and 1.0 TUC shall be the most restrictive limitations applied in permits. If the ratio of stream design flow to effluent flow is less than 3.3 to 1.0, the director may require special measures to investigate and remediate acute toxicity when an effluent consistently exhibits thirty per cent to fifty per cent mortality in one hundred per cent effluent

(11) Minimum monitoring requirements for whole effluent toxicity. These requirements satisfy the application toxicity test requirements in 40 C.F.R. 122.21(j)(5) . These requirements do not apply to discharges from facilities that treat only combined sewer overflows.

(a) The following testing requirements apply to permits for:

(i) Any publicly-owned treatment works (POTW) with design flow rates greater than or equal to one million gallons per day; or

(ii) Any POTWs with approved pretreatment programs or POTWs required to develop a pretreatment program.

(b) Permits shall contain testing requirements for at least two species.

(c) Permits shall contain chronic toxicity testing requirements if the ratio of the downstream or mixing zone dilution is less than twenty to one, according to the procedures in rule 3745-2-09 of the Administrative Code.

(d) Permits shall contain acute toxicity testing requirements if the ratio of the downstream or mixing zone dilution is twenty to one or greater, according to the procedures in rule 3745-2-09 of the Administrative Code.

(e) Where the POTW has two or more outfalls with substantially identical effluent discharging to the same receiving water segment, the director may allow applicants to submit whole effluent toxicity data for only one outfall on a case-by-case basis. The director may also allow applicants to composite samples from one or more outfalls that discharge into the same mixing zone.

(C) WQBELs below quantification levels. This paragraph shall apply when a water quality based effluent limit for a pollutant is calculated to be less than the quantification level.

(1) The director shall designate as the limit in the NPDES permit the WQBEL exactly as calculated.

(2) Analytical methods, quantification and compliance levels.

(a) The permittee shall use the most sensitive analytical procedure currently approved under 40 C.F.R. 136 for each individual pollutant.

(b) If the most sensitive analytical procedure in paragraph (C)(2)(a) of this rule changes, resulting in a more sensitive quantification level, the director may issue a compliance schedule to allow the permittee to implement the new quantification level and demonstrate compliance using the revised quantification level or WQBEL, whichever is higher.

(c) For the purpose of assessing compliance with an NPDES permit, any value reported below the quantification level shall be considered in compliance with the effluent limit. For the purpose of calculating compliance with average limitations contained in an NPDES permit, compliance shall be determined by taking the arithmetic mean of reported values for a given reporting period and comparing that mean to the appropriate average permit limitation, using zero for any values detected at concentrations less than the quantification level. Arithmetic mean values that are less than or equal to the permit limitation shall be considered in compliance with the effluent limit.

(d) The quantification level is defined as the practical quantification level (PQL) except, for discharges to the lake Erie drainage basin, the quantification level shall be the minimum level for analytical procedures that have minimum levels specified in, or approved under, 40 C.F.R. 136.

(e) The director may establish PQLs for a pollutant with a listed method in 40 C.F.R. 136 or , if no analytical method for the pollutant has been promulgated under 40 C.F.R. 136, the director may establish a PQL for the pollutant using an appropriate

consensus standard or other generally accepted standard for the analytical method; if no such standard exists, the director may establish a PQL in the permit based on MDLs determined using the procedures in 40 C.F.R. 136, appendix B.

(f) Discharge-specific quantification levels. Permittees may apply for discharge-specific quantification levels. Discharge-specific quantification levels shall be calculated using the procedures provided in 40 C.F.R. 136, appendix B.

(3) Permit reopener clause. Ohio NPDES permits shall contain a reopener clause authorizing modification or revocation and reissuance of the permit if new information generated as a result of special conditions included in the permit indicates the presence of the pollutant in the discharge at levels above the WQBEL. Special conditions that may be included in the permit include, but are not limited to, fish tissue sampling, whole effluent toxicity tests, monitoring requirements on internal waste streams, and monitoring for surrogate parameters. Data generated as a result of special conditions can be used to reopen the permit to establish more stringent effluent limits or conditions, if necessary.

(4) Pollutant minimization program. For discharges to the lake Erie drainage basin, the director shall include a condition in the permit requiring the permittee to develop and conduct a pollutant minimization program in accordance with rule 3745-33-09 of the Administrative Code for each pollutant with a WQBEL below the quantification level.

(D) Variances from water quality standards for point sources.

(1) Applicability. The director may grant a variance to a water quality standard (WQS, where WQS, for the purpose of paragraph (D) of this rule, means criteria and tier II values adopted in or developed under Chapter 3745-1 of the Administrative Code) which is the basis of a WQBEL included in an NPDES permit. A WQS variance applies only to the permittee requesting the variance and only to the pollutant or pollutants specified in the variance. A variance does not affect, or require the director to modify, the corresponding water quality standard for the water body. All variance requests and approvals must comply with applicable portions of rule 3745-1-05 of the

Administrative Code. Paragraph (D) of this rule shall not apply:

(a) To any building, structure, facility, or installation from which there is or may be a "discharge of pollutants" (as defined in 40 C.F.R. 122.2), the construction of which commenced after March 23, 1997, unless:

(i) Such a discharge occurs as a result of a response or remedial action taken pursuant to the Comprehensive Environmental Response, Compensation and Liability Act , the Resource Conservation and Recovery Act , or the Ohio EPA voluntary action program (VAP);

(ii) WQS or method detection limit(s) are issued, modified, or adopted after the NPDES permit for the discharge is issued;

(iii) The discharge results from rerouting all or a portion of an existing permitted discharge to a new discharge point that discharges to the same body of water, and there is a pollutant reduction in the discharge being rerouted;

(iv) A new or expanded discharge of bioaccumulative chemicals of concern from a publicly owned treatment works or sewerage system is necessary to prevent or mitigate a public health threat to the community; or

(v) The discharge occurs as a result of an overall reduction in emissions of a pollutant from a facility existing as of March 23, 1997 to air, waters of the state or other media to which people or aquatic life are exposed.

(b) To any source for which an NPDES permit was revoked or not renewed and for which a new NPDES permit has been subsequently issued, except that such a source may be eligible to receive a variance if WQS or method detection limit(s) are issued, modified, or adopted after the source's new NPDES permit is issued;

(c) If the variance would likely jeopardize the continued existence of any threatened or endangered species as defined in rule 3745-1-02 of the Administrative Code or result in the destruction or adverse modification of such species' critical

habitat; or

(d) If WQS will be attained by implementing effluent limits required under sections 301(b) and 306 of the act as defined in rule 3745-33-01 of the Administrative Code and by the permittee implementing cost-effective and reasonable best management practices for nonpoint source control over which the permittee has control.

(2) Maximum time frame for variances. A WQS variance shall not exceed five years or the term of the NPDES permit, whichever is less, with the exception that a WQS variance may remain in effect beyond the term of the NPDES permit if, at least one hundred eighty days prior to the date of expiration of the NPDES permit, the applicant submits to the director an application for renewal of the NPDES permit, in accordance with Chapter 119. of the Revised Code and paragraph (C) of rule 3745-33-04 of the Administrative Code, and an application for renewal of the variance in accordance with paragraph (D)(8) of this rule. Such a variance shall remain in effect until the director issues a final action on the NPDES permit renewal application unless the application for renewal of the variance is not substantially complete or not submitted within the time required in this paragraph, or unless the permittee did not substantially comply with the conditions of the existing variance. The director shall review and modify as necessary WQS variances as part of each WQS review pursuant to section 303(c) of the act.

(3) Conditions to grant a variance.

(a) Except as provided in paragraph (D)(10) of this rule, a variance may be granted if the director determines, based on data and information provided by the permittee or data and information independently available to the director, that attainment of the WQS is not feasible because:

(i) Naturally occurring pollutant concentrations prevent the attainment of the WQS;

(ii) Natural, ephemeral, intermittent or low flow conditions or water levels prevent the attainment of the WQS, unless these conditions may be compensated for by the discharge of sufficient

volume of effluent to enable WQS to be met;

(iii) Human-caused conditions or sources of pollution prevent the attainment of the WQS and cannot be remedied, or would cause more environmental damage to correct than to leave in place;

(iv) 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 such modification in a way that would result in the attainment of the WQS;

(v) Physical conditions related to the natural features of the water body, such as the lack of a proper substrate cover, flow, depth, pools, riffles, and the like, unrelated to chemical water quality, preclude attainment of WQS; or

(vi) Controls more stringent than those required by sections 301(b) and 306 of the act would result in substantial and widespread economic and social impact. When evaluating substantial and widespread economic and social impact, the director shall consider, at a minimum, all of the following factors:

(a) The costs, cost-effectiveness (measured in dollars per pound equivalent), and affordability of pollutant removal that would result from implementing measures capable of attaining the WQS;

(b) The reduction in concentrations and loadings attainable by using measures capable of attaining the WQS;

(c) The financial effects on the permittee of implementing measures capable of attaining the WQS;

(d) The type and magnitude of adverse or beneficial environmental impacts resulting from implementing measures capable of attaining the WQS; and

(e) The overall impact on employment at the facility and on the economy of the area in which the discharger is located resulting from implementing measures capable of attaining the WQS.

(b) In addition to the requirements of paragraph (D)(3)(a) of this

rule, the permittee shall:

(i) Show that the variance requested complies with the antidegradation requirements of rule 3745-1-05 of the Administrative Code; and

(ii) Characterize the extent of any increased risk to human health and the environment associated with granting the variance compared with compliance with the WQS absent the variance, such that the director is able to conclude that any such increased risk is consistent with the protection of the public health, safety, and welfare.

(4) Submittal of variance application. The permittee shall submit an application for a variance to Ohio EPA. The variance application shall be considered a separate application from the NPDES permit application. The variance application shall include:

(a) All relevant information demonstrating that attaining the WQS is not feasible based on one or more of the conditions in paragraph (D)(3)(a) of this rule;

(b) All relevant information demonstrating compliance with the conditions in paragraph (D)(3)(b) of this rule;

(c) An attachment to the application that includes the following information, at a minimum, if the applicant is requesting a variance under paragraph (D)(3)(a)(vi) of this rule:

(i) For municipal dischargers:

(a) A general plan including a brief description of existing facilities; a brief description of lowest cost improvements to attain WQS; capital cost of improvements; and total annual operation and maintenance cost of facility after improvements;

(b) Existing rate structure with a copy of the authorizing ordinance(s);

(c) Audited financial reports for the previous five years;

(d) Average daily flow for the following: total, residential, commercial, industrial, institutional/other, inflow and infiltration;

(e) Number of residential customers and non-residential customers served by the facility; and

(f) Any information that may indicate conditions in paragraph (D)(3)(a) of this rule for granting a variance; or

(ii) For industrial dischargers:

(a) General plan including brief description of existing facilities;

brief description of lowest cost improvements to attain WQS; capital cost of improvements; total operation and maintenance cost of facility after improvements;

(b) Audited annual financial reports for the facility from the most recent five years;

(c) Standard industrial classification for facility;

(d) Total number of employees and total annual salary/wage/overhead costs; and

(e) Any information that may indicate conditions for granting a variance; and

(d) A plan of study if the variance is from a WQS for a bioaccumulative chemical of concern (BCC) in the lake Erie drainage basin. The plan of study shall include the following, at a minimum: data documenting the facility's current influent and effluent concentrations for the BCC; a preliminary identification of potential sources; a proposed schedule for evaluating those sources; and a proposed schedule for identifying and evaluating potential reduction, elimination, and prevention methods.

(5) Public notice of preliminary decision. Upon receipt of a complete application for a variance (or in the case of a variance under paragraph (D)(10) of this rule, the information required by paragraphs (D)(10)(a) and (D)(10)(b) of this rule), and upon making a preliminary decision regarding the variance, the director shall public notice the variance application, the availability of the public record, the availability of the plan of study (if applicable) and the preliminary decision for public comment. For discharges in the lake Erie drainage basin, the

other Great Lakes states and tribes shall be notified of the director's preliminary decision. These public notice requirements may be satisfied by including the supporting information for the variance and the preliminary decision in the public notice of a draft NPDES permit.

(6) Final decision on variance request.

(a) The director shall issue a variance or propose to deny a variance in accordance with Chapter 119. of the Revised Code. If all or part of the variance is approved by the director, the decision shall include all permit conditions needed to implement those parts of the variance so approved. Such permit conditions shall, at a minimum, require:

(i) Compliance with an initial effluent limitation that, at the time the variance is granted, represents the level currently achievable by the permittee, and that is no less stringent than that achieved under the previous permit;

(ii) That reasonable progress be made toward attaining the WQS for the water body through appropriate permit conditions. If the variance was approved for a BCC in the lake Erie drainage basin or mercury statewide, the permittee shall develop and implement a pollutant minimization program (PMP) consistent with rule 3745-33-09 of the Administrative Code;

(iii) When the duration of a variance is shorter than the duration of a permit, compliance with an effluent limitation sufficient to meet the underlying WQS upon the expiration of said variance;

(iv) A provision that allows the director to reopen and modify the permit based on any Ohio EPA WQS revisions to the variance; and

(v) Such monitoring or analyses as are necessary in order to assess the impact of the variance on public health, safety, and welfare, that may include tests of the amount of the variance parameter in the discharger's influent and effluent, in fish tissue of resident species in the receiving water, and/or in the sediments in the vicinity of the discharge.

(b) The director shall deny a variance request in accordance with Chapter 119. of the Revised Code if the permittee fails to make the demonstrations required under paragraph (D)(3) of this rule. Permit issuance shall not be affected if the variance is denied. If all , part, or parts of the variance is denied by the director, the decision may include, if necessary, an interim effluent limitation as specified under paragraph (D)(6)(a)(i) of this rule and a compliance schedule to meet final limits, at a minimum.

(7) Incorporating variance into permit. The director shall establish and incorporate into the permittee's NPDES permit all conditions needed to implement the variance as determined under paragraph (D)(6) of this rule.

(8) Renewal of variance. A variance may be renewed, subject to the requirements of paragraphs (D)(1) to (D)(7) of this rule. As part of any renewal application, the permittee shall again demonstrate that attaining WQS is not feasible based on the requirements of paragraph (D)(3) of this rule, unless the variance being renewed was approved under paragraph (D)(10) of this rule. For variances approved under paragraph (D)(10) of this rule, the permittee shall, as a part of any renewal application, resubmit the information required under paragraphs (D)(10)(a) and (D)(10)(b) of this rule, the certification required by paragraph (D)(10)(d)(v) of this rule and the permit, as well as a status report on the progress being made in the pollutant minimization program. The permittee's application also shall contain information concerning its compliance with the conditions incorporated into its permit as part of the previous variance. Reasonable progress shall have been made in implementing the pollutant minimization program under the existing permit prior to renewing variances approved under paragraph (D)(9) or (D)(10) of this rule. The director may deny any variance renewal if the permittee did not comply with the conditions of the previous variance.

(9) Multiple discharger determinations. Where necessary to address widespread WQS nonattainment issues, the director may make determinations about the factors listed in paragraphs (D)(3) and (D)(4) of this rule for a category of dischargers where the director has enough information to determine that variances

are necessary for that category according to one or more of the conditions in paragraph (D)(3)(a) of this rule. These determinations and specific application requirements shall be made by rule. Dischargers applying for a variance based on multiple discharger determinations shall submit information demonstrating that the determinations of the director are applicable to the individual discharger.

(10) The director has determined that the average cost to reduce mercury below twelve ng/l from a waste stream through end-of-pipe treatment is in excess of ten million dollars per pound of mercury removed. The director has determined that requiring removal of mercury by construction of end-of-pipe controls to attain mercury WQS, requiring controls more stringent than those required by sections 301(b) and 306 of the act would result in substantial and widespread social and economic impact. The director may determine whether there are other means by which the permittee could comply with the WQBEL without constructing end-of-pipe treatment based on the information provided by the permittee in the application submitted in accordance with this paragraph. The director has also determined that the increased risk to human health and the environment associated with granting the variance compared with compliance with the WQS absent the variance, is consistent with the protection of the public health, safety, and welfare.

(a) The director may grant a variance under paragraph (D)(10) of this rule without giving any additional consideration to the factors specified in paragraphs (D)(3)(a) and (D)(3)(b)(ii) of this rule where the director determines:

(i) That an average mercury WQBEL based on the human health or wildlife criteria adopted in Chapter 3745-1 of the Administrative Code would be necessary for a particular permittee to comply with water quality standards in the absence of a variance;

(ii) That the permittee is not currently complying with the WQBEL and information available from the application required in paragraph (D)(10)(b) of this rule indicates that there is no readily apparent means of complying with the WQBEL without

constructing end-of-pipe controls more stringent than those required by sections 301 (b) and 306 of the act; and

(iii) That the discharger is currently able to achieve or projects that it can achieve an annual average mercury effluent concentration of twelve ng/l within five years of the date that the variance is granted. For the purpose of determining eligibility under paragraph (D)(10) of this rule, the annual average mercury effluent concentration shall be the average of the most recent twelve months of effluent data.

(b) In lieu of complying with the requirements of paragraph (D)(4) of this rule, a discharger seeking a variance under paragraph (D)(10) of this rule shall submit to the director an application containing the following information in writing:

(i) A certification that the discharger intends to be subject to the terms of paragraph (D)(10) of this rule;

(ii) A description of measures taken to date for mercury reduction or elimination projects;

(iii) A plan of study for the identification and evaluation of potential mercury sources and potential methods for reducing or eliminating mercury from the discharger's effluent. The plan of study shall include the following, at a minimum: data documenting the facility's current influent and effluent mercury concentrations; identification of all known mercury sources; a description of current plans to reduce or eliminate known sources of mercury; a preliminary identification of other potential mercury sources; a proposed schedule for evaluating the mercury sources; and a proposed schedule for identifying and evaluating potential reduction, elimination, and prevention methods;

(iv) An explanation of the discharger's basis for concluding that there are no readily available means of complying with the WQBEL without construction of end-of-pipe controls; and

(v) A demonstration of compliance with the conditions in paragraph (D)(3)(b)(i) of this rule.

(c) The director shall deny the applicability of paragraph (D)(10)(a) of this rule to a discharger if the discharger fails to fulfill the requirements specified in paragraphs (D)(10)(a) and (D)(10)(b) of this rule.

(d) If the conditions of paragraphs (D)(10)(a) and (D)(10)(b) of this rule are met, the director shall issue the variance and incorporate the following requirements, at a minimum, into the discharger's NPDES permit:

(i) All conditions required under paragraph (D)(6)(a) of this rule;

(ii) A requirement that the discharger's average mercury effluent concentration as defined in paragraph (D)(10)(a) of this rule must remain less than or equal to twelve ng/l after the date specified in the discharger's accepted plan of study for the requirements under this paragraph to be applicable. The requirements of paragraph (D)(10)(f) of this rule shall be included in the permit;

(iii) Permit conditions needed to implement the plan of study submitted under paragraph (D)(10)(b)(iii) of this rule;

(iv) A requirement that the discharger use an approved USEPA analytical method that is capable of quantifying the applicable water quality standard; and

(v) A requirement that upon completion of the actions identified in the plan of study and in the PMP required by paragraph (D)(6)(a)(ii) of this rule, the permittee shall submit to the director a certification that all permit conditions imposed to implement the plan of study and PMP have been satisfied and shall include in this certification a statement as to whether compliance with the WQBEL has been achieved and can be maintained. This certification shall be accompanied by the following:

(a) All available data documenting the discharger's current influent and effluent mercury concentrations;

(b) Data documenting all known significant sources of mercury and the steps that have been taken to reduce or eliminate those

sources; and

(c) A determination of the lowest mercury concentration that currently available data indicate can be reliably achieved through implementation of the PMP.

(e) Upon receipt of the certification required by paragraph (D)(10)(d)(v) of this rule, the director shall take the following action:

(i) If the permittee certifies that it has achieved and can maintain compliance with the WQBEL, the director shall incorporate the WQBEL into the permit in lieu of the variance either via a permit modification if the permit has not yet expired or as a part of any renewal of the permit if it has expired; or

(ii) If the permittee certifies that it has not achieved or can not maintain compliance with the WQBEL, the director shall review the data submitted with the certification and such other relevant information as may be available, and:

(a) If the director concurs with the certification, the director shall allow the variance to continue in force if the variance has not expired or renew the variance in accordance with paragraph (D)(8) of this rule if the variance has expired; or

(b) If the director concludes, despite contrary certification by the permittee, that the permittee has achieved and can maintain compliance with the WQBEL, the director shall incorporate the WQBEL into the permit in lieu of the variance via a permit modification if the permit has not yet expired or as a part of any renewal of the permit if it has expired.

(f) If at any time after the date specified in a variance by which the discharger must meet an average annual mercury effluent concentration of twelve ng/l, as defined in paragraph (D)(10)(a) of this rule, or after the director's final approval of the variance renewal, whichever is earlier, the discharger's average mercury effluent concentration as defined in paragraph (D)(10)(a) of this rule exceeds twelve ng/l, the discharger shall submit an individual variance application, if a variance is desired, or request a permit modification for a compliance schedule to attain

compliance with the WQBEL. Paragraph (D)(10) of this rule shall no longer apply to the discharger on the date the director acts on the discharger's individual variance application or the date the permit modification becomes effective. The requirements of this paragraph shall not apply to the discharger if the discharger demonstrates to the satisfaction of the director that the mercury level in the discharger's effluent exceeds twelve ng/l due primarily to the presence of mercury in discharger's intake water.

(11) All variances and supporting information shall be made available by the director to the USEPA region V office after the date of the final variance decision.

(12) WQS revisions. All variances shall be distributed with Chapter 3745-1 of the Administrative Code and shall be made available upon request to all interested parties. The distributed information shall include at a minimum: the discharger receiving the variance; the term (beginning and ending dates) of the variance; the water body or water bodies affected by the variance; the pollutants affected by the variance; and the modified allowable ambient concentration values for those pollutants.



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OFFICIAL COMPILATION OF CODES, RULES AND REGULATIONS OF THE STATE OF NEW YORK
 TITLE 6. DEPARTMENT OF ENVIRONMENTAL CONSERVATION
 CHAPTER X. DIVISION OF WATER RESOURCES
 SUBCHAPTER A. GENERAL
 ARTICLE 2. CLASSIFICATIONS AND STANDARDS OF QUALITY AND PURITY
 PART 702. DERIVATION AND USE OF STANDARDS AND GUIDANCE VALUES
 Current through November 15, 2013

* Section 702.17.* Variances to effluent limitations based on standards and guidance values.

(a) The department may grant, to an applicant for a SPDES permit or to a SPDES permittee, a variance to a water quality-based effluent limitation or groundwater effluent limitation included in a SPDES permit.

(1) A variance applies only to the permittee identified in such variance and only to the pollutant specified in the variance. A variance does not affect or require the department to modify a corresponding standard or guidance value. A variance does not affect or require the department to modify a corresponding groundwater effluent limitation for the groundwater as a whole.

(2) A variance shall not apply to a new or recommencing discharger in the Great Lakes System unless the proposed discharge is a temporary one that is necessary to alleviate an imminent and substantial danger to the public health or the environment that is greater than the danger from not achieving the standard or guidance value. For the purpose of this Part, an imminent and substantial danger to the public health or the environment shall include, but not be limited to, a significant threat to the environment as defined in Part 375 of this Title.

(3) A variance shall not be granted that would likely jeopardize the continued existence of any endangered or threatened species or result in the destruction or adverse modification of such species' critical habitat.

(4) A variance shall not be granted if standards or guidance values will be attained by implementing effluent limits required under section 750-1.11(a) of this Title and by the permittee implementing cost-effective and reasonable best management practices for nonpoint source control.

(5) A variance term shall not exceed the term of the SPDES permit. Where the term of the variance is the same as the permit, the variance shall stay in effect until the permit is reissued, modified or revoked.

(b) A variance may be granted if the requester demonstrates that achieving the effluent limitation is not feasible because:

(1) naturally occurring pollutant concentrations prevent attainment of the standard or guidance value;

(2) natural, ephemeral, intermittent or low flow conditions or water levels prevent attainment, unless these conditions may be compensated for by the discharge of sufficient volume of effluent to enable the standard or guidance value to be met without violating water conservation requirements;

(3) human-caused conditions or sources of pollution prevent attainment of the standard or guidance value and cannot be remedied or would cause more environmental damage to correct than to leave in place;

(4) dams, diversions or other types of hydrologic modifications preclude attainment of the standard or guidance value, and it is not feasible to restore the waterbody to its original condition or to operate such modification in a way that would result in such attainment;

(5) physical conditions related to the natural features of the waterbody, such as the lack of a proper substrate cover, flow, depth, pools, riffles, and the like, unrelated to chemical water quality, preclude attainment of the standard or guidance value; or

(6) controls more stringent than those required by section 750-1.11(a) of this Title would result in substantial and widespread economic and social impact.

(c) In addition to the requirements of subdivision (b) of this section, the requestor shall also characterize, using adequate and sufficient data and principles, any increased risk to human health and the environment associated with granting the variance compared with attainment of the standard or guidance value absent the variance, and demonstrate to the satisfaction of the department that the risk will not adversely affect the public health, safety and welfare.

(d) The requestor shall submit a written application for a variance to the department. The application shall include:

(1) all relevant information demonstrating that achieving the effluent limitation is not feasible based on subdivision (b) of this section; and

(2) all relevant information demonstrating compliance with the conditions in subdivision (c) of this section.

(e) Where a request for a variance satisfies the requirements of this section, the department shall authorize the variance through the SPDES permit. The variance request shall be available to the public for review during the public notice period for the permit. The permit shall contain all conditions needed to implement the variance. Such conditions shall, at minimum, include:

(1) compliance with an initial effluent limitation that, at the time the variance is granted, represents the level currently achievable by the requestor, and that is no less stringent than that achieved under the previous permit where applicable;

(2) that reasonable progress be made toward achieving the effluent limitation based on the standard or guidance value, including, where reasonable, an effluent limitation more stringent than the initial effluent limitation;

(3) additional monitoring, biological studies and pollutant minimization measures as deemed necessary by the department;

(4) when the duration of a variance is shorter than the duration of a permit, compliance with an effluent limitation sufficient to meet the underlying standard or guidance value, upon the expiration of the variance; and

(5) a provision that allows the department to reopen and modify the permit for revisions to the variance.

(f) The department shall deny a variance request if the requestor fails to make the demonstrations required under subdivisions (b) and (c) of this section.

(g) A variance may be renewed, subject to the requirements of this section. As part of any renewal application, the permittee shall again demonstrate that achieving the effluent limitation is not feasible based on the requirements of this section. The permittee's application shall also contain information concerning its compliance with the conditions incorporated into its permit as part of the original variance pursuant to subdivisions (b) and (c) of this section. Renewal of a variance may be denied if the permittee did not comply with the conditions of the original variance.

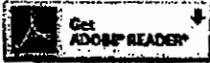
(h) Where the department determines that a multiple discharge variance is necessary to address widespread standard or guidance value attainment issues including the presence of a ubiquitous pollutant or naturally high levels of a pollutant in a watershed, the department, in lieu of the discharger, may conduct the variance demonstration requirements in subdivisions (b) and (c) of this section. Any permittee accepting such variance shall be subject to the provisions of subdivision (e) of this section.

(i) The department will make available to the public a list of every variance that has been granted and that remains in effect.

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Exhibit 4

DOW 1.3.10 Mercury - SPDES Permitting, Multiple Discharge Variance, and Water Quality Monitoring	
New York State Department of Environmental Conservation	
DEC Program Policy	
Issuing Authority: Mark Klotz, Division Director Signature: 	Title: Mercury - SPDES Permitting, Multiple Discharge Variance, and Water Quality Monitoring
Date Issued: October 2010	Latest Date Revised: New

***** NOTICE *****

This document has been developed to provide Department staff with guidance on how to ensure compliance with the statutory and regulatory requirements, including case law interpretations, and to provide consistent treatment of similar situations. This document may also be used by the public to gain technical guidance and insight regarding how Department staff may analyze an issue and factors in their consideration of particular facts and circumstances. This guidance document is not a fixed rule under the State Administrative Procedures Act subsection 102(2)(a)(1). Furthermore, nothing set forth herein prevents staff from varying from this guidance as the specific facts and circumstances may dictate, provided staff's actions comply with applicable statutory and regulatory requirements. This document does not create any enforceable rights for the benefit of any party.

I. SUMMARY

This document provides technical guidance to NYSDEC staff for use when developing SPDES permits that regulate wastewater and stormwater discharges containing mercury and for use when performing mercury monitoring of water or wastewater.

Mercury is a bioaccumulative and persistent pollutant. At very low concentrations, mercury can accumulate in fish and cause health problems in people and wildlife that consume these contaminated fish. At higher concentrations, mercury can also be toxic to fish and cause health problems in people that drink contaminated water. New York State has established ambient water quality standards in regulation that protect the health of humans, wildlife, and aquatic life. Note that mercury is an element and therefore, while the form of mercury may change, mercury itself cannot be destroyed or eliminated from the environment as organic chemical pollutants can.

Studies show that most of the mercury entering the environment is emitted to the air. The primary source of these emissions is coal-fired power plants. Mercury released into the air may travel many miles before eventually being deposited on the earth's surface. Deposition of this mercury directly to water or indirectly by runoff from the land is the primary cause of water pollution. Secondary causes of water pollution include wastewater discharges, spills, and improper waste disposal practices. Mercury is present in the earth's crust and natural processes also contribute some mercury to the environment, e.g., soil erosion.

Available monitoring data suggests that: mercury is ubiquitous in the environment; there is

an international mercury water quality problem; mercury levels in State surface waters consistently exceed the water quality standard; there is widespread contamination of fresh water and marine fish and as a result there are multiple mercury-specific fish consumption advisories; and, mercury is present in all wastewater and stormwater discharges at concentrations that are problematic.

Considering the above, questions have arisen concerning appropriate control of mercury in wastewater and stormwater discharges, i.e., interpretation of the mercury water quality standards, translation of these standards to Water Quality Based Effluent Limits (WQBELs) in SPDES permits, the achievability of these WQBELs, and, appropriate analytical methods and sample collection techniques to use when monitoring for mercury.

This guidance document addresses the above issues by supplementing information contained in other documents to provide, in concert, the total guidance necessary for NYSDEC staff to draft SPDES permits that control mercury discharges. Guidance for performing mercury monitoring of groundwater, surface water, and wastewater is also included.

It is noteworthy that this guidance includes a multiple discharge variance for mercury developed in accordance with 6 NYCRR Part 702.17(h). This is the first such variance developed by the State. This variance is necessary because human caused conditions or sources of mercury prevent attainment of the water quality standard and cannot be remedied, i.e., mercury is ubiquitous in New York waters at levels above the water quality standard and compliance with a WQBEL for mercury cannot be achieved with demonstrated treatment technologies.

Many NYSDEC program areas share responsibility for addressing mercury pollution - from measuring levels in air, soil, water, and biota; to preventing pollution by regulating air emissions, use in society, waste disposal and cleanup, wastewater discharges, and educating and assisting businesses and consumers in finding mercury-free alternatives. The NYSDEC has established a multi-divisional mercury work group to coordinate its response to mercury-related issues. Some of the more recent mercury reduction initiatives include stricter limits on emissions from coal-fired power plants, restrictions on societal use of mercury-containing items, and regulation of mercury use by dentists.

There is a world-wide mercury contamination problem. While NYSDEC is working hard to address this issue, much of the State's pollution originates beyond State borders. Additional leadership on mercury reduction at both the national and international level is required to solve this problem. Furthermore, even if anthropogenic sources of mercury contamination could be completely eliminated, the global mercury cycle is such that additional time would be required before acceptable levels in water and fish & wildlife are restored. Consequently, it does not appear possible in the short-term for State efforts to achieve the surface water quality standard or to eliminate mercury-based fish consumption advisories. Be that as it may, meaningful mercury reduction will be achieved as the various initiatives being implemented by New York State and others are phased in. This guidance on SPDES permitting and monitoring supports New York State's effort to reduce mercury pollution.

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III. ACRONYMS LIST

AWQC – Ambient Water Quality Criteria

BWP – NYSDEC, DOW, Bureau of Water Permits

CAIR – Clean Air Interstate Rule

CAMR – Clean Air Mercury Rule

CFR – Code of Federal Regulations

CSO – Combined Sewer Overflow

DEP – NYSDEC, Division of Environmental Permits

DOW – NYSDEC, Division of Water

EBPS – Environmental Benefit Permit Strategy

ELAP – NYSDOH Environmental Laboratory Approval Program

GAC – Granular Activated Carbon

GLCA – General Level Currently Achievable

IDV – Individual Discharger Variance

ILCA – Individual Level Currently Achievable

ISOMET – Isolation Sampler For Trace Metals

MDL – Method Detection Limit

MDV – Multiple Discharger Variance

MGD – Million Gallons per Day

ML – Minimum Level

MMP – Mercury Minimization Program

MOA – Memorandum of Agreement between NYSDEC and USEPA Region 2

MS4 – Municipal Separate Storm Sewer System

MSGP – Multi Sector General Permit

ng/L – Nanograms per Liter

NYCRR – New York State Codes, Rules and Regulations

NYSDEC – New York State Department of Environmental Conservation

NYSDOH – New York State Department of Health

ORF – SSO, Overflow Retention Facility

PCI – Private/Commercial/Institutional facility

PMP – Pollutant Minimization Program

POTW – Publicly Owned Treatment Works

PQL – Practical Quantitation Limit

RGGI – Regional Greenhouse Gas Initiative

SGAC – Sulfur-impregnated Granular Activated Carbon

SPDES – State Pollutant Discharge Elimination System

SSO – Sanitary Sewer Overflow

TBEL – Technology Based Effluent Limit

TMDL – Total Maximum Daily Load

TOGS – Technical & Operation Guidance Series

USEPA – United States Environmental Protection Agency

WQ – Water Quality

WQBEL – Water Quality Based Effluent Limit

IV. BACKGROUND, POLICY, and PROCEDURE

1. MERCURY WATER QUALITY STANDARDS

For New York State waters there exist several water quality standards based on the different water classes and best uses. These classes and best uses are in regulation at 6 NYCRR Part 701. The water quality standards themselves are in regulation at 6 NYCRR Part 703 and listed in guidance in *TOGS 1.1.1*. There is also a federal water quality standard for the Great Lakes System in regulation at 40 CFR 132.6(e). The various mercury water quality standards are summarized below in *Table 1*. These water quality standards provide a value against which to compare ambient monitoring results and are one of the two primary bases for establishing effluent limits in SPDES permits (the other being technology based effluent limits).

Water quality standards apply to all forms of a substance unless otherwise specified, i.e., the *total* amount. *Total* is the sum of undissolved (particulate) and dissolved fractions of the substance. *Dissolved* refers only to the fraction of the substance in solution. Unless noted otherwise, when the term mercury is used in this document the *total* form is being referred to.

The most stringent of the ambient surface water quality standards for mercury is 0.70 nanograms per liter (ng/L) *dissolved* mercury, which protects human consumers of fish.

The mercury ambient groundwater quality standard for class GA water is 700 ng/L *total* mercury, which protects human consumers of groundwater.

2. AVAILABLE MONITORING DATA

2.1 Ambient Water Quality

NYSDEC monitoring suggests that the mercury ambient surface water quality standard of 0.7 ng/L *dissolved* is exceeded in all surface waters in New York State. Compliance is also problematic for the 1.3 ng/L *total* and 2.6 ng/L *dissolved* ambient surface water quality standards. The average values for surface water measurements using low level analytical techniques are 9 ng/L *total* and 2 ng/L *dissolved*. Rain/snowmelt measurements collected in New York State during 2008 averaged 8 ng/L *total*¹.

Unlike surface water, there is no corresponding water quality problem in groundwater. This is due to the large difference between the 0.7 ng/L *dissolved* surface water standard and the 700 ng/L *total*

¹ Precipitation data from National Atmospheric Deposition Program (NRSP-3). 2009. NADP Program Office, Illinois State Water Survey, 2204 Griffith Dr., Champaign, IL 61820. Website - nadp.sws.uiuc.edu. The New York State value was determined by averaging the average values for monitoring sites NY06, NY20, NY43, NY68, and NY99.

groundwater standard. Available data suggests that the groundwater standard is only infrequently exceeded and that such cases typically result from localized waste disposal problems.

Data collected in other States indicates similar conditions nationwide.

2.2 Fish & Wildlife

NYSDEC monitoring shows widespread mercury contamination of fresh water and marine fish. Consequently, all fresh and marine surface waters of the State are under fish consumption advisory due to mercury pollution. Nationwide, more advisories have been issued for mercury than for all other pollutants combined.²

2.3 Wastewater Quality

NYSDEC has categorized wastewater discharges into three broad groups: industrial, municipal, and private/commercial/institutional (PCI). Further explanation of these groups is provided in *TOGS 1.2.2*.

Industrial wastewater mercury levels vary depending on past/present site operations and treatment system type. The statewide average and median maximum values of 149 industrial outfalls (including wastewater, stormwater, and combined outfalls) for which low-level mercury monitoring data (i.e., analysis by USEPA Method 1631) is available are 110 ng/L and 5.5 ng/L respectively. Note that if four facilities are excluded from this dataset the statewide average drops to 14 ng/L. It is also noteworthy that the focus of monitoring at industrial facilities has been on significant-class permits where the potential for mercury discharge is greater. If non-significant-class industrial permits were sampled proportionately the average industrial outfall concentration would likely be much lower. It appears that for facilities with significant mercury concentrations in their wastewater, the most effective treatment systems can achieve an effluent level of approximately 10 ng/L. Further information on mercury treatment is summarized below in section 6 of this guidance.

Municipal wastewater quality also varies, depending on the mix of residential, commercial, and industrial users tributary to the collection system and depending on the collection system type, i.e., separate or combined. Even so, municipal discharges from Publicly Owned Treatment Works (POTWs) are much more alike than industrial discharges due to the comparable treatment systems employed and the usual predominance of the residential/commercial component. POTWs typically achieve > 90% removal efficiency for mercury and the statewide average and median maximum discharge values of 94 POTWs for which low-level mercury monitoring data is available are 9.7 ng/L and 7.8 ng/L respectively. It is noteworthy that 6NYCRR Part 374-4 required a phased program for dentists to install amalgam separators by May 2008. Compliance is expected to have reduced

² See the New York State Department of Health publication, *Chemicals in Sportfish and Game, 2009-2010 Health Advisories* (www.health.state.ny.us/environmental/outdoors/fish/fish.htm). A summary of national fish consumption advisories is available from USEPA (epa.gov/waterscience/fish/advisories/).

mercury loadings to POTWs by as much as 50% compared to pre-2006 levels.³ NYSDEC predicts that the combined effect of amalgam separator installation, other State mercury reduction efforts, and more widespread application of improved sample collection techniques will reduce long-term average POTW discharges further.

Most PCI discharges are representative of residential/commercial activity and, lacking any industrial component, should generally contain less mercury than POTWs. One notable exception may be hospitals and some other institutions which, due to the use and/or disposal of mercury-containing products or equipment, may discharge higher mercury levels. The statewide average discharge value of 3 PCIs for which low-level mercury monitoring data is available is 2.5 ng/L.

2.4 Recommended Guidance

NYSDEC staff should assume the following, unless demonstrated otherwise:

- (a) All surface waters exceed the 0.7 ng/L *dissolved* surface water quality standard;
- (b) All groundwaters comply with the 700 ng/L groundwater quality standard;
- (c) All fish contain levels of mercury that preclude unrestricted safe consumption by humans;
- (d) All wastewater and stormwater discharges contain mercury levels exceeding 2.6 ng/L;
- (e) There is no demonstrated treatment technology that can consistently achieve 2.6 ng/L.

Some of the available mercury monitoring data has been summarized in *Appendix A*.

3. ANALYTICAL & SAMPLE COLLECTION METHODS

3.1 Analytical Methods

Due to the very low mercury surface water quality standard, analytical detection limits are an important consideration. Definitions of Method Detection Limit (MDL) and Minimum Level (ML) are provided in 40 CFR Part 136. Analytical results which are reported below the ML are generally considered to be qualitative, i.e., useful only for determining presence or absence. At or above the ML analytical results are generally considered to be quantitative, i.e., useful for determining numerical values. Because single samples are typically used to determine compliance with ambient water quality standards and effluent limits, both of which are usually numerical, only analytical methods which have a ML which is more sensitive than the standard or effluent limit of interest should be used for monitoring, if available. Otherwise, compliance assessments will not be conclusive. Note that USEPA MLs are considered to be equivalent to Practical Quantitation Limits (PQLs).

³ A March 2002 Association of Metropolitan Sewerage Agencies study entitled, *Mercury Source Control and Pollution Prevention Program Evaluation*, attributed 35-40% of the mercury coming into a POTW to dental offices. New York State regulations require dental offices to install and maintain separators which remove 99% of dental amalgam (95% if installed prior to effective date of regulation).

Historically, measurement of mercury in water and wastewater has been performed using USEPA Methods 245.1 (1974) or 245.2 (1974). Recognizing the need for more sensitive analytical methods, USEPA has more recently promulgated two additional methods for mercury measurement, Method 1631 (1999) and Method 245.7 (2007).⁴ Note that when an analytical method is referred to the currently approved version is meant unless otherwise indicated.

When USEPA Method 1631 was first promulgated there were few laboratories capable of performing the analysis. However, since that time many more laboratories now have this capability and laboratory availability is presently not a significant issue. The Method 1631 cost of analysis is greater than that for the other methods but it is not considered to be an expensive test.

An up-to-date list of laboratories certified by the New York State Department of Health (NYSDOH) Environmental Laboratory Approval Program (ELAP) to perform analysis for each of these methods can be obtained from the NYSDOH, contact information is available via the NYSDOH website.⁵

3.2 Sample Collection Methods

One difficulty in accurately measuring mercury at the low levels necessary to perform compliance assessments is avoiding sample contamination during collection, transport, and analysis. To address this issue USEPA promulgated a sample collection method, USEPA Method 1669.⁶ While this method was developed for ambient monitoring it is commonly used for wastewater sampling too. Please note that sample collection using USEPA Method 1669 requires a higher level of expertise than traditional sample collection methods and typically two people are employed to collect these samples.

Environment Canada has designed a number of water-sampling systems for collection of low level metals samples known as ISOMET (isolation sampler for trace metals). Using ISOMET-type samplers is often the most simple and practical means of collecting "clean" samples in accordance with USEPA Method 1669. Descriptions of the ISOMET samplers and techniques can be found on the internet.⁷

NYSDEC Division of Water (DOW) has developed a sampler modeled after one of the Environment Canada ISOMET devices. A description of this sampler and recommendations for its use can be

⁴ www.epa.gov/waterscience/methods/method/mercury/

⁵ www.wadsworth.org/labcert/elap/elap.html

⁶ *Method 1669, Sampling Ambient Water for Trace Metals at EPA Water Quality Criteria Levels, July 1996* (www.epa.gov/waterscience/methods/method/inorganics/1669.pdf).

⁷ www.canamglass.org/workshop/pdf/day2/1400_McCrea.pdf and [cronus.uwindsor.ca/units/stateofthestraight/softs.nsf/54ef3e94e5fe816e85256d6e0063d208/5f9c386cc6fcc407852573a30062ae66/\\$FILE/SOS%202004_Section%206.18.pdf](http://cronus.uwindsor.ca/units/stateofthestraight/softs.nsf/54ef3e94e5fe816e85256d6e0063d208/5f9c386cc6fcc407852573a30062ae66/$FILE/SOS%202004_Section%206.18.pdf)

found on the NYSDEC website.⁸ A standard operating procedure for use of the device can be found on the NYSDEC internal website.⁹

Recommendations for sample type and sample collection equipment are noted in the above websites and in the following section.

3.3 Recommended Guidance

Detection limits, estimated costs, and recommendations on method suitability for the four USEPA approved analytical methods are summarized below in *Table 2*. Recommendations on method suitability are based on a comparison of ambient water quality standards and WQBELs to method MLs. (Note - an explanation of effluent limit development is provided in section 4 of this guidance.) NYSDEC staff, NYSDEC contractors, permittees, and others should follow these recommendations.

Review of *Table 2* will reveal that USEPA Methods 245.1, 245.2, and 245.7 are not recommended for assessing either compliance with ambient surface water quality standards or compliance with SPDES permit surface water discharge limits and their use for these purposes should be phased out. While USEPA guidance and proposed regulation¹⁰ on this subject would appear to allow for use of methods other than Method 1631 for measuring effluents in cases where these methods are "sufficiently sensitive", such use is problematic and is therefore not endorsed by the NYSDEC. For example, if a permittee used Method 245.7 and the sample result was <5 ng/L this would require repeating the analysis using Method 1631 resulting in additional monitoring expense and delay. Such delay could cause permittees to miss data collection/reporting deadlines and result in permit noncompliance. Method 245.7 is useful for monitoring influents and internal monitoring locations other than surface water SPDES permit compliance points. Method 245.7 may also be useful for other wastewater and water quality studies where compliance assessments are not critical. Any of the four methods is acceptable for monitoring ambient groundwater or discharges to groundwater, though the newer methods are preferred.

When performing permit limit compliance determinations analysis should be for the *total* form of mercury. When performing ambient surface water compliance determinations analysis should generally be for the *total* and *dissolved* forms of mercury. When performing ambient groundwater compliance determinations analysis should be for the *total* form of mercury. There is some lingering confusion about the term *total recoverable*. For metals determinations using USEPA

⁸ www.dec.ny.gov/chemical/58826.html

⁹ SOP #501-06, Rev. 1.0 - Standard Operating Procedure For The Low Level Mercury Sampling Device, May 2006 (internal/home/dow/lowlevelhgsop.pdf).

¹⁰ *Analytical Methods for Mercury in National Pollutant Discharge Elimination System (NPDES) Permits*, USEPA, August 23, 2007 (www.epa.gov/npdes/pubs/mercurymemo_analyticalmethods.pdf). Federal Register / Volume 75, No. 120 / Wednesday, June 23, 2010 / Proposed Rules / pages 35712 – 35720.

analytical methods, the terms *total* and *total recoverable* are synonymous.¹¹ Therefore, for the sake of consistency and brevity, *total* should be used where appropriate in SPDES permits and *total recoverable* should be discontinued.

When monitoring ambient surface water or wastewater discharges to surface water it is recommended that USEPA Method 1669 be followed. Sample type should be a single grab or multiple grabs can be collected and composited by the laboratory during analysis. Generally, single grab samples should be required unless significant effluent variability is expected. Use of automated sampling equipment is not recommended.

Groundwater standards are much less stringent so that potential low-level sample contamination is less of a concern. Use of standard techniques to minimize sample contamination should be sufficient when sampling groundwater or discharges to groundwater. Sample type may be either grab or composite. Use of automated sampling equipment is not recommended.

Note that both the 1990 version of *TOGS 1.3.7 - Analytical Detectability and Quantitation Guidelines for Selected Environmental Parameters* and the December 1988 guidance document referenced therein are obsolete and use of these for guidance should be abandoned.

4. SPDES PERMIT REQUIREMENTS

For pollutants of concern, SPDES permits typically specify numerical effluent limits, monitoring frequencies, and sample types. Permits may also require use of particular analytical methods and may specify other conditions. Permit writing procedures are detailed in *TOGS 1.2.1, 1.3.1, and 1.3.3*. Mercury-specific permit writing information is provided below.

4.1 Discharges to Groundwater

For discharges to class GA groundwater there is a 1400 ng/L *total* mercury groundwater effluent limit specified in 6 NYCRR Part 703.6. This level is well within the capabilities of existing treatment technology. For these discharges the permit writer should specify a limit of 1400 ng/L *total* mercury and set a monitoring frequency and sample type in accordance with *TOGS 1.2.1 or 1.3.3*. There is typically no need to specify use of specific analytical methods for discharges to groundwater as all methods (see *Table 2*) have acceptable detection capabilities relative to the 1400 ng/L effluent limit, though the newer methods are preferred.

The potential for sample contamination to significantly influence assessments of groundwater quality and compliance with groundwater effluent limits is considered low. Therefore, routine use of USEPA Method 1669 during sample collection is not recommended.

¹¹ *Guidance for Implementation and Use of EPA Method 1631 for the Determination of Low-Level Mercury (40 CFR part 136), page 5-2, USEPA, EPA 821-R-01-023, March 2001. Also, Method 1631, Revision E: Mercury in Water by Oxidation, Purge and Trap, and Cold Vapor Atomic Fluorescence Spectrometry, page 3, USEPA, EPA-821-R-02-019, August 2002.*

Note that if a discharge is to groundwater and the groundwater is in close communication with surface water then, in accordance with *TOGS 1.2.1, Section II*, permit limits should be based on the surface water requirements.

As the recommendations for discharges to groundwater do not significantly differ from past practices, no special effort is deemed to be necessary to update these permits.

4.2 Discharges to Surface Water

Typically, for each pollutant the more stringent of technology based effluent limits (TBELs) or water quality based effluent limits (WQBELs) is included in the SPDES permit. In the case of mercury, the WQBEL will always be more stringent than any TBEL. Since the most stringent ambient water quality standard is assumed to be exceeded in all cases, no waste assimilative capacity is allowed and the WQBEL is set equal to this standard, i.e., 0.70 ng/L, and expressed as the *total* form (see also 40 CFR Part 132, Appendix F, Procedure 2(C)(3) which has equivalent consequences). It is also assumed that all permittees discharge mercury above this level and that none can achieve the WQBEL because treatment technologies have not consistently met such a limit. **It would be unreasonable to issue permits containing effluent limits which cannot be achieved. Therefore, requiring compliance with the WQBEL is generally not a realistic permitting option. Further, it is not feasible to prohibit such discharges since this would require cessation of all known wastewater and stormwater discharges in the State.**

The only other regulatory-compliant option for permitting mercury discharges is to grant a variance from the WQBEL. 6 NYCRR Part 702.17 authorizes two types of variances. One type of variance is an Individual Discharge Variance (IDV) which authorizes a single discharger. The other type of variance is a Multiple Discharge Variance (MDV) which may authorize many dischargers. Since it is assumed that no dischargers can achieve the WQBEL they should typically be authorized by a variance.

The MDV is the most economic variance option since this eliminates the need for each permittee to develop their own approvable IDV and for the NYSDEC and USEPA to review potentially thousands of such IDV requests. Therefore, the NYSDEC has determined that a MDV is necessary to address the statewide mercury surface water quality problem.

The MDV is described in section 4.2.1. IDV procedures are described in section 4.2.2.

Permittees that attempt to avoid mercury-related permit requirements by insisting their discharge contains no mercury should be required to successfully demonstrate this. Five rounds of intake, influent, and effluent sampling using USEPA Method 1631 should be sufficient to characterize each contested outfall for the purpose of determining the presence or absence of mercury. We do not expect any permittees to consistently achieve non-detect at the MDL of 0.2 ng/L.

Note that the NYSDEC is no longer applying 6 NYCRR Part 702.16(b) in the Great Lakes Basin in accordance with the 2000 MOA.¹²

4.2.1 Multiple Discharge Variance (MDV) and Recommended Permitting Strategy

6 NYCRR 702.17(h) authorizes the use of multiple discharger variances, stating that: *“Where the department determines that a multiple discharge variance is necessary to address widespread standard or guidance value attainment issues including the presence of a ubiquitous pollutant or naturally high levels of a pollutant in a watershed, the department, in lieu of the discharger, may conduct the variance demonstration requirements in subdivisions (b) and (c) of this section. Any permittee accepting such variance shall be subject to the provisions of subdivision (e) of this section.”*

6 NYCRR 702.17(b) specifies the factors on which a variance may be granted if the requester demonstrates that achieving the WQBEL is not feasible. The justification for granting a statewide multiple discharger variance for mercury is based on the rationale found under 6NYCRR 702.17(b)(3) whereby, *“human caused conditions or sources of pollution prevent attainment of the standard ... and cannot be remedied ...”*.

Section 1 of this guidance document identifies the mercury water quality standards. Section 2.1 indicates that the three most stringent standards are exceeded statewide. Section 2.3 shows that no dischargers can consistently meet WQBELs based on these three standards. Section 4.2.1.1 documents that the mercury problem is human caused. Section 6 demonstrates that the problem cannot be remedied, i.e., there are no demonstrated wastewater treatment technologies which can achieve these WQBELs and the mercury problem cannot otherwise be corrected in the foreseeable future. Additional details on the causes and magnitude of this problem, and the lack of short-term solutions can be found in the following documents: United Nations Environment Programme *Global*

¹²

Amendment To The National Pollutant Discharge Elimination System Memorandum Of Agreement Between The New York State Department Of Environmental Conservation And The United States Environmental Protection Agency, Region 2 Relating To Implementation Of The Requirements Of The Great Lakes Water Quality Guidance In The Great Lakes Basin, September 27, 2000.

*Mercury Assessment, December 2002*¹³; *EPA's Roadmap for Mercury, July 2006*¹⁴; *NYSDEC Mercury Work Group Recommendations to Meet the Mercury Challenge, December 2006*¹⁵; and *Northeast Regional Mercury Total Maximum Daily Load, October 24, 2007 (TMDL)*¹⁶.

Based upon the above, NYSDEC concludes that human caused conditions or sources of mercury prevent attainment of WQBELs based on protection of human health (fish consumption) and wildlife. Note that while this MDV does not provide for a variance from WQBELs based on protection of human health (water supply) and aquatic life (acute & chronic) such WQBELs are of little practical consequence because the MDV effluent limits in section 4.2.1.2 are more stringent.

Although there is an increased risk to human health and the environment associated with granting the variance compared with compliance with the mercury WQBELs absent the variance, as described above there is no realistic alternative to the MDV. During this period the increased risks to human health are mitigated by fish consumption advisories issued periodically by both the NYSDOH and the United States Food and Drug Administration. Therefore, the NYSDEC has determined that the MDV is consistent with the protection of the public health, safety, and welfare.

The MDV will result in reasonable progress toward achieving the WQBEL by including meaningful, yet achievable, requirements in SPDES permits. All surface water SPDES permittees are eligible for authorization by the MDV. While long-term solutions are being implemented there will be a continuing need for this MDV. Specific elements of New York's MDV are explained below.

Mercury MDV permitting strategy summary:

- ▶ Mercury Total Maximum Daily Load;
- ▶ SPDES Permit Limits;
- ▶ Discharge Prioritization;
- ▶ Mercury in Intake Water;
- ▶ Mercury Minimization Programs;
- ▶ Analytical Methods;
- ▶ Permit Application Review;
- ▶ Anti-backsliding;
- ▶ Anti-degradation;
- ▶ General Permit Issues;
- ▶ MDV Term;
- ▶ Implementation Schedule.

Note - Proper MDV authorization requires that a permit be developed in accordance with the following sections. Permittees are considered to be authorized via the MDV only when their SPDES

¹³ www.chem.unep.ch/mercury/Report/GMA-report-TOC.htm

¹⁴ www.epa.gov/mercury/pdfs/FINAL-Mercury-Roadmap-6-29.pdf

¹⁵ http://www.dec.ny.gov/docs/permits_ej_operations_pdf/meetmercurychallenge.pdf

¹⁶ www.dec.ny.gov/docs/water_pdf/tmdlnehg.pdf

permit conforms exactly to the MDV guidance. Any deviation from this MDV guidance results in the need for authorization by an IDV, as described in section 4.2.2, or by a limit of 0.70 ng/L.

4.2.1.1 Mercury Total Maximum Daily Load (TMDL):

The USEPA-approved *Northeast Regional Mercury Total Maximum Daily Load, October 2007*, (TMDL)¹⁷ outlines the strategy for achieving the water quality goal in the northeast United States. The TMDL is a regional plan to reduce mercury entering into the State surface waters of Connecticut, Maine, Massachusetts, New Hampshire, New York, Rhode Island, and Vermont.

Based on calculations in the TMDL, 98% of the mercury load to surface waters is the result of atmospheric deposition with the remaining 2% due to wastewater discharges. Logically, the TMDL focuses primarily on reductions in anthropogenic mercury emissions as a means of reducing atmospheric deposition of mercury and thereby improving water quality. According to the TMDL, a 98% reduction in atmospheric deposition of mercury is needed in order to meet water quality goals.

The TMDL does not assign individual loadings to wastewater and stormwater discharges. Rather, such load reductions are expected to be achieved via mercury minimization programs and the continuation of regional mercury reduction efforts. This approach has been endorsed by USEPA in its guidance¹⁸ and as evidenced by its approval of the TMDL.

In New York State these TMDL-related mercury reduction efforts include, but are not limited to, establishing mercury limits in SPDES permits consistent with the *NYSDEC Mercury Work Group Recommendations to Meet the Mercury Challenge, December 2006*¹⁹, which is incorporated into the TMDL by reference.

The next several sections explain how the TMDL will be implemented in New York State through SPDES permits.

4.2.1.2 SPDES Permit Limits:

Available low-level monitoring data was evaluated to determine a General Level Currently Achievable (GLCA) applicable to all discharges authorized by the MDV. Upon consideration of the monitoring data summarized in section 2.3 and *Table 5*, a value of 50 ng/L was selected as the GLCA, expressed as a daily maximum.

¹⁷ www.dec.ny.gov/docs/water_pdf/tmdlnehg.pdf

¹⁸ See page 12 of *Elements of Mercury TMDLs Where Mercury Loadings Are Predominantly From Air Deposition, September 29, 2008* (www.epa.gov/owow/tmdl/pdf/document_mercury_tmdl_elements.pdf). Also, *Guidance for Implementing the January 2001 Methylmercury Water Quality Criterion, EPA-823-R-09-002, January 2009* (www.epa.gov/waterscience/criteria/methylmercury/pdf/guidance-final.pdf).

¹⁹ www.dec.ny.gov/docs/permits_ej_operations_pdf/meetmercurychallenge.pdf

The data indicate that 93% of POTWs and 82% of significant-class industrial outfalls (90% if four facilities are excluded) each have daily maximum values less than the GLCA. It is noteworthy that many POTW measurements were made prior to the May 18, 2008 installation deadline for dental amalgam separators. More recent POTW effluent samples show a decline in mercury levels and consequently we predict that 95% of POTWs should be achieving the GLCA at this time. NYSDEC expects that the combined effect of amalgam separator installation, other State mercury reduction efforts, and more widespread application of improved sample collection techniques will reduce POTW discharges further. NYSDEC also predicts that few, if any, non-significant-class industrial permits discharge mercury above the GLCA. When the non-significant-class industrial permits are factored in, the overall industrial compliance with the GLCA is estimated to be more than 90%. While PCI effluent data is lacking, as noted in section 2.3 above, these discharges are generally expected to contain less mercury than POTWs so predicted GLCA compliance is expected to be greater than that for POTWs. All stormwater runoff which is uncontaminated by site-related activity is believed to comply with the GLCA.

Any facility incapable of meeting the GLCA at the time of permit issuance should be assigned an Individual LCA (ILCA) as an initial permit limit. Where an ILCA is necessary and sufficient data exists, an ILCA should be calculated in accordance with the statistical procedures specified in *TOGS 1.2.1*. Where an ILCA is necessary and insufficient data exists to statistically calculate one (i.e., less than ten sample results) an estimated ILCA of 200 ng/L should be appropriate for most dischargers as 100% of POTWs and 92% of significant-class industrial outfalls each have daily maximum values less than 200 ng/L. When a permittee disputes the 200 ng/L estimated ILCA then they should be required to collect sufficient data to allow for calculation of an ILCA. In all cases, ILCAs which threaten compliance with water quality standards for human water supplies or either acute or chronic standards for aquatic life protection should be avoided.

Inclusion of ILCA limits which exceed the GLCA in permits should be accompanied by a higher monitoring frequency and by a requirement to achieve the GLCA within the shortest reasonable time²⁰ of permit issuance, generally three years or less. In such cases, the permit must specify both ILCA & GLCA-based permit limits and their dates of applicability. However, inclusion of an explicit compliance schedule with engineering milestones, as is common in most permits which include interim permit limits, is not necessary as the required mercury reduction schedule will be addressed via the Mercury Minimization Program (MMP) permit requirements (see section 4.2.1.5 below).

GLCA and ILCA limits may be established for industrial/PCI facilities at internal locations as recommended in *TOGS 1.2.1*.

The various LCAs and related recommendations are reflected in *Table 3*.

²⁰

See 6 NYCRR Part 750-1.14 (www.dec.ny.gov/regs/4585.html#16201).

4.2.1.3 Discharge Prioritization:

As of April 2010, the approximate number of SPDES permits in effect for discharges to New York State surface waters was 3400 individual permits, and, three general stormwater permits which authorize 9000 separate sites. Each of these facilities is assumed to discharge mercury at levels exceeding the WQBEL. Considering the large number of facilities, it is appropriate to focus resources on the ones which are likely to yield the greatest environmental benefit, i.e., the facilities which are significant sources, including those that use mercury in their processes, accept mercury containing wastewater, discharge stormwater runoff which is a vector for site-related mercury contamination, or otherwise generate significant concentrations of mercury unrelated to atmospheric deposition or water intake.

High priority is assigned to POTWs with a design flow of 5 MGD and greater, due to their higher flow rate and potential for these discharges to be influenced by industrial users and hauled wastes. The 5 MGD value is equivalent to the flow threshold employed by USEPA when determining the need for a pretreatment program. A high priority is also being assigned to other discharges (industrial, PCI, and, POTWs less than 5 MGD) if they are significant mercury sources, as defined by any one of the following criteria:

- ▶ One or more effluent measurements which exceed the GLCA;
- ▶ Internal or tributary waste stream measurements exceed the GLCA and the final effluent measurements are less than the GLCA due solely to dilution by uncontaminated waste streams;
- ▶ A permit application or other information indicates that mercury is handled on site and could be discharged through outfalls;
- ▶ Outfalls which contain mercury due to past waste disposal practices; or,
- ▶ Sizable POTW collection systems which are permitted (SPDES) and transmit wastewaters to large regional treatment plants that are separately permitted.

These high priority permits should be drafted by Bureau of Water Permits staff in the Central Office unless otherwise determined by the Regional Water Engineer and Bureau of Water Permits Director.

Low priority is assigned to discharges that do not meet the high priority criteria. Low priority discharges are believed to contain relatively low levels of mercury solely due to its presence in precipitation, intake water, or other background sources beyond the control of the individual permittees.

These discharge priority categories are reflected in *Table 3*.

The question may arise concerning how to handle permittees which are designated as high priority but then achieve effluent levels below the GLCA, i.e., should they be reassigned to a low priority? Permittees which are assigned a high priority should remain in that category for the duration of this MDV.

4.2.1.4 Mercury in Intake Water:

40 CFR Part 132, Appendix F, Procedure 5(D) addresses consideration of intake pollutants in determining reasonable potential. These requirements are interpreted in USEPA guidance.²¹ For some discharges, the only source of mercury may be the intake water taken directly from the same body of water to which the discharge occurs. In these situations where there are no known sources or additional contributions of mercury which would qualify the facility as high priority (see section 4.2.1.3), the permit writer may reasonably conclude that there is no need for a mercury limit or mercury minimization program.

40 CFR Part 132, Appendix F, Procedure 5(E) prohibits the use of "no net addition limitations" after March 23, 2007. For permits within the Great Lakes Basin "net" limits may not be authorized. For permits outside of the Great Lakes Basin, the GLCA limit may be applied by the permit writer as a "net" limit where a facility's intake is from the same body of water as the wastewater is discharged to. Generally, the *Intake Pollutants (Technology Limits)* section of *TOGS 1.2.1* should be followed for permits outside the Great Lakes Basin.

4.2.1.5 Mercury Minimization Programs (MMPs):

Requirements for a MMP will be included in permits consistent with the recommendations summarized in *Table 3*. The goal of each MMP shall be to reduce mercury effluent levels in pursuit of the WQBEL. MMP requirements will include an on-going program consisting of: periodic monitoring designed to quantify and, over time, track the reduction of mercury; an acceptable control strategy for reducing mercury discharges via cost-effective measures, which may include more stringent control of tributary waste streams, remediation, and/or installation of new or improved treatment facilities; and, submission of annual status reports. In cases where a permit includes an ILCA then the permit writer should modify the MMP boilerplate permit requirement to specify submission of semi-annual instead of annual status reports.

MMP permit requirements for high priority facilities will be developed consistent with these recommendations which satisfy the requirements of 40 CFR Part 132. MMP permit requirements for low priority POTWs will simply amount to checking to see that dentists are properly operating and maintaining amalgam separators and a restriction on the acceptance of mercury contaminated waste streams. Example MMP permit requirements are included in *Appendix B*.

Note that it is not required or intended that NYSDEC staff approve the status reports. Rather, staff should review these reports and if there are concerns that the MMP may be inadequate then a comprehensive review of the complete MMP should be performed. If this comprehensive review indicates deficiencies then the permittee should be directed, in writing, to make necessary improvements within a reasonable time period. No permit modification is necessary to implement these MMP improvements.

²¹ Section 7.5.1.3 of *Guidance for Implementing the January 2001 Methylmercury Water Quality Criterion*, EPA-823-R-10-001, April 2010 (www.epa.gov/waterscience/criteria/methylmercury/mercury2010.pdf).

New York State has implemented several mercury minimization initiatives in the last several years. These are briefly summarized in *Appendix C*. The scale and success of these initiatives is reflected in *Table 3* such that most dischargers need not address mercury individually since the State has, in essence, performed a MMP on their behalf.

Guidance is available to assist permittees with development of MMPs. Some examples include:

- *Mercury Pollutant Minimization Program Guidance USEPA Region 5, NPDES Programs Branch, November 2004.*²² This guidance is focused on POTWs.
- *Mercury Pollutant Minimization Program Guidance Manual For Municipalities DNR PUB-WT-831 2006.*²³ This guidance is also focused on POTWs and was published by Wisconsin.
- *A Guide to Mercury Reduction in Industrial and Commercial Settings, A Joint Effort By: Inland Ispat Indiana Harbor Works, Bethlehem Steel Burns Harbor Division, United States Steel Gary Works, The Delta Institute, Lake Michigan Forum, July, 2001.*²⁴ This is MMP guidance for industrial/commercial facilities.
- *Pollutant Minimization Program Plans Guidance Manual for Wastewater Treatment Facilities in New York State, September 2004.*²⁵ This more generic pollutant minimization guidance document is not specific to either mercury or discharge category.
- *Optimizing Contaminant Trackdown, Focusing on Wastewater Treatment Plants and Related Systems, A Compendium, For Practitioners of Contaminant Trackdown Efforts, December 2007.* This document is available from the New York Academy of Sciences.
- Additional information is available from a number of sources including the USEPA Region 5 website²⁶ and the websites of the various Great Lakes States.

NYSDEC staff can find these documents on the NYSDEC computer server.²⁷ Additional information may be added to this location when it becomes available.

²² www.epa.gov/R5water/npdestek/mercury_pmp_nov_04_guidance.pdf

²³ www.epa.state.oh.us/portals/35/permits/Wisconsin%20Mercury%20PMP%20Guidance%20Manual.pdf

²⁴ www.delta-institute.org/publications/Steel-Hg-Report-0627011.pdf

²⁵ www.dec.ny.gov/chemical/61994.html

²⁶ www.epa.gov/reg5oair/mercury/reducing.html

²⁷ L:\DOW\PERMITS\MERCURY MINIMIZATION PROGRAM GUIDANCE\

4.2.1.6 Analytical Methods:

All permittees must use USEPA Method 1631 when monitoring permitted compliance points (outfalls). Use of Method 245.7 at locations tributary to compliance points is acceptable. These are explicit conditions included in the MMP permit boilerplate. There should be no need to otherwise identify acceptable analytical methods elsewhere in the permit via footnotes or other conditions.

4.2.1.7 Permit Application Review:

When sampling for mercury is necessary or appropriate as part of a permit application, EBPS *Request For Information*, or in response to other NYSDEC request, the analytical methods and sampling techniques used should be consistent with *Table 2* recommendations. Otherwise, the information provided should be considered incomplete and the permittee (applicant) required to repeat the sampling using correct methods. At these times it is often appropriate for staff to require sampling of water supply intake, wastewater influent, and wastewater effluent to ensure complete characterization.

If permit application data for effluent mercury consists of a single sample result which is greater than 80% of the GLCA value, i.e., > 40 ng/L, and there is no other low level effluent mercury data available then the applicant should be required to further characterize the discharge by collecting a minimum of three additional rounds of samples. This additional information should be generated prior to the application being considered complete.

4.2.1.8 Anti-backsliding:

For high priority facilities, implementation of the MDV/permitting strategy will generally result in more stringent requirements as compared to the previous permit. However, there may be some facilities where conformance to the MDV/permitting strategy could result in less stringent requirements and the appearance of backsliding. On a case-by-case basis, the NYSDEC will review existing requirements and in some cases allow such less stringent requirements where justified in accordance with 40 CFR 122.44(l)(2)(i)(B)(1) and 122.44(l)(2)(i)(C) and the recommendations of this guidance.

Example #1 - A permit which currently contains a mercury limit and routine monitoring requirements may be modified to delete these requirements if low priority status is achieved prior to the date of this guidance.

Example #2 - A permit which contains a mercury limit which is more stringent than the GLCA may receive a modified permit which includes the GLCA limit (or no limit at all as per example #1).

4.2.1.9 Anti-degradation:

NYSDEC's existing anti-degradation policy is contained in *Organization and Delegation Memorandum No. 85-40, TOGS 1.3.9, and TOGS 1.2.1*. Department review should conform to the policy. Additional guidance is available from USEPA.²⁸

See section 4.2.3 below for guidance on new and recommencing discharges.

4.2.1.10 General Permit Issues:

As noted in Section 4.2.1.3 above, there are a large number of sites authorized by general stormwater permits.

The *SPDES Multi-Sector General Permit for Stormwater Discharges Associated with Industrial Activity, GP-0-06-002 (MSGP)*²⁹ requires some sectors covered by the permit to test for certain pollutants. When mercury testing is required these results are compared against benchmarks and if a benchmark is exceeded then typically this is addressed via stormwater pollution prevention program modification (see page 29 of MSGP).

In the case of mercury, the MSGP procedures will require updating to improve water quality protection. When the MSGP is renewed in 2012 the mercury requirements contained therein should be harmonized with the intent of this guidance. Notably this should require replacement of mercury benchmarks, requirements to use USEPA Method 1631 for analysis, and more explicit MMP provisions for dischargers which achieve high priority status due to mercury detections.

In the interim period prior to renewal of the MSGP, NYSDEC staff may review mercury data for specific sites and require additional monitoring and/or mercury reduction actions in accordance with the current MSGP requirements if mercury levels exceed the GLCA of 50 ng/l or if there is otherwise concern for mercury at a specific site. Alternately, sites may be required to obtain an individual permit if it is believed by NYSDEC staff to be appropriate for controlling a mercury discharge.

It is predicted that the vast majority of sites authorized by the MSGP will fall into the low priority category (see *Table 3*) and require no further action by NYSDEC.

All sites solely authorized by the *SPDES General Permit for Stormwater Discharges from Construction Activity, GP-0-08-001*³⁰ should fall into the low priority category and require no further action by NYSDEC. Likewise, all sites authorized by the *SPDES General Permit for*

²⁸ Sections 7.2.3 and 7.5.1.2.2 of *Guidance for Implementing the January 2001 Methylmercury Water Quality Criterion, EPA-823-R-10-001, April 2010* (www.epa.gov/waterscience/criteria/methylmercury/mercury2010.pdf).

²⁹ www.dec.ny.gov/docs/water_pdf/gp0601.pdf

³⁰ www.dec.ny.gov/docs/water_pdf/gpsconspmt10.pdf

*Stormwater Discharges from Municipal Separate Storm Sewer Systems (MS4s), GP-0-10-002*³¹ should fall into the low priority category and require no further action by NYSDEC.

4.2.1.11 MDV Term:

This variance is in effect for five years from the effective date specified on page 1 of this document. After that date, high priority permits may not be renewed or modified unless they incorporate requirements of either a new MDV or an IDV, or include a limit of 0.70 ng/L. It is likely that the water quality goal will not be achieved for many years and that it will be necessary to pursue one or more subsequent MDVs in the future.

4.2.1.12 Implementation Schedule:

The permitting strategy should be implemented in accordance with the Environmental Benefit Permit Strategy (EBPS). EBPS is described in *TOGS 1.2.2*.

For each permit meeting the high priority criteria, the EBPS score could be increased by 100 points. The 100 points is determined as follows: factor 4, primary factor value of 10 multiplied by water quality enhancement multiplier of 5 = 50 points; plus, factor 5a, primary factor value of 10 multiplied by water quality enhancement multiplier of 5 = 50 points; sum of both factors = 100 points). For each POTW permit meeting the low priority criteria, the EBPS score could be increased by 25 points. The 25 points is determined as follows: factor 4, secondary factor value of 5 multiplied by water quality enhancement multiplier of 5 = 25 points. No limits should be proposed for low priority POTWs so factor 5a is not applicable. No mercury-related EBPS scoring is necessary for other low priority discharges.

According to *Table 3*, there are: 80 easily identified high priority POTWs; an estimated 20 additional, as yet mostly unidentified high priority POTWs; an estimated 120 as yet mostly unidentified high priority industrials; and, 500 easily identified low priority POTWs. If the EBPS points for just the easily identified permits are summed, a value in excess of 20,000 points is achieved.

Due to the very large priority point value for this group of permits and the importance of controlling mercury, it is the Department's goal to implement the MDV via a series of mass permit modifications in accordance with *TOGS 1.2.2*, section IV(D). The recommended schedule for these modifications is as follows:

Within one year of the effective date of this guidance:

All discharges currently designated as high priority.

Within five years of the effective date of this guidance:

All POTWs currently designated as low priority.

At the time of next technical review of permit:

³¹ www.dec.ny.gov/docs/water_pdf/ms4gp2010.pdf

All other discharges which achieve high priority subsequent to the date of this guidance.

The format for mass modification permit requirements is included in *Appendix B*. The mass modifications should be administered by Bureau of Water Permits (BWP) and Division of Environmental Permits (DEP) staff in the central office. Permits which are mass modified may be later converted from the mass modification format into the normal permit format during any subsequent permit modification or renewal.

4.2.2 Individual Discharge Variances

It is expected to be more economical for all involved if dischargers obtain necessary permit authorization under the MDV. Considering this economy, and the flexibility contained in the MDV, it should generally be unnecessary for the NYSDEC to solicit IDVs from permittees. Therefore, in most cases, IDVs should only be necessary upon a permittee's refusal to be authorized by the MDV.

Such permittees have two regulatory options to obtain necessary permit authorization, i.e., accept an effluent limit of 0.70 ng/L (typically not a realistic option as described earlier in this document), or apply for and receive approval of a site-specific IDV in accordance with 6 NYCRR Part 702.17.

4.2.2.1 Application for an IDV:

Consistent with both 6 NYCRR Part 621.3(a)(5) and Part 750-1.7(f), an applicant/permittee wishing to vary from the MDV, or one directed to do so by NYSDEC, must submit an IDV request at application time if either a permit renewal or a permittee initiated modification are involved. If the IDV request is incomplete then the entire permit application is incomplete. If the IDV request is absent from an application then NYSDEC staff should incorporate MDV requirements into the permit, if appropriate. Likewise, for Department-initiated modifications, NYSDEC will incorporate MDV requirements into the permit, if appropriate.

If the permittee requests any deviation from the MDV during the public notice period then this must be supported by an IDV application. Many permittees are likely to be unaware of this requirement. Such permittees should be advised of the need for an IDV application and directed by NYSDEC staff to submit one within 60 days of such notification.

IDV application requirements are summarized in *Appendix D*.

4.2.2.2 IDV Review and Approval Procedures:

Received IDVs should first be reviewed for completeness by the permit writer. Consistent with 6 NYCRR Part 750-1.2(a)(8), IDV requests which are not complete should be revised and resubmitted to the NYSDEC within 60 days of notification. Requests which remain incomplete or are otherwise not approvable should be denied by the NYSDEC in accordance with 6 NYCRR Part 702.17(f).

Considering the flexibility contained in the MDV, it is not clear how a permittee can successfully demonstrate that an IDV which is less stringent than the MDV is acceptable. However, assuming this demonstration can be made to the satisfaction of NYSDEC, such IDV requests for Great Lakes

Basin dischargers must be sent to USEPA Region 2 for their review. The procedure is spelled out in the 1998 MOA in section III, paragraphs (2) - (8) and the 2000 MOA in section XII.³²

If a permittee's IDV application is not accepted by either NYSDEC or USEPA then either authorization via the MDV, a limit of 0.70 ng/L, or denial of the permit must be pursued.

4.2.2.3 IDV-Based Permit Requirements:

Permit requirements based on an approved IDV must conform to both 6 NYCRR Part 702.17(e) and the TMDL and these should be identical to the MDV requirements except where differences have been justified by the permittee. It is possible for an IDV to result in more or less stringent requirements as compared to the MDV. All IDV authorized permits should be placed on the Department's EBPS *No Administrative Renewal List*. IDVs last for five years, or the term of the permit, whichever period is less. For such permits the following requirement must also be added to the bottom of the MMP permit page:

"Individual Discharge Variance (IDV) requirements - The mercury-related requirements in this permit are based on a site-specific IDV issued in accordance with 6 NYCRR Part 702.17 (see also NYSDEC policy *DOW 1.3.10*). This IDV is valid for five years, or the term of the permit, whichever period is less. This permit may not be administratively renewed without full technical review. The permittee must submit a complete permit renewal application in accordance with regulatory deadlines. If renewal of the IDV is desired then a new IDV application must also be submitted at renewal application time."

4.2.3 Effluent Limits of 0.70 ng/L

There may be some existing cases which warrant a mercury limit and no variance. Such permits should be issued to contain a monthly average limit of 0.70 ng/L and routine monitoring using EPA Method 1631. No MMP is necessary.

4.2.4 New Discharges

New and recommencing dischargers are not eligible for a variance within the Great Lakes Basin unless the requirements of 6 NYCRR Part 702.17(a)(2) are met. For such permittees which would otherwise qualify as high priority facilities as per the MDV, permits should be issued to contain a monthly average limit of 0.70 ng/L and routine monitoring using EPA Method 1631.

New and recommencing dischargers located outside the Great Lakes Basin are eligible for a variance. For these permits the guidance in section 4.2.1 should be followed except that no limit which is less stringent than the GLCA should be authorized.

³² *Amendment To The National Pollutant Discharge Elimination System Memorandum Of Agreement Between The New York State Department Of Environmental Conservation And The United States Environmental Protection Agency, Region 2 Relating To Implementation Of The Requirements Of The Great Lakes Water Quality Guidance In The Great Lakes Basin, March 16, 1998 and September 27, 2000.*

5. SPDES PERMIT EQUIVALENTS

SPDES permit equivalents are developed for remedial discharges from contaminated sites using the same technical procedures as those used for SPDES permits. New permit equivalents should conform to this guidance. Existing permit equivalents for long-term discharges should be updated in accordance with this guidance at renewal or modification time. If there is a proposed remedial discharge or renewal/modification of an existing one the permit writer should request EPA Method 1631 data be provided if there is any possibility that mercury contamination could be an issue. A MMP is not necessary for most short-term remedial discharges of less than two years since there will be insufficient time for one to achieve meaningful results.

6. WASTEWATER TREATMENT

Under contract with USEPA, Science Applications International Corporation studied the mercury wastewater treatment issue and published a report in 2005.³³ That report indicated that it was possible to reduce mercury to about 12 ng/L using selective sorbents. However, no treatment technology was demonstrated to consistently achieve levels of 12 ng/L or less.

Data collected in New York State appears to confirm the Science Applications International Corporation study. Two ion exchange systems in New York reported average influent/effluent levels of 91000/11 ng/L and 190/8.2 ng/L respectively. Ion exchange appears to be the most effective full-scale treatment system type which has been demonstrated in the state. Mercury precipitation theoretically can achieve very low levels due to the insolubility of mercurous sulfide but there are no known systems in the state to review. Granular Activated Carbon (GAC) and Sulfur-impregnated Granular Activated Carbon (SGAC) systems have been successfully used to reduce mercury. One GAC system reported average influent/effluent levels of 100/2.2 ng/L. However, limited data suggests that these GAC/SGAC systems may not be able to achieve the GLCA when treating very high levels of both dissolved solids and mercury.

While review of the above information suggests that the GLCA is achievable, none of these systems have demonstrated compliance with the 0.70 ng/L WQBEL. Therefore, NYSDEC concludes that achieving the 0.70 ng/L WQBEL is not possible at this time.

Wastewater treatment system upgrades may be necessary at a few industrial facilities which are unable to achieve the GLCA using other methods. No POTW should require a treatment system upgrade to achieve the GLCA listed in *Table 3*. When necessary, more stringent control of industrial users and hauled wastes is expected to sufficiently reduce POTW effluent concentrations in all cases.

³³ *Technological Feasibility Of Proposed Water Quality Criteria For New Jersey, March 2005*, prepared for USEPA Region 2 by Science Applications International Corporation.

As the MDV is implemented an effort should be made to gather data on the effectiveness of actual full-scale treatment systems. This will allow for a better understanding of the capabilities of different mercury treatment technologies.

7. PROGRAMS IN OTHER STATES

It is important to acknowledge that there are several other states with progressive programs to reduce mercury levels in wastewater discharges. Two examples are noted below.

As of 1999, the Maine Department of Environmental Protection had established mercury limits in 157 permits with 82% of these limits < 50 ng/L daily max and 98% of limits <200 ng/L daily max.³⁴

Starting February 2000, the Michigan Department of Environmental Quality implemented a mercury MDV which included mercury limits of 30 ng/L (12 month rolling average), use of EPA Method 1631 for sample analysis, and a MMP requirement. Implementation appears to have been successful as Michigan has more recently implemented an updated MDV which includes a further reduction in effluent limits to 10 ng/L (12 month rolling average).³⁵

V. RESPONSIBILITY

BWP will maintain and interpret this policy and provide updates as needed.

VI. RELATED REFERENCES

To fully understand the mercury SPDES permitting and monitoring recommendations contained herein, one must also be familiar with the following primary documents and regulations. It is important to note that some of these documents are more up to date than others. In instances where guidance documents provide conflicting recommendations, the most recent guidance should be relied upon. These and some secondary documents and regulations are cited and/or footnoted above as appropriate.

6 NYCRR Parts 700-706 - Water Quality Regulations.

6 NYCRR Part 750 - SPDES Permit Regulations.

40 CFR Part 132 - Water Quality Guidance for the Great Lakes System.

³⁴ *Status of Mercury Discharged from Wastewater Treatment Facilities In Maine, A Report by the Department of Environmental Protection Submitted to the Joint Standing Committee on Natural Resources, January 15, 2001, DEPLW2001-5.*

³⁵ www.michigan.gov/deq/0,1607,7-135-3313_3686_3728-11384--,00.html

40 CFR Part 136 - Guidelines Establishing Test Procedures for the Analysis of Pollutants.

Amendments to the NPDES Memorandum of Agreement Between the NYSDEC and the USEPA, Region II Relating to Implementation of the Requirements of the Great Lakes Water Quality Guidance in the Great Lakes Basin, March 16, 1998 and September 27, 2000.

Northeast Regional Mercury Total Maximum Daily Load, October 24, 2007.

NYSDEC Mercury Work Group Recommendations to Meet the Mercury Challenge, December 2006.

NYSDEC Organization and Delegation Memorandum No. 85-40, Water Quality Antidegradation Policy, September 9, 1985.

NYSDEC TOGS 1.1.1 - Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations.

NYSDEC TOGS 1.2.1 - Industrial Permit Writing.

NYSDEC TOGS 1.2.2 - Administrative Procedures and the Environmental Benefit Permit Strategy for Individual SPDES Permits.

NYSDEC TOGS 1.3.1 - Total Maximum Daily Loads and Water Quality-Based Effluent Limits.

NYSDEC TOGS 1.3.3 - SPDES Permit Development for POTWs.

NYSDEC TOGS 1.3.9 - Implementation of the NYSDEC Antidegradation Policy - Great Lakes Basin (Supplement to Antidegradation Policy dated September 9, 1985).

Table 1 - Ambient Water Quality Standards for Mercury

Standard (ng/L)	Form	Basis	Regulation
1400	Dissolved	Aquatic Life - Acute	6 NYCRR Part 703.5
770	Dissolved	Aquatic Life - Chronic	6 NYCRR Part 703.5
700	Total	Human Health - Water Supply	6 NYCRR Part 703.5
2.6	Dissolved	Wildlife	6 NYCRR Part 703.5
1.3	Total	Wildlife (Great Lakes Basin only)	40 CFR Part 132.6(e)
0.7	Dissolved	Human Health - Fish Consumption	6 NYCRR Part 703.5

Table 2 - USEPA-Approved Methods for Mercury Water/Wastewater Analysis & Sampling

USEPA Method	MDL/ML (ng/L)	Estimated Cost (2009)	Method Suitability				
			Ambient Surface Water	Discharges to Surface Water - Permits & Permit Applications	MMP Internal Monitoring	Ambient Groundwater	Discharges to Groundwater - Permits & Permit Applications
245.1	200 / 500	\$25	NO	NO	NO	YES*	YES*
245.2	200 / 500	\$25	NO	NO	NO	YES*	YES*
245.7	2.0 / 5.0	\$35	NO	NO	YES	YES	YES
1631	0.20 / 0.50	\$75	YES	YES	YES	YES	YES
1669	grab sample collection		YES	YES	YES	UNNECESSARY	UNNECESSARY

* - USEPA Methods 245.1 and 245.2 are acceptable for use in assessing ambient groundwaters and discharges to groundwater. However, use of USEPA Methods 245.7 and 1631 is preferred.

Table 3 - MDV: Permit Limits, Monitoring Frequencies, and Mercury Minimization Programs

To be authorized by the MDV, the permit must include the limits and MMP version as specified in this table. The only MDV requirements subject to permit writer discretion are the sampling frequency and the initial period permit limits. If less frequent sampling is proposed the permit writer must ensure that it meets the minimum requirements of 40 CFR Part 132. Otherwise the discharge will not qualify for the MDV and must either be authorized by an approved IDV or include a limit of 0.70 ng/L. More frequent monitoring may be justified for dischargers with significant effluent variability.

Discharge Category	Initial*	Permit Limits		Monitoring Frequency		MMP Version Required	Estimated # of Permits
		Interim	Final	Initial *	Interim		
POTWs 5 MGD or >	200 ng/L Daily Max or site-specific ILCA**	GLCA of 50 ng/L Daily Maximum**	Non-Binding Goal of 0.70 ng/L	Monthly	Quarterly	High Priority POTW	80
High Priority POTWs < 5 MGD	200 ng/L Daily Max or site-specific ILCA**	GLCA of 50 ng/L Daily Maximum**	Non-Binding Goal of 0.70 ng/L	Once/2 months	Quarterly	High Priority POTW	20
All other POTWs	None	None	None	None	None	Low Priority POTW	500
High Priority Industries & High Priority PCIs	200 ng/L Daily Max or site-specific ILCA	GLCA of 50 ng/L Daily Maximum	Non-Binding Goal of 0.70 ng/L	Weekly to Once/2 Months	Quarterly	Industrial	120 0
All other individually permitted industries/PCIs	None	None	None	None	None	None	1030 1700
General stormwater permittees: MSGP, Construction, MS4	None	None	None	None	None	None	1460 7040 500

* - If permittee cannot achieve 50 ng/L Daily Maximum limit then "initial" requirements may be applied. Otherwise, "interim" requirements must be applied.

** - Sizeable POTW collection systems which are permitted (SPDES) and transmit wastewaters to large regional treatment plants that are separately permitted do not require permit limits but must get the *High Priority POTW* version of MMP unless the regional treatment plant accepts responsibility for performing the MMP system-wide.

APPENDIX A - Selected Mercury Monitoring Data

Table 4 summarizes the data for ambient water quality samples analyzed using EPA Method 1631. Table 5 summarizes the data for wastewater samples analyzed using EPA Method 1631.

Table 4 - Mercury Ambient Surface Water Monitoring Data

Drainage Basin (basin number)	Sample Results (ng/L) Average/Maximum (number of samples)	
	Total	Dissolved
Lake Erie - Niagara River Basin (01)	3.1/12 (55)	-
Allegheny River Basin (02)	-	-
Lake Ontario & Minor Tributaries (03)	5.7/30 (13)	1.9/4.3 (11)
Genesee River Basin (04)	2.5/4.3 (7)	0.70/1.1 (6)
Chemung River Basin (05)	-	-
Susquehanna River Basin (06)	-	-
Seneca-Oneida-Oswego River Basin (07)	2.0/2.7 (7)	0.82/1.6 (7)
Black River Basin (08)	4.1/10 (6)	1.9/2.6 (5)
St. Lawrence River Basin (09)	-	-
Lake Champlain Basin (10)	-	-
Upper Hudson River Basin (11)	30/170 (16)*	1.8/3.2 (9)*
Mohawk River Basin (12)	19/80 (20)*, 2.6/3.4 (4)	1.8/3.3 (14)*
Lower Hudson River Basin (13)	12/130 (64)*	1.9/18 (67)*
Delaware River Basin (14)	1.4/1.8 (5)	1.1/1.3 (5)
Passaic - Newark (Basin 15)	-	-
Housatonic River Basin (16)	-	-
Atlantic Ocean - Long Island Sound (Basin 17)	12/92 (42)*	1.5/6.7 (36)*

Sources of data: Various NYSDEC water quality surveys and SPDES permittee reported intake data.

* - Includes data collected 1999-2001 and may not be representative of current levels.

Table 5 - Mercury Wastewater Monitoring Data

Permit Number	Facility Name	Monitoring Location	Sample Results (ng/L) Avg/Max (# of samples)
POTWs			
NY0034771	Adams Village	001	12 (1)
NY0026867	Albany County - South	001	10/21 (4)
NY0021431	Bath	Influent 001	66 (1) 11/13 (2)
NY0025739	Bethlehem	Influent 001	40/87 (6) 6.5/24 (7)
NY0028410	Buffalo Sewer Authority	002	5.4 (1)
NY0021377	Camden	001	6.6/30 (6)
NY0029807	Canastota	001	1.2/1.7 (2)
NY0023248	Canistota	001	2.0 (1)
NY0020389	Catskill Village	001	22 (1)
NY0020958	Cayuga Heights	001	7.8 (1)
NY0024830	Chateaugay	001	3.8 (1)
NY0036986	Chemung County SD#1	001	0.32 (1)
NY0027758	Colonie	001	2.0 (1)
NY0023591	Cooperstown	001	11 (1)
NY0025721	Corning Village	001	16 (1)
NY0022144	Cornwall	001	26/80 (6)
NY0027669	Endicott	001	15 (1)
NY0020681	Erie County - Blasdell	001	16 (1)
NY0022136	Erie County SD#6	001 003 (ORF)	11 (1) 17 (1)
NY0095401	Erie County - Southtowns	Influent 001 002 (ORF)	16 (1) 2.5/2.5 (2) 10 (1)
NY0029050	Glens Falls	001 002 (CSO)	20/60 (25) 840 (1)
NY0021547	Granville	001	2.7 (1)
NY0023523	Greater Atlantic Beach Water Reclamation District	001 Municipal Water Supply	20 (1) 0.80 (1)

NY0094854	Greenville	001	6.2 (1)
NY0036528	Herkimer County	Influent 001	37/60 (4) 1.6/2.3 (4)
NY0020486	Herkimer Village	001	6.2 (1)
NY0025259	Honeoye Falls	001	4.4 (1)
NY0021342	Huntington	Influent 001	360/600 (5) 40/89 (18)
NY0029351	Kingston	001	4.0/6.9 (3)
NY0094366	Lake George	001	9.2 (1)
NY0030546	LeRoy	001	2.3 (1)
NY0022403	Little Falls	001	5.8/7.8 (6)
NY0025437	Livingston Manor	001	6.3 (1)
NY0020125	Lowville	Influent 001	21 (1) <0.5 (1)
NY0022551	Lyons	001	2.3 (1)
NY0030376	Malone	Influent 001	30/50 (3) 6.0/8.0 (3)
NY0031194	Massena	Stormwater 1 Stormwater 2	12 (1) 14 (1)
NY0021873	Medina	001	3.3 (1)
NY0026859	Nassau County – Cedar Creek	001	11 (1)
NY0027774	Newfane	001	2.9 (1)
NY0030082	New Paltz	001	11 (1)
NY0026336	Niagara Falls	Influent 001	170/3100 (40) 55/190 (40)
NY0027979	Niagara County SD #1	001	3.9 (1)
NY0023973	Niskayuna	001	3.5 (1)
NY0021423	Norwich	001	3.0 (1)
NY0026212	NYC - 26 th Ward	Influent (1999-2001) 001 (1999-2001)	350/520 ^A 27/44 (4) ^A
NY0026158	NYC - Bowery Bay	001 (1999-2001)	11/18 (2) ^A
NY0026182	NYC - Coney Island	Influent (1999-2001) 001 (1999-2001)	340/420 (3) ^A 18/24 (2) ^A
NY0026191	NYC - Hunts Point	Influent (1999-2001) 001 (1999-2001)	320/720 (3) ^A 20/43 (10) ^A

NY0026115	NYC - Jamaica Bay	Influent (1999-2001) 001 (1999-2001)	210/410 (3) ^A 23/24 (2) ^A
NY0026204	NYC - Newtown Creek	Influent (1999-2001) 001 (1999-2001) 001 (2004-2005)	410/620 (4) ^A 29/48 (14) ^A 9.7/17 (12)
NY0026247	NYC - North River	Influent (1999-2001) 001 (1999-2001) 001 (2004-2005)	690/1500 (3) ^A 17/40 (15) ^A 8.1/13 (12)
NY0026174	NYC - Oakwood Beach	Influent (1999-2001) 001 (1999-2001)	170/250 (2) ^A 2.7/3.3 (3) ^A
NY0026166	NYC - Owls Head	Influent (1999-2001) 001 (1999-2001) 001 (2004-2005)	430/930 (3) ^A 9.2/22 (13) ^A 8.0/12 (12)
NY0026107	NYC - Port Richmond	Influent (1999-2001) 001 (1999-2001)	120/150 (3) ^A 35/130 (9) ^A
NY0027073	NYC - Red Hook	Influent (1999-2001) 001 (1999-2001)	430/750 (3) ^A 8.6/9.4 (3) ^A
NY0026221	NYC - Rockaway	Influent (1999-2001) 001 (1999-2001)	72/88 (2) ^A 14/32 (3) ^A
NY0026239	NYC - Tallman Island	Influent (1999-2001) 001 (1999-2001)	360/510 (2) ^A 22 (1) ^A
NY0026131	NYC - Wards Island	Influent (1999-2001) 001 (1999-2001) 001 (2004-2005)	180/280 (3) ^A 15/77 (17) ^A 7.2/23 (12)
NY0029831	Ogdensburg	Influent 001	61/150 (4) 7.2/28 (5)
NY0026956	Oneida City	001	3.2/4.0 (3)
NY0025780	Oneida County	001	<1 (1)
NY0031151	Oneonta	Influent 001	210/280 (4) 74/100 (6)
NY0027171	Ontario	001	1.0 (1)
NY0027901	Orange County	001	3.7 (1)
NY0022730	Owego SD#1	001	13/34 (6)
NY0025798	Owego SD#2	001	8.6/15 (6)
NY0029262	Owego Village	001	13 (1)
NY0030996	Philmont	001	0.82 (1)
NY0026557	Pine Hill	001	<0.5 (1)
NY0020818	Potsdam	001	9.1 (1)

NY0026255	Poughkeepsie City	001	9.1 (1) ^A
NY0026271	Poughkeepsie Town - Arlington	001	2.2 (1)
NY0087971	Rensselaer County	001	14/20 (3) ^A
NY0031411	Richfield Springs	001	7.6 (1)
NY0020061	Riverhead	001	4.2(1)
NY0031895	Rockland County #1	Influent 001	310 ^A 32 (1) ^A
NY0030864	Rome	Influent 001	38 (1) 3.4 (1)
NY0021831	Rouses Point	Influent 001	42/110 (5) 16/25 (5)
NY0028240	Saratoga County	Influent 001	36/72 (2) 4.4/6.1 (2)
NY0031208	Saugerties	001	28 (1)
NY0033308	Seneca Falls	001	2.7/7.3 (7)
NY0021466	Sherburne	001	25 (1)
NY0029271	Sidney	001	11/24 (14)
NY0024520	South Fallsburg	001	7.6 (1)
NY0028851	Stony Point	001	8.3 (1)
NY0022748	Suffern	001	9.8 (1)
NY0021750	Suffolk County #1	001	9.4/16 (12)
NY0104809	Suffolk County #3	001	7.8/13 (4)
NY0023311	Suffolk County #6	001	41/87 (12)
NY0206644	Suffolk County #21	002	11/18 (12)
NY0036790	Sylvan Beach	001	1.7 (1)
NY0027081	Syracuse Metro	001	21/60 (40)
NY0207004	Theresa	001 Nelson St. STP 002 Morgan St. STP 003 Bridge St. STP	7.6 (1) 2.0 (1) 1.8 (1)
NY0036706	Ticonderoga	001	9.1 (1)
NY0149209	Tri-municipal	001	3.3/5.9 (4)
NY0026395	Tonawanda	001	1.8 (1)
NY0021571	Ulster - Whitier SD	001	1.6 (1)
NY0024422	Wallkill	001	3.6 (1)

NY0025704	Walworth	001	2.0 (1)
NY0025984	Watertown City	Influent A Influent B Effluent A Effluent B	90/94 (3) 15/21 (3) 36/85 (10) 4.8/9.4 (10)
NY0031089	Waverly	001	0.50 (1)
NY0021610	Webster	001	2.2 (1)
NY0108324	Westchester County - Ossining	001	6.9/13 (14)
NY0100803	Westchester County - Peekskill	001	5.5/20 (26)
NY0024929	Whitehall	001	12 (1)
ME-	72 Maine POTWs ^B	Effluent	1.3 - 60 / not available
MI-	36 Michigan POTWs ^C	Effluent	0.5 - 23 / 0.9 - 53
WI-	11 Wisconsin POTWs ^D	Influent Effluent	130 - 820 / 250 - 3000 2 - 45 / 3 - 100
Industrial Facilities			
NY0001333	AES Cayuga	001 01C coal pile 01C other 013	1.0 (1) 61 (1) 92 (1) 1.6 (1)
NY0001325	AES Grenidge	002	8.1 (1)
NY0001325	AES Lockwood Ash Disposal Site	001	0.54 (1)
NY0104213	AES Somerset	Basin #1 01E 001 011 influent 011 012 influent 012 012A	3.0/5.2 (4) 8.8/21 (6) 0.8 (1) 2.6/5.7 (8) 11/45 (6) 3.7/8.0 (4) 5.4/9.9 (4) 3.3 (1)
NY0003875	AES Westover	001 01A 01B 01D 01E 002 003 004 005	2.6 (1) 2.5 (1) <0.5 (1) 16 (1) 0.53 (1) 29/32 (2) 3.2/3.6 (2) 2.5/2.8 (2) 8.5/11 (2)
NY0001732	Alcoa	001 01A 01D 01E 01I	0.78 (1) 0.52 (1) 0.58 (1) <0.50 (1) 0.83 (1)

		003 004 007 008	0.78 (1) 0.95 (1) 0.55 (1) 0.71 (1)
NY0260843	American Rock Salt	001	5.5 (1)
NY0003824	Amphenol	001	46 (1)
NY0003042	APC Paper	001	16 (1)
NY0068225	Arkema	001 influent 001	3900/8700 (13) 33/75 (13)
NY0275387	Ashland Advanced Materials	005 006 009	7.7/15 (6) 14/45 (6) 3.4/6.7 (6)
NY0005959	Bethlehem Energy Center	001 002 03A 03C 004	0.6 (1) 9.7 (1) 2.3 (1) 5.5 (1) 8.6 (1)
NY0206938	Black River Generation	Intake 001 003	2.8 (1) 24 (1) 6.0 (1)
NY0005835	Brookhaven National Laboratory	001	84/85 (3)
NY0000191	Cellu Tissue Corpotation	001	3.5 (1)
NY0200484	Clean Water of New York	001	0.54/ 0.76 (2)
NY0072061	Chemical Waste Management	Fac Pond 1 influent 001 002 003	130 (1) 110/160 (6) 4.7 (1) 3.8 (1)
NY0005151	Consolidated Edison – Hudson Ave	001 002	13/22 (4) 440/1000 (4)
NY0261114	Delaware & Hudson - Albany	001	33 (1)
NY0002321	Dunkirk Generating Station	Intake 001 003 005	1.3/2.5 (2) 1.9/2.8 (2) <0.5/1.0 (2) 0.7/1.4 (2)
NY0003328	DuPont	Intake 116 Intake 117 01E 01W 004 101 103 104	1.9/2.1 (3) 0.97/1.6 (3) 9.7/35 (5) 4.9/9.4 (5) 370/1000 (3) 57/83 (3) 120/240 (3) 56/77 (3)

		106	133/150 (2)
NY0001406	Evans Chemetics	001 004 005 008 013	4.1/15 (14) 5.8/22 (14) 11/94 (14) 6.6/42 (14) 7.6/7.6 (1)
NY0000515	Felix Shoeller Technical Papers	001	1.2 (1)
NY0000337	FMC Peroxygens	Influent 001	5.3/12 (13) 40/150 (13)
NY0232491	Frazer and Jones	001 01A 002 003	1.6 (1) 1.0 (1) 65 (1) 26 (1)
NY0007030	General Electric - R&D	001 influent 001	76/640 (30) 46/190 (36)
NY0000540	General Motors - Powertrain	001 003 005	0.45 (1) 2.0 (1) 0.51 (1)
NY0005894	Glenwood Landing Energy Center	001	4.4 (1)
NY0006874	Holcim US	001 002 006 008	3.1 (1) 540 (1) 7400 (1) 2000 (1)
NY0006807	Hollingsworth & Vose - Easton	001	1.6 (1)
NY0006785	Hollingsworth & Vose - Greenwich	001	2.4 (1)
D -7-0004-01-09	Honeywell International	015A influent 015A	100 (3) 2.2/10 (25)
NY0006491	Interface Solutions	001 influent 001	48 (1) 1.1 (1)
NY0004405	International Paper - Corinth	001 influent 001	1.5 (1) <1 (1)
NY0257869	International Paper - Deferiet Closed Landfill	003 004	1.2 (1) <1 (1)
NY0008109	JFK International Airport	002 004 010 016 022 Rainfall	5.9/15 (7) 6.9/18 (7) 4.4/12 (7) 4.7/10 (7) 5.9/16 (7) <10/39 (30) ^E
NY0000957	Knowlton Technologies	001	6.5 (1)
NY0001643	Kodak	001	3.6 (1)

		003 006	2.3 (1) 85 (1)
NY0004308	Kraft	001	2.1 (1)
NY0005037	Lafarge	003	28 (1)
NY0000400	Life Technologies	001 002 003	1.7 (1) 9.4 (1) 5.4 (1)
NY0075078	Metro North - Brewster	001 005	1.8 (1) 1.3/1.5 (2)
NY0006912	Mohawk Fine Papers	Intake 001	2.9 (1) 0.76 (1)
NY0257150	Mohawk Valley Landfill	untreated leachate	1.1 (1)
NY0000418	Morton Salt	001	1.8 (1)
NY0006670	Nepera	Thermal ww Stormwater 002 02B influent 02B 02C influent 02C	180/300 (4) 940/1300 (6) 74/280 (52) 9.3/14 (3) 1.6/16 (40) 190/220 (3) 8.2/42 (42)
NY0001856	Newton Falls Fine Paper	Clarifier effluent 001	100 (1) 17 (1)
NY0001015	Nine Mile Point Nuclear Station	001 001A 002 010 020 023 040	0.60 (1) 1.5 (1) 0.60 (1) <0.50 (1) 0.82 (1) 3.2 (1) 27/48 (4)
NY0004880	Norlite	003 004 06A influent 06A post-sand filter 06A 006 007 South drainage channel	1.7/1.8 (2) 0.81 (1) 16000/44000 (15) 6700/40000 (26) 2900/29000 (27) 24/38 (2) 43 (1) 270 (1)
NY0200867	NYC - Staten Island Landfill	001	30/59 (5)
NY0002186	Oswego Steam Station	Intake 005 006 05A/06A	1.2/1.2 (2) 1.2 (1) 1.1 (1) 1.7 (1)
NY0260738	Port Albany Ventures	001 002	39/63 (4) 380/1100 (4)

		003 004	30/53 (2) 30/68 (4)
NY0007579	Praxair Electronics	001	0.57 (1)
NY0004146	Procter & Gamble - Woods Corners	002 pre-UF upgrade 002 post-upgrade 02A pre-UF upgrade 02A post-upgrade	83/300 (23) 3.8/7.0 (5) 110/200 (7) 4.8/8.8 (5)
NY0110043	PVS Chemical Solutions	Intake 001 002	3.2/6.9 (31) 4.3/20 (31) 17/280 (31)
NY0005665	Revere Copper Products	Intake - River Intake - Municipal 005	3.4 (1) 1.9 (1) 0.60 (1)
NY0000132	Reynolds Metals	East Sump 001 002 003	0.9 (1) 1.5 (1) 9.2 (1) 0.9 (1)
NY0006157	Schweitzer-Mauduit International	003	1.2 (1)
NY0005801	SI Group - Rotterdam Junction	01A 01N 001	0.72 (1) 0.63 (1) 0.87/1.9 (3)
NY0260525	SI Group - Congress Street	01A influent	0.63 (1)
NY0205401	Troy Water Plant	001	2.4 (1)
NY0002330	US Salt	002	1.5/3.2 (6)
NY0000973	West Valley Demonstration Project	01B influent 01B 001	91000/126000 (3) 11/29 (11) 4.4/9.0 (17)
NY0004600	Wyeth Pharmaceutical	01A	6.9/8.0 (3)
NY0007170	Wyeth Research	Influent 001	41/72 (2) 0.60/1.0 (4)
ME-	13 Maine Industrials ^A	Effluent	0.3 - 250 / not available
MI-	9 Michigan Industrials ^B	Effluent	0.7 - 80 / 1.3 - 270
POTW and Industrial Facilities			
Northeast States	249 Sites in CT, ME, MA, NH, NY, RI, and VT ^F	Effluent	12/-
PCIs			
NY0035041	Great Meadow Correctional Facility	001	2.7 (1)
NY0023761	US Military Academy - West Point	001	1.2/2.0 (4)

NY0202070	Washington Correctional Facility	001	3.6 (1)
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Source of data - For New York State facilities based on permittee or NYSDEC sampling results unless otherwise noted below. Data from other States has been condensed and is represented as a range of both average and maximum values.

Footnotes for Table 5:

(A) - Data collected 1999-2001. The age of this data renders it unlikely to be representative of recent performance and it is therefore not included in the statistical summary provided in section 2.3 above.

(B) - Maine Department of Environmental Protection. "Mercury in Wastewater: Discharges to Waters of the State 1999" February 1, 1999.

(C) - May 18, 2004 letter, Richard A. Powers, State of Michigan Department of Environmental Quality to Jo Lynn Traub, USEPA Region 5.

(D) - Muga, T.J. "Quantification of Total Mercury Discharges from Publicly Owned Treatment Works to Wisconsin Surface Waters" Water Environment Research 1996, Vol. 68 [2] pp. 229-234.

(E) - Individual sample data not available. Rainfall data reported as six ranges of five samples each: 1.4 - 1.7; 4.2 - 6.2; 2.1 - 3.9; 1.7 - 3.3; 3.7 - 6.4; and 5.5 - 6.3 ng/L.

(F) - Connecticut Department of Environmental Protection, Maine Department of Environmental Protection, Massachusetts Department of Environmental Protection, New Hampshire Department of Environmental Services, New York State Department of Environmental Conservation, Rhode Island Department of Environmental Management, Vermont Department of Environmental Conservation, and New England Interstate Water Pollution Control Commission, "Northeast Regional Mercury Total Maximum Daily Load, October 24, 2007", Table 6-3.

APPENDIX B – Example SPDES Permit Requirements

Mass modification for High Priority Dischargers:

<Where necessary include ILCA limits and monitoring frequency. Add appropriate sample frequency in accordance with Table 3 above. If composite sample is desired, change sample type to "Composite" and include a footnote similar to the following example: "Composite sample shall consist of three separate grab samples, with each sample collected at eight hour intervals, combined by the laboratory prior to analysis." >

SPDES Permit Number NY XXXXXXXX

Mercury Multiple Discharge Variance Implementation Addendum – High Priority Dischargers

PERMIT LIMITS, LEVELS AND MONITORING

OUTFALL NUMBER	EFFECTIVE	EXPIRING
001	Effective Date of Permit Modification	Expiration Date of Permit

PARAMETER	EFFLUENT LIMIT		UNITS	SAMPLE FREQUENCY	SAMPLE TYPE
	Monthly Avg.	Daily Max			
Mercury, Total	Monitor Monitor	50 Monitor	ng/L grams/day	<insert from Table 3>	Grab

Special Conditions:

(M1) – The requirements of this SPDES permit addendum supercede all mercury-related SPDES permit requirements in effect prior to the date of this addendum. Any such prior requirements shall be ignored.

(M2) – The fact sheet applicable to this permit addendum can be found in NYSDEC policy *DOW 1.3.10*.

(M3) – The permittee must also comply with the following Mercury Minimization Program requirements:

<Insert appropriate version of MMP here>

Mass modification for Low Priority POTWs:

SPDES Permit Number NY XXXXXXXX

Mercury Multiple Discharge Variance Implementation Addendum – Low Priority POTWs

EFFECTIVE	EXPIRING
Effective Date of Permit Modification	Expiration Date of Permit

Special Conditions:

(M1) – The requirements of this SPDES permit addendum supercede all mercury-related SPDES permit requirements in effect prior to the date of this addendum. Any such prior requirements shall be ignored.

(M2) – The fact sheet applicable to this permit addendum can be found in NYSDEC policy *DOW 1.3.10*.

(M3) – The permittee must also comply with the following Mercury Minimization Program requirements:

The permittee shall inspect each tributary dental facility at least once every five years to verify compliance with the wastewater treatment operation, maintenance, and notification elements of 6NYCRR Part 374.4. Inspection and/or outreach to other industrial/commercial sectors which may contribute mercury is also recommended. All new or increased tributary discharges, including hauled wastes, which are from sources that are industrial in nature shall be evaluated for mercury content and if levels exceed 500 ng/L then authorization shall be obtained from the Department prior to acceptance. A file shall be maintained containing the notices submitted by dental offices and all other pertinent information. This file shall be available for review by NYSDEC representatives and copies shall be provided upon request. Note that a permit modification may be necessary to include more stringent requirements for POTWs which do not maintain low mercury effluent levels. Note - The mercury-related requirements in this permit conform to the mercury Multiple Discharge Variance specified in NYSDEC policy *DOW 1.3.10*.

Example non-mass modification SPDES permit fact sheet entry for mercury:

Effluent Parameter (Units) <small>(concentration units - mg/l, ug/l or ng/l; mass units - lbs/d or g/d)</small>	Existing Effluent Quality				Technology Based Effluent Limit					Water Quality Based Effluent Limit				Permit Basis (T or WQ)
	concentration		mass		conc.	mass	Type	PQL conc.	Basis	AWQC conc.	Effluent		Type	
	Avg/Max	95%/99%	Avg/Max	95%/99%							conc.	mass		
Mercury, Total (ng/l, grams/d)	<add info>	<add info>	<add info>	<add info>	50	Monitor	Max		Mercury Multiple Discharge Variance, see NYSDEC policy DOW 1.3.10.	0.70	0.70		Max	MDV

Example non-mass modification SPDES permit entry for mercury:

<Add appropriate sample frequency in accordance with Table 3 above. If composite sample is desired, change sample type to "Composite" and include a footnote similar to the following example: "Composite sample shall consist of three separate grab samples, with each sample collected at eight hour intervals, combined by the laboratory prior to analysis." >

PARAMETER	EFFLUENT LIMIT		PQL	MONITORING ACTION LEVEL	UNITS	SAMPLE FREQUENCY	SAMPLE TYPE	FN
	Monthly Avg.	Daily Max.	Daily Max.					
Mercury, Total	Monitor Monitor	50 Monitor			ng/L grams/ d	<insert from Table 3>	Grab	

MERCURY MINIMIZATION PROGRAM – High Priority POTWs

1. General - The permittee shall develop, implement, and maintain a Mercury Minimization Program (MMP). The MMP is required because the 50 ng/L permit limit exceeds the statewide water quality based effluent limit (WQBEL) of 0.70 nanograms/liter (ng/L) for Total Mercury. The goal of the MMP will be to reduce mercury effluent levels in pursuit of the WQBEL. Note - The mercury-related requirements in this permit conform to the mercury Multiple Discharge Variance specified in NYSDEC policy *DOW 1.3.10*.

2. MMP Elements - The MMP shall be documented in narrative form and shall include any necessary drawings or maps. Other related documents already prepared for the facility may be used as part of the MMP and may be incorporated by reference. As a minimum, the MMP shall include an on-going program consisting of: periodic monitoring designed to quantify and, over time, track the reduction of mercury; an acceptable control strategy for reducing mercury discharges via cost-effective measures, which may include more stringent control of tributary waste streams; and submission of periodic status reports.

A. Monitoring - The permittee shall conduct periodic monitoring designed to quantify and, over time, track the reduction of mercury. All permit-related wastewater and stormwater mercury compliance point (outfall) monitoring shall be performed using EPA Method 1631. Use of EPA Method 1669 during sample collection is recommended. Unless otherwise specified, all samples shall be grabs. Monitoring at influent and other locations tributary to compliance points may be performed using either EPA Methods 1631 or 245.7. Monitoring of raw materials, equipment, treatment residuals, and other non-wastewater/non-stormwater substances may be performed using other methods as appropriate. Monitoring shall be coordinated so that the results can be effectively compared between internal locations and final outfalls. Minimum required monitoring is as follows:

- i. Sewage Treatment Plant Influent & Effluent, and Type II SSO Outfalls - Samples at each of these locations shall be collected in accordance with the minimum frequency specified on the mercury permit limits page.
- ii. Key Locations in the Collection System and Potential Significant Mercury Sources - The minimum monitoring frequency at these locations shall be semi-annual. Monitoring of properly treated dental facility discharges is not required.
- iii. Hauled Wastes - Hauled wastes which may contain significant mercury levels shall be periodically tested prior to acceptance to ensure compliance with pretreatment/local limits requirements and/or determine mercury load.
- iv. Additional monitoring shall be completed as may be required elsewhere in this permit or upon Department request.

B. Control Strategy - An acceptable control strategy is required for reducing mercury discharges via cost-effective measures, including but not limited to more stringent control of industrial users and hauled wastes. The control strategy will become enforceable under this permit and shall contain the following minimum elements:

- i. Pretreatment/Local Limits - The permittee shall evaluate and revise current requirements in pursuit of the goal.
- ii. Periodic Inspection - The permittee shall inspect users as necessary to support the MMP. Each dental facility shall be inspected at least once every five years to verify compliance with the wastewater treatment operation, maintenance, and notification elements of 6NYCRR Part 374.4. Other mercury sources shall also be inspected once every five years. Alternatively, the

permittee may develop an outreach program which informs these users of their responsibilities once every five years and is supported by a subset of site inspections. Monitoring shall be performed as above.

iii. Systems with CSO & Type II SSO Outfalls - Priority shall be given to controlling mercury sources upstream of CSOs and Type II SSOs through mercury reduction activities and/or controlled-release discharge. Effective control is necessary to avoid the need for the Department to establish mercury permit limits at these outfalls.

iv. Equipment and Materials - Equipment and materials which may contain mercury shall be evaluated by the permittee and replaced with mercury-free alternatives where environmentally preferable.

[REDACTED]

C. Annual Status Report & Documentation - An annual status report shall be submitted to the Regional Water Engineer and to the Bureau of Water Permits summarizing: (a) all MMP monitoring results for the previous year; (b) a list of known and potential mercury sources; (c) all action undertaken pursuant to the strategy during the previous year; (d) actions planned for the upcoming year, and (e) progress toward the goal. The first annual status report is due one year after the permit is modified to include the MMP requirement and follow-up status reports are due annually thereafter. A file shall be maintained containing all MMP documentation, including the dental forms required by 6NYCRR Part 374.4, which shall be available for review by NYSDEC representatives. Copies shall be provided upon request.

[REDACTED]

C. Semiannual Status Report & Documentation - A semiannual status report shall be submitted to the Regional Water Engineer and to the Bureau of Water Permits summarizing: (a) all MMP monitoring results for the previous six months; (b) a list of known and potential mercury sources; (c) all action undertaken pursuant to the strategy during the previous six months; (d) actions planned for the upcoming six months; and (e) progress toward the goal. The first semiannual status report is due six months after the permit is modified to include the MMP requirement and follow-up status reports are due every six months thereafter. A file shall be maintained containing all MMP documentation, including the dental forms required by 6NYCRR Part 374.4, which shall be available for review by NYSDEC representatives. Copies shall be provided upon request.

3. MMP Modification - The MMP shall be modified whenever: (a) changes at the facility or within the collection system increase the potential for mercury discharges; (b) actual discharges exceed 50 ng/L; (c) a letter from the Department identifies inadequacies in the MMP; or, (d) pursuant to a permit modification.

MERCURY MINIMIZATION PROGRAM – Low Priority POTWs

The permittee shall inspect each tributary dental facility at least once every five years to verify compliance with the wastewater treatment operation, maintenance, and notification elements of 6NYCRR Part 374.4. Inspection and/or outreach to other industrial/commercial sectors which may contribute mercury is also recommended. All new or increased tributary discharges, including hauled wastes, which are from sources that are industrial in nature shall be evaluated for mercury content and if levels exceed 500 ng/L then authorization shall be obtained from the Department prior to acceptance. Equipment and materials which may contain mercury shall be also evaluated by the permittee and replaced with mercury-free alternatives where environmentally preferable. A file shall be maintained containing the notices submitted by dental offices and all other pertinent information. This file shall be available for review by NYSDEC representatives and copies shall be provided upon request. A permit modification may be necessary to include more stringent requirements for POTWs which do not maintain low mercury effluent levels. Note - the mercury-related requirements in this permit conform to the mercury Multiple Discharge Variance specified in NYSDEC policy *DOW 1.3.10*.

MERCURY MINIMIZATION PROGRAM – Industrial Facilities

1. General - The permittee shall develop, implement, and maintain a Mercury Minimization Program (MMP) for those outfalls which have mercury effluent limits. The MMP is required because the 50 ng/L permit limit exceeds the statewide water quality based effluent limit (WQBEL) of 0.70 nanograms/liter (ng/L) for Total Mercury. The goal of the MMP is to reduce mercury effluent levels in pursuit of the WQBEL. Note - The mercury-related requirements in this permit conform to the mercury Multiple Discharge Variance specified in NYSDEC policy *DOW 1.3.10*.

2. MMP Elements - The MMP shall be documented in narrative form and shall include any necessary drawings or maps. Other related documents already prepared for the facility may be used as part of the MMP and may be incorporated by reference. As a minimum, the MMP shall include an on-going program consisting of: periodic monitoring; an acceptable control strategy which will become enforceable under this permit; and, submission of periodic status reports.

A. Monitoring - The permittee shall conduct periodic monitoring designed to quantify and, over time, track the reduction of mercury. Wastewater treatment plant influents and effluents, and other outfalls shall be monitored in accordance with the minimum frequency specified on the mercury permit limits page. Additionally, key locations in the wastewater and/or stormwater collection systems, and known or potential mercury sources, including raw materials, shall be monitored at the above frequency during the first year of the MMP. Monitoring of key locations and known/potential sources may be reduced during subsequent years if downstream outfalls have maintained mercury levels less than 50 ng/l during the previous year. Additional monitoring shall be completed as may be required elsewhere in this permit or upon Department request. Monitoring shall be coordinated so that the results can be effectively compared between internal locations and final outfalls.

All permit-related wastewater and stormwater mercury compliance point (outfall) monitoring

shall be performed using EPA Method 1631. Use of EPA Method 1669 during sample collection is recommended. Unless otherwise specified, all samples shall be grabs. Monitoring at influent and other locations tributary to compliance points may be performed using either EPA Methods 1631 or 245.7. Monitoring of raw materials, equipment, treatment residuals, and other non-wastewater/non-stormwater substances may be performed using other methods as appropriate.

B. Control Strategy - An acceptable control strategy is required for reducing mercury discharges via cost-effective measures, which may include, but is not limited to: source identification; replacement of mercury-containing equipment, materials, and products with mercury-free alternatives where environmentally preferable; more stringent control of tributary waste streams; remediation; and/or installation of new or improved treatment facilities. Required monitoring shall also be used, and supplemented as appropriate, to determine the most effective way to operate the wastewater treatment system(s) to ensure effective removal of mercury while maintaining compliance with other permit requirements.

[REDACTED]

C. Annual Status Report & Documentation - An annual status report shall be submitted to the Regional Water Engineer and to the Bureau of Water Permits summarizing: (a) all MMP monitoring results for the previous year; (b) a list of known and potential mercury sources; (c) all action undertaken pursuant to the strategy during the previous year; (d) actions planned for the upcoming year, and (e) progress toward the goal. The first annual status report is due one year after the permit is modified to include the MMP requirement and follow-up status reports are due annually thereafter. A file shall be maintained containing all MMP documentation, including the dental forms required by 6NYCRR Part 374.4, which shall be available for review by NYSDEC representatives. Copies shall be provided upon request.

[REDACTED]

C. Semiannual Status Report - A semiannual status report shall be submitted to the Regional Water Engineer and to the Bureau of Water Permits summarizing: (a) all MMP monitoring results for the previous six months; (b) a list of known and potential mercury sources; (c) all action undertaken pursuant to the strategy during the previous six months; (d) actions planned for the upcoming six months; and (e) progress toward the goal. The first semiannual status report is due six months after the permit is modified to include the MMP requirement and follow-up status reports are due every six months thereafter. A file shall be maintained containing all MMP documentation, including the dental forms required by 6NYCRR Part 374.4, which shall be available for review by NYSDEC representatives. Copies shall be provided upon request.

3. MMP Modification - The MMP shall be modified whenever: (a) changes at the facility or within the collection system increase the potential for mercury discharges; (b) actual discharges exceed 50 ng/L; (c) a letter from the Department identifies inadequacies in the MMP; or (d) pursuant to a permit modification.

APPENDIX C - Summary of New York State Mercury Minimization Milestones

1998 New ambient water quality standards promulgated;

2002 Lowered waste incineration limits;

2004 School (K-12) use/purchase banned;

2005 Elemental mercury sales restricted to medical, dental, manufacturing, research;

Sale/distribution of mercury-containing novelties, and fever thermometers (without prescription) prohibited;

Labeling of most mercury-added consumer products required;

Disposal of mercury-added consumer products restricted;

Law restricting mercury use in vaccines;

On record in opposition to inadequate federal Clean Air Mercury Rule (CAMR);

2006 Sale/distribution of mercury-containing barometers, flow meters, hydrometers, pyrometers, psychrometers, esophageal dilators, bougie tubes, and gastrointestinal tubes prohibited;

Proper management of dental mercury required, new dentists must install amalgam separators;

Mercury management restrictions at vehicle dismantlers;

Mercury-free schools outreach project begins;

2007 Coal-Fired Power Plant mercury regs issued, phase 2 implementation harmonized with CAIR & RGGI;

Sale/distribution of Hg-containing hydrometers and manometers prohibited;

Northeast Regional TMDL is approved by USEPA;

2008 Dental amalgam separator installation deadline for existing dentists;

Sale/distribution of mercury-containing switches and relays prohibited;

Sale/distribution of sphygomanometers prohibited;

2010 Coal-Fired Power Plant Regs Phase I - 50% mercury reduction required, mercury cap, no trading allowed;

Phase-out of mercury-added motor vehicle components;

Mercury SPDES permitting strategy and Multiple Discharge Variance finalized;

2015 Coal-Fired Power Plant Regs Phase II - 90% mercury reduction required (CAMR 70% by 2025);

Additional information on mercury management in New York State can be found on the NYSDEC website at www.dec.ny.gov/chemical/285.html.

APPENDIX D - SPDES Permit Application Requirements for an IDV

SPDES Permit Application Requirements for an Individual Discharge Variance from the Mercury Water Quality Based Effluent Limitations of 0.70, 1.3, and 2.6 ng/L

In accordance with 6 NYCRR Parts 702.17 and 750-2.1(i), an approvable application for an Individual Discharge Variance (IDV) shall contain all of the following information:

- ▶ A demonstration that it is not feasible to achieve one or more of the above-noted Water Quality Based Effluent Limitations;
- ▶ A demonstration that it is not feasible to achieve the Statewide Multiple Discharge Variance (MDV) requirements published in NYSDEC policy *DOW 1.3.10*. This shall address the specific MDV provisions that the applicant wishes to vary from;
- ▶ A characterization of any increased risk to human health and the environment and a demonstration that granting the IDV will not adversely affect the public health, safety and welfare, or, jeopardize the continued existence of any endangered or threatened species. The characterization and demonstration should be made relative to both the water quality standard and the MDV requirements, i.e., what is the risk of the overall IDV and what is the incremental increase in risk of the IDV versus the MDV;
- ▶ A demonstration that the requested IDV will conform to the applicable TMDL;
- ▶ A demonstration that the requested IDV will conform to the State's anti-degradation policy;
- ▶ A tabulation of all available mercury data for the site in question. This tabulation shall include a minimum of ten EPA Method 1631 sample results for each water supply intake, treatment system influent (if applicable), and effluent location. Sample results should also be provided for atmospheric precipitation, groundwater, site soils and sediments, and materials used or stored at the site, as appropriate.

The applicant shall submit the IDV request at application time if either a renewal or a permittee initiated modification is involved. For NYSDEC initiated modifications, an IDV request should only be submitted by the permittee if so directed by NYSDEC staff.