

MERCURY VARIANCE APPLICATION

PREPARED FOR:

**CITY OF LIMA WASTEWATER TREATMENT PLANT
PERMIT NO. 2PE00000*KD
1200 FT. AMANDA ROAD
LIMA, OHIO 45804**

PREPARED BY:

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TABLE OF CONTENTS

Abbreviations i

Introduction 1

Determination of Eligibility for a Mercury Variance 2

Certification Statement 3

Description of Mercury Reduction or Elimination Measures to Date 4

Plan of Study 5 - 17

 1. Data on Current Influent and Effluent Mercury Concentrations

 Table 1 - Mercury Concentrations 6

 2. Preliminary Identification of All Known Mercury Sources 7

 Table 2 - Common Mercury Contributors..... 7

 Table 3 – Detailed List of Known & Potential Mercury Contributors..... 9

 3. Description of Current Plans to Reduce or Eliminate Sources 12

 4. Preliminary Identification of Other Potential Mercury Sources 13

 5. Proposed Schedule for Evaluating Sources 14

 6. Proposed Schedule for Identifying and Evaluating Potential
 Reduction, Elimination, and Prevention Methods 16

Plan of Study Summary 18

Non-Compliance with the WQBEL Explanation and Basis 19

Appendix 20

Known Resources for Mercury Reduction/Elimination 21

Antidegradation Addendum 23

ABBREVIATIONS

A., ac	Acres
Avg.	Average
BOD	Biochemical Oxygen Demand
CaCO ₃	Calcium Carbonate
D.O.	Dissolved Oxygen
EPA	Environmental Protection Agency
Est.	Estimate
Ft. of (')	Feet
Gal.	Gallon
gpd or GPD	Gallons per Day
gpm or GPM	Gallons per Minute
in. or (")	Inches
lbs.	Pounds
max. or Max.	Maximum
ug/l	Micrograms per Liter
mgd or MGD	Million Gallons per Day
mg/l	Milligrams per Liter
Misc.	Miscellaneous
#	Number
O & M	Operation and Maintenance
%	Percent
rpm	Revolutions per Minute
Res. or R.	Residential
s.f. of Sq. Ft.	Square Feet
S.R.	State Route
S.S.	Suspended Solids
x or X	Times
TDH	Total Dynamic Head
Cu. M.	Cubic Meters
Cl	Chlorine
DI	Sludge Density Index
SCFM	Standard Cubic Feet per Minute
ng/l	nanograms/liter

INTRODUCTION

The City of Lima, Ohio owns and operates a publicly owned treatment works located at 1200 Ft Amanda Road, Lima, Ohio, Allen County, that discharges into the Ottawa River. The Ohio EPA has issued the City a National Pollutant Discharge Elimination System Permit No. 2PE00000*KD. This permit was effective December 1, 2005 and expires on October 31, 2010. The NPDES permit has a required monthly mercury limit of 1.3 ng/l with a daily loading of 0.3066 kg/d and monthly loading of 0.00022 kg/d.

Lima has utilized mercury analytical method 1631, which is approximately 200 times more sensitive than the previous approved method (EPA Method 245.1 or 245.2) since March, 2000. The minimum detection level (MDL) for this new method is 0.2 ng/l. The new quantification level is 0.5 ng/l. The monitoring data in Table 1 indicates the NPDES limit of 1.3 ng/l will periodically be exceeded.

Implementation of the general mercury variance is intended to prevent substantial and widespread social and economic impacts. The average cost to remove mercury below 12 ng/l through the end of pipe treatment is in excess of ten million dollars per pound of mercury removed. Studies performed by Foster Wheeler Environmental Corporation, DRI/ McGraw Hill and the Ohio EPA support that fact.

Mercury Variance {OAC 3745-33-07(D)(10)}

The general mercury variance affords Lima an advantage over an individual variance. This is because Lima does not have to demonstrate the widespread social and economic impact that would result from compliance with a Water Quality Based Effluent Limit (WQBEL) in the National Pollutant Discharge Elimination System permit.

The variance is available because the Lima Wastewater Treatment Plant has a 30-day average WQBEL for mercury that it is unable to meet {OAC 3745-33-07(D)(10)(a)}. The City has determined that it can currently achieve an annual average mercury effluent concentration of 12 ng/l. The City would recommend that the mercury variance be incorporated into the current NPDES permit. The current NPDES permit expires October 31, 2010. The current NPDES permit requires the Mercury Variance Application to be submitted by December 1, 2006. An antidegradation addendum must also be completed and is attached to this variance request.

Determination of Eligibility for a Mercury Variance

Part I. C Schedule of Compliance (3) (c) of NPDES Permit 2PE00000*KD

If the permittee determines that compliance with the water quality based effluent limits for Mercury included in this permit is not possible without the construction of expensive end-of-pipe controls, a variance from the mercury water quality standards is available under Section D (10) of Rule OAC 3745-33-07. If the permittee determines it is eligible, it may submit an application for coverage under this mercury variance. Section D (10) (a) of OAC 3745-33-07 includes information on eligibility for coverage and lists the information that must be included in the application.

For the purpose of determining eligibility under this section, influent and effluent concentrations for mercury from the Lima Wastewater Treatment Plant are listed in Table 1. The results listed in Table 1 are from monthly sampling from previous years as required by the NPDES permit.

The mercury data in Table 1 indicates that the 30 day average WQBEL limit of 1.3 ng/l as specified in permit 2PE00000*KD may periodically be exceeded, and end-of-pipe treatment would be required. However, the mercury data demonstrates that the Lima WWTP should be able to achieve an annual average mercury effluent concentration (AAMEC) of 12 ng/l prior to expiration of the permit as required to apply for a general mercury variance.

CERTIFICATION STATEMENT

As an authorized representative for the City of Lima, I am applying to the Director of Ohio EPA for coverage under the mercury variance from the 30-day average water quality-based mercury limit in the above-referenced NPDES permit. I hereby certify that the Lima Wastewater Treatment Plant intends to be subject to the mercury variance terms and conditions of paragraph (D) (10) of Rule 3745-33-07 under Chapter 3745-33 of the Ohio Administrative Code. To the best of my knowledge, the Lima WWTP NPDES permitted discharge from Final Outfall -001 is currently able to achieve an annual average mercury concentration of 12 ng/l prior to the expiration date of our renewed permit.

Russell Bales WW3-1007064-82

Russell Bales
Supervisor of Lima WWTP
Lima, Ohio

Stephen Ford WW4-1016135-01

Steve Ford
Technical Supervisor of Lima WWTP
Jones & Henry Engineers

Description of Mercury Reduction or Elimination Measures Taken to Date

Ohio Administrative Code 3745-33-07 (D)(10)(a)(ii)

The City of Lima's Utilities Department has taken the following measures for mercury reduction:

In November 2002, the City of Lima, in conjunction with the Allen County Sanitary Engineering Department, held an informational meeting for all dentists affiliated with the collection systems maintained by the City of Lima and Allen County. At this meeting, a Powerpoint presentation was given outlining the problems associated with mercury in the environment, and how the dental profession can possibly contribute to the problem from their waste streams. Attendees were given an overview of mercury-related health effects and how mercury affects nature. They were informed of the regulatory issues and how current and proposed regulations may affect their profession. They were advised of possible mercury sources at their facilities such as the amalgam used for fillings, mercury thermometers, and other products that may contain mercury. They were given suggestions on how to reduce mercury in their facilities that included employee training on identification of mercury sources, utilization of products that don't contain mercury, and technological advancements to reduce discharges that may contain mercury. They were also encouraged to keep records concerning storage, use, and proper disposal of products containing mercury.

PLAN OF STUDY

OAC 3745-33-07 (D)(a)(Iii)

The Plan of Study Will Include the Following Subsections:

1. Current Influent and Effluent Concentrations
2. Identification of All Known Mercury Sources
3. Description of Current Plans to Reduce or Eliminate Known Sources
4. Preliminary Identification of Other Potential Mercury Sources
5. Proposed Schedule for Evaluating Mercury Sources
6. Proposed Schedule for Identifying and Evaluating Potential Reduction, Elimination, and Prevention Methods

1. Current Influent and Effluent Mercury Concentrations ----- Table 1

Date	601 Influent (ng/l)	604 Effluent (ng/l)
January-01	73.00	3.83
February-01	28.90	1.17
March-01	34.10	1.66
April-01	19.70	0.51
May-01	58.10	1.28
June-01	198.00	24.00
July-01	36.20	4.64
August-01	20.60	1.30
September-01	45.60	1.20
October-01	46.20	1.09
November-01	48.30	0.61
December-01	111.00	0.90
January-02	37.40	2.47
February-02	14.00	2.20
March-02	23.70	7.26
April-02	11.70	AA
May-02	84.30	1.91
June-02	15.90	1.02
July-02	19.60	2.27
August-02	32.00	1.28
September-02	20.60	2.11
October-02	34.50	1.37
November-02	86.50	0.89
December-02	33.50	1.21
January-03	2.20	AA
February-03	2.40	AA
March-03	0.70	AA
April-03	AA	AA
May-03	1.00	0.30
June-03	0.50	AA
July-03	0.20	AA
August-03	0.70	0.30
September-03	2.00	0.20
October-03	0.20	AA
November-03	0.50	AA
December-03	1.50	AA
January-04	2.80	0.50
February-04	2.50	0.90
March-04	1.10	AA
April-04	1.40	0.50
May-04	1.90	0.80
June-04	1.40	0.40
July-04	1.90	0.20
August-04	2.70	AA
September-04	1.40	AA
October-04	2.00	1.70
November-04	1.30	0.30
December-04	1.70	0.40
January-05	1.90	AA
February-05	0.40	AA
March-05	3.80	0.80
April-05	1.00	AA
May-05	AA	0.80
June-05	6.00	2.30
July-05	1.70	AA
August-05	3.40	AA
September-05	29.90	11.90
October-05	35.90	16.00
November-05	26.40	3.10
December-05	54.60	8.20

The data in Table 1 indicates the Lima WWTP will remove an average of over 83 % of the mercury from the influent. Many conditions may change the removal rate. Increased wastewater flows, infiltration of storm water, and climatic conditions are just a few variables that could affect the removal rate.

2. Preliminary Identification of All Known Mercury Sources

The following is a list of mercury contributors that are common to many communities. The list will be used to develop a mercury reduction and elimination program.

Table 2

COMMON MERCURY CONTRIBUTORS

Hospitals	Breakage of mercury containing equipment, laboratory reagents, mercuric oxide batteries.
Concentrations:	0.3 ppb - 5.4 ppb *
Dentists	Dental amalgam. (Some of this mercury may be transformed into bioavailable form during wastewater treatment. Majority will concentrate in sludge.)
Concentrations:	0.1 - 0.3 grams/dentist/day *
Sewer Cleaning	Mercury collects in sewer line sediments. Sewer cleaning flushes sediments to the wastewater treatment plant.
Residential Wastewater	Mercury ingested deposited in human waste.
Concentrations:	0.1 ppb average *
Septic Haulers	For sanitary sewer district approximately 1.6 % of influent mercury was calculated to be from septage. *
Concentrations:	62 ppb average.
Unique mercury contributors	Contributors that may be specific to a particular community.
Laboratories	Mercury containing equipment and reagents.
Concentrations:	5 ppb *

Industrial Laundries	Chemicals used in cleaning process such as bleach and caustic soda, dirt cleaned from clothing. Imported clothing may contain mercury in dyes and preservatives.
Concentrations:	0.7 ppb *
Veterinary clinics	Mercury containing devices and reagents.
Printing Industry	Inks and special paper coatings.
Pottery and Arts	Mercury contained in pigments in art materials.
Concentrations:	0.31 ppb. Individual glazes had concentrations up to 41 ppb.*
Automobile Service	Mercury in oil and dirt.
Painting / Paint stripping	The use of mercury in latex paint has been banned since 1990. Latex paint manufactured prior to that date could contain mercury. Stripping of old paint from houses may result in introduction of mercury into sewers. Storage of old paint.
Concentrations:	250 - 125,000 ppb in old latex paint. (pre 1990)*
Scrap Dealers	Vehicles and domestic appliances containing mercury such as gauges and light fixtures.
Landfill leachate	Leachate will vary greatly dependent upon the type of waste at the landfill.
Concentrations:	Municipal solid waste facility 0.7 - 2.0 ppb. *
Pollution control devices	Wet scrubbers at industrial facilities where there is no pre-treatment for the scrubber water before being discharged to the sewer.
Concentrations:	200 ppb prior to treatment, 20 ppb after treatment. *

* All data provided here was obtained from a literature review and investigations conducted by the Western Lake Superior Sanitary District (WLSSD), and is intended to provide an example of the potential mercury levels that may be found in wastewater.

A preliminary identification of sources was conducted based on information obtained from literature and Ohio EPA. Based on the generic list of possible sources (Table 2), the City prepared a list of possible mercury contributors discharging to the Lima Sewer System (Table 3). These potential contributors were located on the Lima Collection System map. Many potential contributors such as dentists, hospitals, and laboratories are listed in Table 3. The two main hospitals are currently monitored quarterly.

A local survey will be conducted for potential mercury sources which have been identified. A school, nursing home, several painting and/or automotive shops, an industrial laundry, and an electric motor shop will be the focus of this initial survey. The survey will request information as to possible mercury contributions from potential sources at each entity. Initial sewer system sampling should also provide information regarding mercury discharges from entities which are expected to be the primary or most obvious sources of mercury.

Table 3 --- Detailed List of Known & Potential Hg Sources

Industry Type	Facility Name	Address	Phone #	Contact Name
Hospitals	Lima Memorial Hospital	1001 Bellefontaine Ave	(419) 226-5019	Dave Dungan
	St. Rita's Medical Center	730 W Market St	(419) 226-9116	Ron Connovich
	Luke Medical Center	2195 Allentown Road	(419) 227-2245	Sylvia Kenniv
Dental Offices	Affiliated Oral Surgeons	505 N. Cable Road	(419) 331-0000	Brooke Winters
	Affordable Dentures	1951 Bellefontaine Ave	(419) 228-6680	Diane Kricker
	AllCare Dental		(419) 224-8800	Unknown
	Gary P Brunk DDS	2345 W Elm St	(419) 227-5544	Dr. Gary Brunk
	Crawford Dental Associates	855 W. Market St	(419) 228-3311	Judy Crawford
	Denture Center	1331 W. Market St	(419) 229-4966	Dr. Howard Cook
	John D Flack DDS	829 E. Elm St	(419) 225-0080	Sara Stevenson
	David W Hancock DDS	555 W Elm St	(419) 229-0776	Dr. David Hancock
	Thomas P Heckler DDS	1337 N Cable Road	(419) 228-8929	Dr. Tom Heckler
	Donald L Knowles DDS	1235 W Market St	(419) 222-1188	Dr Donald Knowles
	Lima Dental Associates	2115 Allentown Road	(419) 228-4036	Jane Campbell
	Miller Dental Associates	1031 W Ritchie Ave	(419) 228-3384	Dr. Gary Miller
	Oral Surgery Associates	830 W. High	(419) 227-5155	Jan Pohlman
	Family Dental Care	1707 Allentown Road	(419) 224-3464	Dr. Gene Dugan
	Rosfeld Dental Associates	2740 W Market St	(419) 222-7826	Unknown
	Stephen G Roush DDS	1702 Allentown Road	(419) 227-2093	Jan Fleming
Jack Spratt Jr DDS	1335 N Cable Road	(419) 222-4342	Joanne Spratt	
Mark T Zehler DDS	459 S Main St	(419) 228-5502	Unknown	
Nursing Homes	Argonne Residence Inn	201 N Elizabeth	(419) 223-3010	Bill Bresson

	Golden Living Center	599 S Shawnee St	(479) 201-4660	Jim Zoesch
	Hanley House	201 S Cable Road	(419) 224-1606	Rick Lamb
	Lima Convalescent Home	1650 Allentown Road	(419) 224-9741	Bud Smith
	Lost Creek Care Center	804 S Mumaugh Road	(419) 225-9040	Shelley Kendricks
	Springview Manor	883 W Spring St	(419) 227-3661	Dustin Theis
	Wyngate Senior Living	1070 Gloria Ave	(419) 224-6327	Janelle Miller
Laboratories- Environmental	Alloway Environmental Testing Services	1101 N Cole St	(419) 223-1362	John Hoffman
Laboratories- Medical	Computnet Clinical Labs	200 N Metcalf	(419) 221-2710	Unknown
	Lima Pathology Labs	415 W Market St	(419) 226-9595	David Pauf
	Medi-Lab Inc.	855 W Market St	(419) 228-8800	Marcia Baggs
	Medi-Lab Eastside	1012 Bellefontaine	(419) 229-3229	Marcia Baggs
Industrial Laundries	Crothall Healthcare LLC	1010 E. High St	(419) 225-8654	Dennis Taucher
Electric Motor Repair Shops	Koontz Wagner Electric Co	1864 N McCullough	(419) 228-1325	Kermit Caudill
	Lima Armature Works Inc	142 E Pearl	(419) 222-4010	Rick Smith

Print Shops	Brandon Screen Printing	326 S West St	(419) 229-9837	Robert Little
	Cappies Sportswear	3107 W Elm St	(419) 999-2277	Don Fischer
	CSS Publishing Company- Commercial Lithograph	517 S Main St	(419) 227-1818	Dave Friemoth
	Forms-Systems Plus	925 N Jameson Ave	(419) 225-6436	Unknown
	Kennedy Graphics	1501 Allentown Road	(419) 223-9825	Mary McCourt
		700 Dean Ave	(419) 228-9175	Mary McCourt
	Lima Sporting Goods	1404 Allentown Road	(419) 222-1036	Dave Kirian
	Longmeier Printing & Advertising	232 N Union	(419) 222-9741	Dennis Martin
	Martin Printing Co	400 N Main St	(419) 224-9176	Margaret Whittlatch
	News Gazette Printing Co	324 W Market St	(419) 227-2527	Tom Honegger
	Quick As A Wink Printing Co	321 W High St	(419) 224-9786	Dave Beck
	Sign Pro of Lima	1259 N Cole St	(419) 222-7767	George Davis
	Snow Printing Co Inc	1000 W Grand Ave	(419) 229-7669	Dan Kohl
	Whited Printing Co	102 W Wayne St	(419) 229-5731	Jim Whited
Schools	Lima City Schools	Superintendants Office	(419) 996-3400	Randy Crossley
	Lima Senior High	1 Spartan Way		
	North Middle	1135 N West St		
	South Middle	755 St Johns Ave		
	West Middle	503 N Cable Road		
	Freedom Elementary	575 S Calumet Ave		
	Heritage Elementary	816 College Ave		
	Independence Elementary	615 Tremont Ave		

	Liberty Elementary	338 W Kibby St		
	Unity Elementary	925 E 3rd St		
	Lima Central Catholic High	720 S Cable Road	(419) 222-4276	Todd Elwer
	St Charles Elementary	2175 W Elm St	(419) 222-2536	Tom Huffman
	St Gerard Elementary	1311 N Main St	(419) 222-0431	Mary Lou Webber
	St Rose Elementary	523 N West St	(419) 223-6361	Pat Shanahan
	Heir Force Community	150 W Grand Ave	(419) 228-9241	Darwin Lofton
	Liberty Chrstian	801 Bellefontaine Ave	(419) 229-6266	Unknown
Automotive Body / Repair /	Accubuilt	2550 Central Point Parkway	(419) 222-1501	Rob Johnson
Paint Shops	American Auto Body	655 Findlay Road	(419) 221-1223	Uncooperative
	American Mall Citgo	2850 W Elm St	(419) 999-5878	John Waller
	BB Auto Repair	527 1/2 E Kibby St	(419) 221-2004	John Bruster
	Binkley's Performance	1908 Lenore	(419) 225-4926	Dan Campbell
	Croft's Car Center	915 S Metcalf St	(419) 228-4013	John or Roy Croft
	Dad's Complete Car Care	1650 N McCullough Ave	(419) 221-0711	Tom Klofta
	Dave's Reliable Motors	506 E Market	(419) 228-9998	Uncooperative
	Eastgate Shell	1570 Harding Highway	(419) 224-9911	Bryan Hutchinson
	Foust Auto Radiator Co	108 W Wayne	(419) 222-6781	Steve Adams
	Fuqua Body Shop	309 S Central Ave	(419) 229-4974	Earl Fuqua
	Goodyear Auto Service Center	409 W Market St	(419) 227-2142	Bob Wolfe
	H&H Auto Body	644 N Union	(419) 229-2313	Roger Hardesty
	Hefner's Service Center	1401 Allentown Road	(419) 229-6756	Rick Hefner
	Kars of Lima	1010 N Cole St	(419) 227-5277	Robert Korikian
	Keith's Automotive Service	1100 W Grand Ave	(419) 227-9751	Unknown
	Lima Collision Service	119 E North	(419) 222-2936	Alan May
	Lima Transmissions	901 S Metcalf St	(419) 228-7267	Robert Humes, Jr
	Lucas Ford	1360 Greely Chapel Rd	(419) 224-3673	John Rembis
	Margin Performance	1253 N Cole St	(419) 222-7714	Unknown
	Midas	710 N Cable Road	(419) 222-5951	Ron Fischer
	Nelson's Auto Service Inc	117 E Grand Ave	(419) 224-0700	Frank Nelson
	Ordonez Auto	628 S Main	(419) 224-4700	Unknown
	Park Place Body Shop	330 S Union	(419) 225-8655	Unknown
	Quick Stop Oil Change Tune	420 Findlay Road	(419) 228-2963	Fred Tackett
	Rainbow Muffler	903 E Elm St	(419) 222-3802	Martin Cunningham
	Reineke Lincoln Mercury Mazda	1350 N Cable Road	(419) 227-7400	Jackie Mitchell
	Ron Gorby's Auto Care Center	502 W North St	(419) 228-8997	Unknown
	Tom Ahi Body/Service Shop	2525 Allentown Road	(419) 228-2406	Dave Spallinger
	Tomlinson Motor Service Inc	213 S Elizabeth	(419) 224-1826	Bob Tomlinson
	True Service	455 E Murphy	(419) 224-4146	Mark Hyatt
	Valvoline Instant Oil Change	3000 W Elm St	(419) 331-9491	Cindy Kondas
	Weaver's Frame Service	1000 W Grand Ave	(419) 225-0707	Unknown

3. Description of Current Plans to Reduce or Eliminate Known Sources

As discussed in the previous section, sewer system sampling will be used to help identify entities that are contributing mercury to the sewer system. This information will be combined with the results from site specific surveys to do the following:

- ▶ Determine which entities to contact for site visits.
- ▶ Discuss, explain and require the implementation of Best Management Practices that are sector-specific to that discharger. Strategies to reduce or eliminate mercury from wastewater discharges, which are designed specific to a range of different types of businesses and industries, are available in publications from the Wisconsin Department of Natural Resources and the Western Lake Superior Sanitary District. The City will provide information from these publications to entities needing to implement reduction and/or elimination strategies for mercury. Ohio EPA's Office of Pollution Prevention is also a resource that may be used by the City to help entities implement needed strategies.
- ▶ The City will require specific annual documentation from the identified Dischargers describing the implementation progress of the agreed upon BMPs. The City will schedule annual site visits (subject to workforce availability) to review the documentation submitted by the Discharger and view in-person any physical changes made to the manufacturing and/or material process. Dischargers that do not show sufficient progress implementing BMPs, or those that submit incomplete documentation, may be subject to more frequent inspection and/or enforcement action as allowed by the City's Sewer Use Ordinance.

4. Preliminary Identification of Other Potential Mercury Sources

Other potential sources of mercury are mercury arc lamps, fluorescent lights, thermostats, thermometers, old alkaline batteries, mercurochrome, maze toys, shoes with lights in the soles, washing machines, automobile switches, gas-pilot ranges, latex paint, cosmetics, fireworks, livestock and poultry remedies, turf products, special paper coatings, and maritime paint. Ohio and Indiana are the only Great Lakes States that have no mercury product regulations. Illinois, Michigan, Minnesota, New York, and Wisconsin have extensive mercury product regulations. Inappropriate disposal of these items can significantly contribute to mercury levels in the County sewer system.

The City will look for evidence of the kinds of solid wastes mentioned above during routine sewer cleaning, inspection, and maintenance and during sewer system sampling. Additional survey efforts involving contacting individual businesses and residences may be necessary under these circumstances to identify the mercury sources.

5. Proposed Schedule for Evaluating Sources

Year 1

January -April

Investigate potential mercury sources at the Wastewater Treatment Plant.

Begin mercury-monitoring program for the Lima collection system. Samples will be collected twice from the wet wells of eight lift stations (Lost Creek, Koop Road, Hickory Knoll, Allentown, West Street, Robb Ave, 8th/St. Johns, and 15th/Main). This will give the City data from all directions of the collection system as a starting point for further investigation.

EPA Method 1631 will be used for mercury sampling and analysis.

May – August

Evaluate results from the first round of sampling and begin conducting site visits of known and potential mercury sources identified from the mercury monitoring program.

Develop a plan for the second round of sampling, targeting the areas with the highest mercury concentrations.

Perform the second round of sampling.

Evaluate results from second round of sampling.

Identify any potential mercury sources.

Develop a plan for more detailed sampling if necessary.

September – December

Prioritize identified mercury sources and prepare questionnaires and other information that will be used in site visits/public education.

Perform more detailed sampling if necessary.

Year 2

January – June

Conduct additional mercury sampling if warranted.

July – December

Complete all site visits and compile a list of known sources.

Evaluate collection system monitoring records, inspection records, and sewer maintenance records to determine if any patterns or conclusions can be drawn regarding the possible sources of mercury-containing solid wastes found in the sewer system.

Year 3

January – June

Continue to evaluate collection system monitoring data.

Continue identifying any potential sources.

Conduct additional mercury sampling (if warranted).

July – December

Evaluate collection system monitoring data.

Conduct additional mercury sampling (if warranted).

6. Proposed Schedule for Identifying and Evaluating Potential Reduction, Elimination, and Prevention Methods

Year 1

January – June

Conduct site visits of known potential sources identified in Table 3 using preliminary information to prioritize contacts. During visits, distribute available guidance from *Wisconsin Mercury Source Book* (extensive list of sectors) and the Ohio EPA Mercury Reduction web site (hospitals, schools, mercury collection and recycling). Encourage implementation of appropriate strategies for reduction, elimination, and prevention.

Conduct monitoring required by NPDES permit

July – December

Submit annual PMP progress report

Year 2

January – June

Continue site visits of known potential sources identified from the mercury sampling program. During visits, distribute available guidance from *Wisconsin Mercury Source Book* (extensive list of sectors) and the Ohio EPA Mercury Reduction web site (hospitals, schools, mercury collection and recycling). Encourage implementation of appropriate strategies for reduction, elimination, and prevention.

Contact the local solid waste management district for information regarding household hazardous waste collection strategies and/or events, or any other activity, which may be designed to collect mercury-containing solid wastes. Participate in public education for proper management of these wastes, including advertisement of any collections events.

July – December

Complete site visits of known sources using preliminary information to prioritize contacts. During visits, distribute available guidance from *Wisconsin Mercury SourceBook* (extensive list of sectors) and the Ohio EPA Mercury Reduction web site (hospitals, schools, mercury collection

and recycling). Encourage implementation of appropriate strategies for reduction, elimination, and prevention.

Conduct monitoring required by NPDES permit

Submit annual PMP progress report

Year 3

January – June

Begin site visits of other potential sources that have been identified using preliminary information to prioritize contacts. During visits, distribute available guidance from *Wisconsin Mercury SourceBook* (extensive list of sectors) and the Ohio EPA Mercury Reduction web site (hospitals, schools, mercury collection and recycling). Encourage implementation of appropriate strategies for reduction, elimination, and prevention.

Conduct follow-up surveys to check the progress of the mercury reduction/elimination strategies being implemented by previously identified mercury contributors.

July – December

Complete site visits of other potential sources that have been identified using preliminary information to prioritize contacts. During visits, distribute available guidance from *Wisconsin Mercury SourceBook* (extensive list of sectors) and the Ohio EPA Mercury Reduction web site (hospitals, schools, mercury collection and recycling). Encourage implementation of appropriate strategies for reduction, elimination, and prevention.

Conduct monitoring required by NPDES permit

Submit annual PMP progress report

PLAN OF STUDY SUMMARY

A Plan of Study is required by Ohio EPA to increase the probability that WQBEL will actually be achieved through pollution prevention. The Plan of Study consists of three elements.

- 1.) A control strategy/plan of study for locating, identifying, and where cost effective, reducing the sources of mercury that contribute to discharge levels.
- 2.) Reduction strategies, including any cost effective process for reducing mercury levels, pollution prevention, treatment, best management practices, or other control mechanisms, will be developed and implemented.
- 3.) Monitoring will be conducted to track progress of the Plan of Study.

The goal of the Plan of Study will be to reduce mercury concentrations in the Lima Wastewater Treatment Plant effluent to mercury levels below the NPDES permit requirement of 1.3 ng/l. If the goal is accomplished, the pollutant minimization requirements can be removed from the NPDES permit.

Non-Compliance with the WQBEL Explanation and Basis

OAC 3745-33-07(D)(10)(a)(iv)

There are commercial customers on the Lima collection system, however, a large majority of customers are residential. We may be able to reduce the amount of mercury that is discharged into the collection system by monitoring and inspection of commercial customers. These types of mercury reduction practices may not be practical in significantly reducing mercury discharges by residential customers. Education of the residential dischargers may be the only practical method of mercury reduction, but offers the least amount of control for Lima Wastewater Treatment Plant. Significant sources of mercury entering the collection system could be from potable water supplies or from surface run-off infiltrating the collection system. Routine cleaning could contribute to periodic elevated levels of mercury entering the treatment plant. These factors will make it virtually impossible to consistently meet the WQBEL of 1.3 ng/l without end-of-pipe controls.

APPENDIX

KNOWN RESOURCES FOR MERCURY REDUCTION/ELIMINATION

Web sites

www.epa.gov/p2/
www.epa.ohio.gov/opp/
www.epa.gov/glnpo/bns/
www.epa.gov/grtlakes/

Documents

Wisconsin Strategy for Regulating Mercury in Wastewater
Wisconsin Department of Natural Resources - May 1996
PO Box 7921 Madison, WI 53707-7921
(608) 266-2621

Blueprint for Mercury Reduction
Western Lake Superior Sanitary District (WLSSD) - March 1997
2626 Courtland Street, Duluth MN 55806-1894
(218) 722-3336

Mercury Waste Pollution Prevention
United States Environmental Protection Agency Region 5
77 W. Jackson Blvd., Chicago IL 60604
(312) 353-2000 or (800) 621-8431

Mercury in Medical Waste
United States Environmental Protection Agency Region 5
77 W. Jackson Blvd., Chicago IL 60604
(312) 353-2000 or (800) 621-8431

Mercury Pollution Prevention in Michigan
Michigan Mercury Pollution Prevention Task Force - April 1996
PO Box 30028, Lansing MI 48909-7528

Report on the Mercury Contamination Reduction Initiative
Minnesota Pollution Control Agency - March 1999
520 Lafayette Rd, St. Paul MN 55155
(612) 296-6300

Mercury: In your Community and the Environment
Wisconsin Department of Natural Resources
PO Box 7921 Madison, WI 53707-7921
(608) 266-2621

Strategies for Mercury Control in Minnesota
Minnesota Pollution Control Agency
Mercury Task Force
520 Lafayette Rd, St. Paul MN 55155
(612) 296-6300

A Guide for Dentists "How to manage waste from your dental practice"

Western Lake Superior Sanitary District (WLSSD) - March 1997
2626 Courtland Street, Duluth MN 55806-1894
(218) 722-3336 Hotline (218) 722-0761

The Case Against Mercury: Rx for Pollution Prevention

Terrene Institute / USEPA Region 5 - 1995
1717 K Street, NW
Suite 801, Washington, DC 20006
(202) 833-8317

Ohio Dental Association Bulk Mercury Collection Project

Contact: Bill Narotski
Ohio EPA Office of Pollution Prevention
Lazarus Government Center
PO Box 1049, Columbus OH 43216-1049
(614) 644-3469

or Ohio Dental Association
Contact: Chris Moore
1370 Dublin Rd, Columbus OH 43215
(614) 486-2700
(800)282-1526

Antidegradation Addendum



DIVISION OF SURFACE WATER

Antidegradation Addendum

In accordance with Ohio Administrative Code 3745-1-05 (Antidegradation), additional information may be required to complete your application for a permit to install or NPDES permit. For any application that may result in an increase in the level of pollutants being discharged (NPDES and/or PTI) or for which there might be activity taking place within a stream bed, the processing of the permit(s) may be required to go through procedures as outlined in the antidegradation rule. The rule outlines procedures for public notification and participation as well as procedures pertaining to the levels of review necessary. The levels of review necessary depend on the degradation being considered/requested. The rule also outlines exclusions from portions of the application and review requirements and waivers that the Director may grant as specified in Section 3745-1-05(D) of the rule. Please complete the following questions. The answers provided will allow the Ohio EPA to determine if additional information is needed. All projects that require both an NPDES and PTI should submit both applications simultaneously to avoid going through the antidegradation process separately for each permit.

A. Applicant: City of Lima - Utilities Department
Facility Owner: City of Lima - Utilities Department
Facility Location (city and county): Lima, Allen
Application or Plans Prepared By: Gary Sheely, City of Lima
Project Name: Mercury Variance Application
NPDES Permit Number (if applicable): OH 2PE00000*KD

B. Antidegradation Applicability

Is the application for? (check as many as apply):

- Application with no direct surface water discharge (Projects that do not meet the applicability section of 3745-1-05(B)1, i.e., on-site disposal, extensions of sanitary sewers, spray irrigation, indirect discharger to POTW, etc.). (Complete Section E)
- Renewal NPDES application or PTI application with no requested increase in loading of currently permitted pollutants. (Complete Section E, Do not complete Sections C or D).
- PTI and NPDES application for a new wastewater treatment works that will discharge to a surface water. (Complete Sections C and E)
- An expansion/modification of an existing wastewater treatment works discharging to a surface water that will result in any of the following (PTI and NPDES): (Complete Sections C and E)
 - * addition of any pollutant not currently in the discharge, or
 - * an increase in mass or concentration of any pollutant currently in the discharge, or
 - * an increase in any current pollutant limitation in terms of mass or concentration.

_____ PTI that involves placement of fill or installation of any portion of a sewerage system (i.e., sanitary sewers, pump stations, WWTP, etc.) within 150 feet of a stream bed. Please provide information requested on the stream evaluation addendum (i.e., number of stream crossings, fill placement, etc.) and complete Section E.

_____ Initial NPDES permit for an existing treatment works with a wastewater discharge prior to October 1, 1996. (Complete Sections D and E)

_____ Renewal NPDES permit or modification to an effective NPDES permit that will result in any of the following: (Complete Sections C and E)

- a new permit limitation for a pollutant that previously had no limitation, or
- an increase in any mass or concentration limitation of any pollutant that currently has a limitation.

C. Antidegradation Information

1. Does the PTI and/or NPDES permit application meet an exclusion as outlined by OAC 3745-1-05(D) (1) of the Antidegradation rule?

Yes (Complete Question C.2)

_____ No (Complete Questions C.3 and C.4)

2. For projects that would be eligible for exclusions provide the following information:

a. Provide justification for the exclusion.

b. Identify the substances to be discharged, including the amount of regulated pollutants to be discharged in terms of mass and concentration. Monthly Avg. Concentration (Hg) = 7.6 ng/l
Monthly Avg. Loading (Hg) = 0.00129 kg/day

c. A description of any construction work, fill or other structures to occur or be placed in or near a stream bed.

3. Are you requesting a waiver as outlined by OAC 3745-1-05(D) (2-7) of the Antidegradation rule?

_____ No

_____ Yes

If you wish to pursue one of the waivers, please identify the waiver and submit the necessary information to support the request. Depending on the waiver requested, the information required under question C.4 may be required to complete the application.

4. For all projects that do not qualify for an exclusion a report must accompany this application evaluating the preferred design alternative, non-degradation alternatives, minimal degradation alternatives, and mitigative techniques/asures for the design and operation of the activity. The information outlined below should be addressed in this report. If a waiver is requested, this section is still required.

a. Describe the availability, cost effectiveness and technical feasibility of connecting to existing central or regional sewage collection and treatment facilities, including long range plans for

sewer service outlined in state or local water quality management planning documents and applicable facility planning documents.

- b. List and describe all government and/or privately sponsored conservation projects that may have been or will be specifically targeted to improve water quality or enhance recreational opportunities on the affected water resource.
- c. Provide a brief description below of all treatment/disposal alternatives evaluated for this application and their respective operational and maintenance needs. (If additional space is needed please attach additional sheets to the end of this addendum).

Preferred design alternative:

Non-degradation alternative(s):

Minimal degradation alternative(s):

Mitigative technique/measure(s):

At a minimum, the following information must be included in the report for each alternative evaluated.

- d. Outline of the treatment/disposal system evaluated, including the costs associated with the equipment, installation, and continued operation and maintenance.
- e. Identify the substances to be discharged, including the amount of regulated pollutants to be discharged in terms of mass and concentration.
- f. Describe the reliability of the treatment/disposal system, including but not limited to the possibility of recurring operation and maintenance difficulties that would lead to increased degradation.
- g. Describe any impacts to human health and the overall quality and value of the water resource.
- h. Describe and provide an estimate of the important social and economic benefits to be realized through this proposed project. Include the number and types of jobs created and tax revenues generated.
- i. Describe environmental benefits to be realized through this proposed project.
- j. Describe and provide an estimate of the social and economic benefits that may be lost as a result of this project. Include the impacts on commercial and recreational use of the water resource.

- k. Describe the environmental benefits lost as a result of this project. Include the impact on the aquatic life, wildlife, threatened or endangered species.
- l. A description of any construction work, fill or other structures to occur or be placed in or near a stream bed.
- m. Provide any other information that may be useful in evaluating this application.

D. Discharge Information

- 1. For treatment/disposal systems constructed pursuant to a previously issued Ohio EPA PTI, provide the following information:

PTI Number _____
 PTI Issuance Date _____
 Initial Date of Discharge _____

- 2. Has the appropriate NEDES permit application form been submitted including representative effluent data?

_____ Yes (go to E)
 _____ No (see below)

If no, submit the information as applicable under a OR b as follows:

- a. For entities discharging process wastewater attach a completed 20 form.
- b. For entities discharging wastewater of domestic origin attach the results of at least one chemical analysis of the wastestream for all pollutants for which authorization to discharge is being requested and a measurement of the daily volume (gallons per day) of wastewaters being discharged.

- E. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information is, to the best of my knowledge and belief, true, accurate and complete.

This section must be signed by the same responsible person who signed the accompanying permit application or certification as per 40 CFR 122.22.

Signature Ray A. Shively
 Date 8/06/2007

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June 30, 1997