Indiana Department of Environmental Management
We Protect Hoosiers and Our Environment.
100 N. Senate Avenue • Indianapolis, IN 46204
(800) 451-6027 • (317) 232-8603 • www.idem.IN.gov

Michael R. Pence
Governor

Carol S. Comer
Commissioner

VIA ELECTRONIC MAIL December 16, 2016

The Honorable William McKean, Mayor
City of Berne
158 West Franklin Street
Berne, Indiana 46711

Dear Mayor McKean:

Re: Final Revoke\Reissue: Permit No. IN0021369
City of Berne Wastewater Treatment Plant
Adams County

This Office has modified the National Pollutant Discharge Elimination System (NPDES) permit for the City of Berne Wastewater Treatment Plant in accordance with Sections 402 and 405 of the Federal Water Pollution Control Act as amended, (33 U.S.C. 1251, et seq.), and IDEM's permitting authority under IC 13-15. It has been determined that due to the substantial changes required, the most expedient way to incorporate the necessary permit modification is to revoke the existing permit issued May 31, 2012, and reissue an NPDES permit for a new five-year term. The enclosed permit covers your discharges to the Wabash River. All discharges from this facility shall be consistent with the terms and conditions of this permit.

Therefore, the existing NPDES permit IN0021369 which was issued on May 31, 2012, will become null and void as of the effective date of the accompanying permit.

One condition of your permit requires periodic reporting of several effluent parameters. You are required to submit both federal discharge monitoring reports (DMRs) and state Monthly Reports of Operation (MROs) on a routine basis. The MRO form can be found on IDEM's web site at http://www.in.gov/idem/cleanwater/2396.htm. Please note that IDEM will no longer accept paper DMR or MRO forms after December 28, 2016. After that date all NPDES permit holders are required to submit their monitoring data to IDEM using NetDMR. Please contact Rose McDaniel at (317) 233-2653 or Helen Demmings (317) 232-8815 if you would like more information on NetDMR. Information is also available on our website at http://IN.gov/idem/cleanwater/2422.htm.

Another condition which needs to be clearly understood concerns violation of the effluent limitations in the permit. Exceeding the limitations constitutes a violation of the permit and may bring criminal or civil penalties upon the permittee. (See Part II.A.1 and II.A.11 of this permit). It is very important that your office and treatment operator understand this part of the permit.

Please note that this permit issuance can be appealed. An appeal must be filed under procedures outlined in IC 13-15-6, IC 4-21.5, and the enclosed public notice. The appeal must be initiated by filing a petition for administrative review with the Office of Environmental Adjudication (OEA) within fifteen (15) days of the emailing of an electronic copy of this letter or within eighteen (18) days of the mailing of this letter by filing at the following addresses:

Director
Office of Environmental Adjudication
Indiana Government Center North
100 North Senate Avenue, Room 501
Indianapolis, IN 46204

Commissioner
Indiana Department of Environmental Management
Indiana Government Center North
Room 1301
100 North Senate Avenue
Indianapolis, Indiana 46204

Please reference the "Post Public Notice Addendum," on the final pages of the Fact Sheet, for this Office's response to comments submitted during the public notice period.

The permit should be read and studied. It requires certain action at specific times by you, the discharger, or your authorized representative. One copy of this permit is also being sent to your operator to be kept at the treatment facility. You may wish to call this permit to the attention of your consulting engineer and/or attorney.

If you have any questions concerning your NPDES permit, please contact Jason House at 317/233-0470. Questions concerning appeal procedures should be directed to the Office of Environmental Adjudication, at 317/232-8591.

Sincerely,

Paul Novak, Chief
Permits Branch
Office of Water Quality

Enclosures
cc: Terry Kongar, Certified Operator
Brady Dryer, Commonwealth Engineers

STATE OF INDIANA

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

AUTHORIZATION TO DISCHARGE UNDER THE

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM

In compliance with the provisions of the Federal Water Pollution Control Act, as amended, (33 U.S.C. 1251 et seq., the "Act"), Title 13 of the Indiana Code, and regulations adopted by the Water Pollution Control Board, the Indiana Department of Environmental Management (IDEM) is issuing this permit to the

CITY OF BERNE

hereinafter referred to as "the permittee." The permittee owns and/or operates the **City of Berne Wastewater Treatment Plant**, a major municipal wastewater treatment plant located at 343 East 550 South, Berne, Indiana, Adams County. The permittee is hereby authorized to discharge from the outfalls identified in Part I of this permit to receiving waters named the Wabash River in accordance with the effluent limitations, monitoring requirements, and other conditions set forth in the permit. The permittee is also authorized to discharge from combined sewer overflow outfalls listed in Attachment A of this permit, to receiving waters named Sprunger Ditch in accordance with the effluent limitations, monitoring requirements, and other conditions set forth in this permit. This permit may be revoked for the nonpayment of applicable fees in accordance with IC 13-18-20.

Effective Date: January 1, 2017.

Expiration Date: December 31, 2021.

In order to receive authorization to discharge beyond the date of expiration, the permittee shall submit such information and application forms as are required by the Indiana Department of Environmental Management. The application shall be submitted to IDEM at least 180 days prior to the expiration date of this permit, unless a later date is allowed by the Commissioner in accordance with 327 IAC 5-3-2 and Part II.A.4 of this permit.

Issued December 16, 2016, for the Indiana Department of Environmental Management.

Paul Novak, Chief
Permits Branch
Office of Water Quality

TREATMENT FACILITY DESCRIPTION

The permittee currently operates a Class II, 1.08 MGD treatment facility. The treatment facility was recently upgraded as approved in Construction Approval Permit No. L-0439, issued on June 16, 2014, from a 0.683 MGD controlled discharge waste stabilization lagoon facility. The upgraded 1.08 MGD facility consists of a partial-mix aerated lagoon, a secondary lagoon, four (4) submerged attached growth reactors, two (2) secondary clarifiers, phosphorus removal via chemical addition, disc filters, and ultraviolet light disinfection.

The collection system is comprised of combined sanitary and storm sewers with one (1) Combined Sewer Overflow (CSO) location. The CSO location has been identified and permitted with provisions in Attachment A of the permit.

The mass limits for $CBOD_5$, TSS and ammonia-nitrogen have been calculated utilizing the peak design flow of 1.92 MGD. This is to facilitate the maximization of flow through the treatment facility in accordance with this Office's CSO policy.

PART I

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

The permittee is authorized to discharge from the outfall listed below in accordance with the terms and conditions of this permit. The permittee shall take samples and measurements at a location representative of each discharge to determine whether the effluent limitations have been met. Refer to Part I.B of this permit for additional monitoring and reporting requirements.

1. Beginning on the effective date of this permit, the permittee is authorized to discharge from Outfall 001, which is located at Latitude: 40° 36' 55" N, Longitude: 84° 56' 25" W. The discharge is subject to the following requirements:

TABLE 1

	Quantity or Loading			**Quality or Concentration**			**Monitoring Requirements**	
Parameter	Monthly Average	Weekly Average	Units	Monthly Average	Weekly Average	Units	Measurement Frequency	Sample Type
Flow [1]	Report	----	MGD	----	----	----	5 X Weekly	24-Hr. Total
$CBOD_5$								
Summer [2]	320	481	lbs/day	20	30	mg/l	3 X Weekly	24-Hr. Composite
Winter [3]	401	641	lbs/day	25	40	mg/l	3 X Weekly	24-Hr. Composite
TSS								
Summer [2]	385	577	lbs/day	24	36	mg/l	3 X Weekly	24-Hr. Composite
Winter [3]	481	721	lbs/day	30	45	mg/l	3 X Weekly	24-Hr. Composite
Ammonia-nitrogen								
Summer [2]	24.0	36.9	lbs/day	1.5	2.3	mg/l	3 X Weekly	24-Hr. Composite
Winter [3]	60.9	91.3	lbs/day	3.8	5.7	mg/l	3 X Weekly	24-Hr. Composite
Phosphorus	----	----	----	1.0	----	mg/l	3 X Weekly	24-Hr. Composite

TABLE 2

	Quality or Concentration				Monitoring Requirements	
Parameter	Daily Minimum	Monthly Average	Daily Maximum	Units	Measurement Frequency	Sample Type
pH [4]	6.0	----	9.0	s.u.	5 X Weekly	Grab
Dissolved Oxygen [5]						
Summer [2]	5.0	----	----	mg/l	5 X Weekly	3 Grabs/24-Hrs.
Winter [3]	4.0	----	----	mg/l	5 X Weekly	3 Grabs/24-Hrs.
E. coli [6]	----	125 [7]	235 [8]	cfu/100 ml	3 X Weekly	Grab

[1] Effluent flow measurement is required per 327 IAC 5-2-13. The flow meter(s) shall be calibrated at least once every twelve months.

[2] Summer limitations apply from May 1 through November 30 of each year.

[3] Winter limitations apply from December 1 through April 30 of each year.

[4] If the permittee collects more than one grab sample on a given day for pH, the values shall not be averaged for reporting daily maximums or daily minimums. The permittee must report the individual minimum and the individual maximum pH value of any sample during the month on the Monthly Report of Operation forms.

[5] The daily minimum concentration of dissolved oxygen in the effluent shall be reported as the arithmetic mean determined by summation of the three (3) daily grab sample results divided by the number of daily grab samples. These samples are to be collected over equal time intervals.

[6] The effluent shall be disinfected on a continuous basis such that violations of the applicable bacteriological limitations (*E. coli*) do not occur from April 1 through October 31, annually.

The *Escherichia coli (E. coli)* limitations apply from April 1 through October 31 annually. IDEM has specified the following methods as allowable for the detection and enumeration of *Escherichia coli (E. coli)*:

1. Coliscan MF® Method
2. EPA Method 1603 Modified m-TEC agar
3. mColi Blue-24®
4. Colilert® MPN Method or Colilert-18® MPN Method

[7] The monthly average *E. coli* value shall be calculated as a geometric mean. Per 327 IAC 5-10-6, the concentration of *E. coli* shall not exceed one hundred twenty-five (125) cfu or mpn per 100 milliliters as a geometric mean of the effluent samples taken in a calendar month. No samples may be excluded when calculating the monthly geometric mean.

[8] If less than ten samples are taken and analyzed for *E. coli* in a calendar month, no samples may exceed two hundred thirty-five (235) cfu or mpn as a daily maximum. However, when ten (10) or more samples are taken and analyzed for *E. coli* in a calendar month, not more than ten percent (10%) of those samples may exceed two hundred thirty-five (235) cfu or mpn as a daily maximum. When calculating ten percent, the result must not be rounded up. In reporting for compliance purposes on the Discharge Monitoring Report (DMR) form, the permittee shall record the highest non-excluded value for the daily maximum.

2. Minimum Narrative Limitations

At all times the discharge from any and all point sources specified within this permit shall not cause receiving waters:

a. including the mixing zone, to contain substances, materials, floating debris, oil, scum or other pollutants:

(1) that will settle to form putrescent or otherwise objectionable deposits;

(2) that are in amounts sufficient to be unsightly or deleterious;

(3) that produce color, visible oil sheen, odor, or other conditions in such degree as to create a nuisance;

(4) which are in amounts sufficient to be acutely toxic to, or to otherwise severely injure or kill aquatic life, other animals, plants, or humans;

(5) which are in concentrations or combinations that will cause or contribute to the growth of aquatic plants or algae to such a degree as to create a nuisance, be unsightly, or otherwise impair the designated uses.

b. outside the mixing zone, to contain substances in concentrations which on the basis of available scientific data are believed to be sufficient to injure, be chronically toxic to, or be carcinogenic, mutagenic, or teratogenic to humans, animals, aquatic life, or plants.

3. Additional Discharge Limitations and Monitoring Requirements

Beginning on the effective date of the permit, the effluent from Outfall 001 shall be limited and monitored by the permittee as follows:

TABLE 3

	Quality or Concentration			**Monitoring Requirements**	
Pollutant	Monthly Average	Daily Maximum	Unit	Measurement Frequency	Sample Type
Mercury [1][2]	----	Report	ng/l	6 X Annually	Grab

[1] The permittee shall measure and report this parameter as Total Recoverable Metal. Concentrations less than the Limit of Quantitation (LOQ) and greater than or equal to the Limit of Detection (LOD) shall be reported by the permittee on the discharge monitoring report forms as the actual measured value. Concentrations less than the limit of detection shall be reported on the discharge monitoring report forms as less than the value of the limit of detection. For example, if a substance is not detected and the LOD is 0.1 mg/l, report the value as < 0.1 mg/l.

The following EPA test methods and/or Standard Methods and associated LODs and LOQs are recommended for use in the analysis of the effluent samples. Alternative 40 CFR 136 approved methods may be used provided the LOD is less than the monthly average and/or daily maximum effluent limitations.

The permittee may determine a case-specific Method Detection Level (MDL) using one of the analytical methods specified below, or any other test method which is approved by IDEM prior to use. The MDL shall be derived by the procedure specified for MDLs contained in 40 CFR Part 136, Appendix B, and the limit of quantitation shall be set equal to 3.18 times the MDL. NOTE: The MDL for purposes of this document, is synonymous with the "limit of detection" or "LOD" as defined in 327 IAC 5-1.5-26: "the minimum concentration of a substance that can be measured and reported with ninety-nine percent (99%) confidence that the analyte concentration is greater than zero (0) for a particular analytical method and sample matrix".

Parameter	EPA Method	LOD	LOQ
Mercury	1631, Revision E	0.2 ng/l	0.5 ng/l

[2] Mercury monitoring shall be conducted six times annually (i.e. every other month) for the term of the permit. Monitoring shall be conducted in the months of February, April, June, August, October, and December of each year. Mercury monitoring and analysis will be performed using EPA Test Method 1631, Revision E. If Method 1631, Revision E is further revised during the term of this permit, the permittee and/or its contract laboratory is required to utilize the most current version of the method immediately after approval by EPA.

4. Additional Monitoring Requirements

Beginning on the effective date of this permit, the permittee shall conduct the following monitoring activities:

a. Influent Monitoring

In addition to the requirements contained in Part I.B.2 of the NPDES permit, the permittee shall monitor the influent to its wastewater treatment facility for the following pollutants. Samples shall be representative of the raw influent in accordance with 327 IAC 5-2-13(b).

TABLE 4

	Quality or Concentration			Monitoring Requirements	
Parameter	Monthly Average	Daily Maximum	Unit	Measurement Frequency	Sample Type
Mercury [1][2]	----	Report	ng/l	6 X Annually	Grab

[1] The permittee shall measure and report this parameter as Total Recoverable Metal. Concentrations less than the Limit of Quantitation (LOQ) and greater than or equal to the Limit of Detection (LOD) shall be reported by the permittee on the discharge monitoring report forms as the actual measured value. Concentrations less than the limit of detection shall be reported on the discharge monitoring report forms as less than the value of the limit of detection. For example, if a substance is not detected and the LOD is 0.1 mg/l, report the value as < 0.1 mg/l.

[2] Mercury monitoring shall be conducted six times annually (i.e. every other month) for the term of the permit. Monitoring shall be conducted in the months of February, April, June, August, October, and December of each year. Mercury monitoring and analysis will be performed using EPA Test Method 1631, Revision E. If Method 1631, Revision E is further revised during the term of this permit, the permittee and/or its contract laboratory is required to utilize the most current version of the method immediately after approval by EPA.

B. MONITORING AND REPORTING

1. Representative Sampling

Samples and measurements taken as required herein shall be representative of the volume and nature of the monitored discharge flow and shall be taken at times which reflect the full range and concentration of effluent parameters normally expected to be present. Samples shall not be taken at times to avoid showing elevated levels of any parameters.

2. Data on Plant Operation

The raw influent and the wastewater from intermediate unit treatment processes, as well as the final effluent shall be sampled and analyzed for the pollutants and operational parameters specified by the applicable Monthly Report of Operation Form, as appropriate, in accordance with 327 IAC 5-2-13. Except where the permit specifically states otherwise, the sample frequency for the raw influent and intermediate unit treatment process shall be at a minimum the same frequency as that for the final effluent. The measurement frequencies specified in each of the tables in Part I.A. are the minimum frequencies required by this permit.

3. Monthly Reporting

The permittee shall submit accurate monitoring reports to the Indiana Department of Environmental Management containing results obtained during the previous monitoring

period and shall be postmarked no later than the 28th day of the month following each completed monitoring period. The first report shall be submitted by the 28th day of the month following the monitoring period in which the permit becomes effective. These reports shall include, but not necessarily be limited to, the Discharge Monitoring Report (DMR) and the Monthly Report of Operation (MRO). Permittees with combined sewer overflow discharges must also submit the CSO Monthly Report of Operation to IDEM by the 28th day of the month following each completed monitoring period. Until December 31, 2016, all reports shall be mailed to IDEM, Office of Water Quality –Compliance Data Section, 100 North Senate Ave., Indianapolis, Indiana 46204-2251or submitted to IDEM electronically by using the NetDMR application, upon registration and approval receipt. Electronically submitted reports (using NetDMR) have the same deadline as mailed reports. After December 31, 2016, all reports shall be submitted using NetDMR, and paper reports will no longer be accepted. The Regional Administrator may request the permittee to submit monitoring reports to the Environmental Protection Agency if it is deemed necessary to assure compliance with the permit.

A calendar week will begin on Sunday and end on Saturday. Partial weeks consisting of four or more days at the end of any month will include the remaining days of the week, which occur in the following month in order to calculate a consecutive seven-day average. This value will be reported as a weekly average or seven-day average on the MRO for the month containing the partial week of four or more days. Partial calendar weeks consisting of less than four days at the end of any month will be carried forward to the succeeding month and reported as a weekly average or a seven-day average for the calendar week that ends with the first Saturday of that month.

4. Definitions

a. Calculation of Averages

Pursuant to 327 IAC 5-2-11(a)(5), the calculation of the average of discharge data shall be determined as follows: For all parameters except fecal coliform and *E. coli*, calculations that require averaging of sample analyses or measurements of daily discharges shall use an arithmetic mean unless otherwise specified in this permit. For fecal coliform, the monthly average discharge and weekly average discharge, as concentrations, shall be calculated as a geometric mean. For *E. coli*, the monthly average discharge, as a concentration, shall be calculated as a geometric mean.

b. Terms

(1) "Monthly Average" -The monthly average discharge means the total mass or flow-weighted concentration of all daily discharges during a calendar month on which daily discharges are sampled or measured, divided by the number of daily discharges sampled and/or measured during such calendar month. The monthly average discharge limitation is the highest allowable average monthly discharge for any calendar month.

(2) "Weekly Average" - The weekly average discharge means the total mass or flow weighted concentration of all daily discharges during any calendar week for which daily discharges are sampled or measured, divided by the number of daily discharges sampled and/or measured during such calendar week. The average weekly discharge limitation is the maximum allowable average weekly discharge for any calendar week.

(3) "Daily Maximum" - The daily maximum discharge limitation is the maximum allowable daily discharge for any calendar day. The "daily discharge" means the total mass of a pollutant discharged during the calendar day or, in the case of a pollutant limited in terms other than mass pursuant to 327 IAC 5-2-11(e), the average concentration or other measurement of the pollutant specified over the calendar day or any twenty-four hour period that represents the calendar day for purposes of sampling.

(4) "24-hour Composite" - A 24-hour composite sample consists of at least three (3) individual flow-proportioned samples of wastewater, taken by the grab sample method over equal time intervals during the period of operator attendance or by an automatic sampler, and which are combined prior to analysis. A flow proportioned composite sample shall be obtained by:

(a) recording the discharge flow rate at the time each individual sample is taken,

(b) adding together the discharge flow rates recorded from each individual sampling time to formulate the "total flow value,"

(c) dividing the discharge flow rate of each individual sampling time by the total flow value to determine its percentage of the total flow value, and

(d) multiplying the volume of the total composite sample by each individual sample's percentage to determine the volume of that individual sample which will be included in the total composite sample.

Alternatively, a 24-hour composite sample may be obtained by an automatic sampler on an equal time interval basis over a twenty-four hour period provided that a minimum of 24 samples are taken and combined prior to analysis. The samples do not need to be flow-proportioned if the permittee collects samples in this manner.

(5) $CBOD_5$: Five-day Carbonaceous Biochemical Oxygen Demand

(6) TSS: Total Suspended Solids

(7) *E. coli*: Escherichia coli bacteria

(8) The "Regional Administrator" is defined as the Region V Administrator, U.S. EPA, located at 77 West Jackson Boulevard, Chicago, Illinois 60604.

(9) The "Commissioner" is defined as the Commissioner of the Indiana Department of Environmental Management, located at the following address: 100 North Senate Avenue, Indianapolis, Indiana 46204-2251.

(10) Limit of Detection or LOD is defined as a measurement of the concentration of a substance that can be measured and reported with 99% confidence that the analyte concentration is greater than zero (0) for a particular analytical method and sample matrix. The LOD is equivalent to the Method Detection Level or MDL.

(11) Limit of Quantitation or LOQ is defined as a measurement of the concentration of a contaminant obtained by using a specified laboratory procedure calibrated at a specified concentration above the method detection level. It is considered the lowest concentration at which a particular contaminant can be quantitatively measured using a specified laboratory procedure for monitoring of the contaminant. This term is also called the limit of quantification or quantification level.

(12) Method Detection Level or MDL is defined as the minimum concentration of an analyte (substance) that can be measured and reported with a ninety-nine percent (99%) confidence that the analyte concentration is greater than zero (0) as determined by the procedure set forth in 40 CFR Part 136, Appendix B. The method detection level or MDL is equivalent to the LOD.

5. Test Procedures

The analytical and sampling methods used shall conform to the current version of 40 CFR, Part 136, unless otherwise specified within this permit. Multiple editions of Standard Methods for the Examination of Water and Wastewater are currently approved for most methods, however, 40 CFR Part 136 should be checked to ascertain if a particular method is approved for a particular analyte. The approved methods may be included in the texts listed below. However, different but equivalent methods are allowable if they receive the prior written approval of the State agency and the U.S. Environmental Protection Agency.

a. Standard Methods for the Examination of Water and Wastewater
18^{th}, 19^{th}, or 20^{th} Editions, 1992, 1995 or 1998 American Public Health Association, Washington, D.C. 20005.

b. A.S.T.M. Standards, Part 23, Water; Atmospheric Analysis
1972 American Society for Testing and Materials, Philadelphia, PA 19103.

c. Methods for Chemical Analysis of Water and Wastes
June 1974, Revised, March 1983, Environmental Protection Agency, Water Quality Office, Analytical Quality Control Laboratory, 1014 Broadway, Cincinnati, OH 45202.

6. Recording of Results

For each measurement or sample taken pursuant to the requirements of this permit, the permittee shall record and maintain records of all monitoring information on activities under this permit, including the following information:

a. The exact place, date, and time of sampling or measurements;

b. The person(s) who performed the sampling or measurements;

c. The dates and times the analyses were performed;

d. The person(s) who performed the analyses;

e. The analytical techniques or methods used; and

f. The results of all required analyses and measurements.

7. Additional Monitoring by Permittee

If the permittee monitors any pollutant at the location(s) designated herein more frequently than required by this permit, using approved analytical methods as specified above, the results of such monitoring shall be included in the calculation and reporting of the values required in the Monthly Discharge Monitoring Report and on the Monthly Report of Operation form. Such increased frequency shall also be indicated on these forms. Any such additional monitoring data which indicates a violation of a permit limitation shall be followed up by the permittee, whenever feasible, with a monitoring sample obtained and analyzed pursuant to approved analytical methods. The results of the follow-up sample shall be reported to the Commissioner in the Monthly Discharge Monitoring Report.

8. Records Retention

All records and information resulting from the monitoring activities required by this permit, including all records of analyses performed and calibration and maintenance of instrumentation and recording from continuous monitoring instrumentation, shall be retained for a minimum of three (3) years. In cases where the original records are kept at another location, a copy of all such records shall be kept at the permitted facility. The three-year period shall be extended:

a. automatically during the course of any unresolved litigation regarding the discharge of pollutants by the permittee or regarding promulgated effluent guidelines applicable to the permittee; or

b. as requested by the Regional Administrator or the Indiana Department of Environmental Management.

C. REOPENING CLAUSES

In addition to the reopening clause provisions cited at 327 IAC 5-2-16, the following reopening clauses are incorporated into this permit:

1. This permit may be modified or, alternately, revoked and reissued after public notice and opportunity for hearing to incorporate effluent limitations reflecting the results of a wasteload allocation if the Department of Environmental Management determines that such effluent limitations are needed to assure that State Water Quality Standards are met in the receiving stream.

2. This permit may be modified due to a change in sludge disposal standards pursuant to Section 405(d) of the Clean Water Act, if the standards when promulgated contain different conditions, are otherwise more stringent, or control pollutants not addressed by this permit.

3. This permit may be modified, or, alternately, revoked and reissued, to comply with any applicable effluent limitation or standard issued or approved under section 301(b)(2)(C), (D) and (E), 304(b)(2), and 307(a)(2) of the Clean Water Act, if the effluent limitation or standard so issued or approved:

   a. contains different conditions or is otherwise more stringent than any effluent limitation in the permit; or

   b. controls any pollutant not limited in the permit.

4. This permit may be modified, or alternately, revoked and reissued after public notice and opportunity for hearing to include Whole Effluent Toxicity (WET) limitations or to include limitations for specific toxicants if the results of the biomonitoring and/or the Toxicity Reduction Evaluation (TRE) study indicate that such limitations are necessary.

5. This permit may be modified, or, alternately, revoked and reissued, after public notice and opportunity for hearing to:

   a. reduce the mercury monitoring frequency, if a minimum of 12 months (six (6) consecutive samples) of monitoring data indicates that there is not a reasonable potential for mercury to exceed water quality standards, or

   b. include effluent limitations for mercury, if the mercury is found to be discharged at a level that will cause, have the reasonable potential to cause, or contribute to an excursion above a water quality criteria.

D. WHOLE EFFLUENT TOXICITY TESTING REQUIREMENTS

The 1977 Clean Water Act explicitly states, in Section 101(3) that it is the national policy that the discharge of toxic pollutants in toxic amounts be prohibited. In support of this policy the U.S. EPA in 1995 amended the 40 CFR 136.3 (Tables IA and II) by adding testing methods for measuring acute and short-term chronic toxicity of whole effluents and receiving waters. To adequately assess the character of the effluent, and the effects of the effluent on aquatic life, the permittee shall conduct Whole Effluent Toxicity Testing. Part 1 of this section describes the testing procedures, Part 2 describes the Toxicity Reduction Evaluation which is only required if the effluent demonstrates toxicity, as described in paragraph f.

1. Whole Effluent Toxicity Tests

The permittee shall conduct the series of bioassay tests described below to monitor the toxicity of the discharge from Outfall 001.

If toxicity is demonstrated as defined under paragraph f below, the permittee is required to conduct a toxicity reduction evaluation (TRE).

a. Bioassay Test Procedures and Data Analysis

(1) All test organisms, test procedures and quality assurance criteria used shall be in accordance with the Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Water to Freshwater Organisms; Fourth Edition Section 13, Cladoceran (*Ceriodaphnia dubia*) Survival and Reproduction Test Method 1002.0; and Section 11, Fathead Minnow (*Pimephales promelas*) Larval Survival and Growth Test Method, (1000.0) EPA 821-R-02-013, October 2002, or most recent update.

(2) Any circumstances not covered by the above methods, or that require deviation from the specified methods shall first be approved by the IDEM's Permits Branch Toxicologist.

(3) The determination of effluent toxicity shall be made in accordance with the Data Analysis general procedures for chronic toxicity endpoints as outlined in Section 9, and in Sections 11 and 13 of the respective Test Method (1000.0 and 1002.0) of Short-term Methods of Estimating the Chronic Toxicity of Effluent and Receiving Water to Freshwater Organisms (EPA 821-R-02-013), Fourth Edition, October 2002 or most recent update.

b. Types of Bioassay Tests

(1) The permittee shall conduct a 7-day Cladoceran (*Ceriodaphnia dubia*) Survival and Reproduction Test and a 7-day Fathead Minnow (*Pimephales promelas*) Larval Survival and Growth Test on samples of the final effluent. All tests will be conducted on 24-hour composite samples of final effluent. All test solutions shall

be renewed daily. On days three and five fresh 24-hour composite samples of the effluent collected on alternate days shall be used to renew the test solutions.

(2) If in any control more than 10% of the test organisms die in 96 hours, or more than 20% of the test organisms die in 7 days, that test shall be repeated. In addition, if in the *Ceriodaphnia* test control the number of newborns produced per surviving female is less than 15, or if 60% of surviving control females have less than three broods; and in the fathead minnow test if the mean dry weight of surviving fish in the control group is less than 0.25 mg, that test shall also be repeated. Such testing will determine whether the effluent affects the survival, reproduction, and/or growth of the test organisms. Results of all tests regardless of completion must be reported to IDEM.

c. Effluent Sample Collection and Chemical Analysis

(1) Samples for the purposes of Whole Effluent Toxicity Testing will be taken at a point that is representative of the discharge, but prior to discharge. The maximum holding time for whole effluent is 36 hours for a 24 hour composite sample. Bioassay tests must be started within 36 hours after termination of the 24 hour composite sample collection. Bioassay of effluent sampling may be coordinated with other permit sampling requirements as appropriate to avoid duplication.

(2) Chemical analysis must accompany each effluent sample taken for bioassay test. Especially the sample taken for the repeat or confirmation test as outlined in paragraph f.3. The analysis detailed under Part I.A. should be conducted for the effluent sample. Chemical analysis must comply with approved EPA test methods.

d. Frequency and Duration

The toxicity tests specified in paragraph b. shall be conducted once **annually** for the duration of the permit. The results of the toxicity tests are due once within each twelve month period as calculated from twelve months after the effective date of the permit.

If toxicity is demonstrated as defined under paragraph f (1), (2) or (3), the permittee is required to conduct a Toxicity Reduction Evaluation (TRE) as specified in Section 2.

e. Reporting

(1) Results shall be reported according to EPA 821-R-02-013, Section 10 (Report Preparation). Two copies of the completed report for each test shall be submitted to the Compliance Data Section of the IDEM no later than sixty days after completion of the test. An electronic copy of the report may be submitted to wwreports@idem.IN.gov in lieu of the two copies to the Compliance Data Section.

(2) For quality control, the report shall include the results of appropriate standard reference toxic pollutant tests for chronic endpoints and historical reference toxic pollutant data with mean values and appropriate ranges for the respective test species *Ceriodaphnia dubia* and *Pimephales promelas*. Biomonitoring reports must also include copies of Chain-of-Custody Records and Laboratory raw data sheets.

(3) Statistical procedures used to analyze and interpret toxicity data including critical values of significance used to evaluate each point of toxicity should be described and included as part of the biomonitoring report.

f. Demonstration of Toxicity

(1) Acute toxicity will be demonstrated if the effluent is observed to have exceeded **1.0** TU_a (acute toxic units) based on 100% effluent for the test organism in 48 and 96 hours for *Ceriodaphnia dubia* or *Pimephales promelas*, respectively.

(2) Chronic toxicity will be demonstrated if the effluent is observed to have exceeded **1.8** TU_c (chronic toxic units) for *Ceriodaphnia dubia* or *Pimephales promelas* .

(3) If toxicity is found in any of the tests specified above, a confirmation toxicity test using the specified methodology and same test species shall be conducted within two weeks of receiving the chronic toxicity test results. During the sampling for any confirmation tests the permittee shall also collect and preserve sufficient effluent samples for use in any Toxicity Identification Evaluation (TIE) and/or Toxicity Reduction Evaluation (TRE), if necessary. If any two (2) consecutive tests, <u>including any and all confirmation tests</u>, indicate the presence of toxicity, the permittee must begin the implementation of a Toxicity Reduction Evaluation (TRE) as described below. The whole effluent toxicity tests required above may be suspended (upon approval from IDEM) while the TRE is being conducted.

g. Definitions

(1) TU_c is defined as 100/NOEC or $100/IC_{25}$, where the NOEC or IC_{25} is expressed as a percent effluent in the test medium.

(2) TU_a is defined as $100/LC_{50}$ where the LC_{50} is expressed as a percent effluent in the test medium of an acute Whole Effluent Toxicity (WET) test that is statistically or graphically estimated to be lethal to fifty percent (50%) of the test organisms.

(3)"Inhibition concentration 25" or "IC_{25}" means the toxicant (effluent) concentration that would cause a twenty-five percent (25%) reduction in a nonquantal biological measurement for the test population. For example, the IC_{25} is the concentration of toxicant (effluent) that would cause a twenty-five percent (25%) reduction in mean young per female or in growth for the test population.

(4)"No observed effect concentration" or "NOEC" is the highest concentration of toxicant (effluent) to which organisms are exposed in a full life cycle or partial life cycle (short term) test, that causes no observable adverse effects on the test organisms, that is, the highest concentration of toxicant (effluent) in which the values for the observed responses are not statistically significantly different from the controls.

2. Toxicity Reduction Evaluation (TRE)

The development and implementation of a TRE (including any post-TRE biomonitoring requirements) is only required if toxicity is demonstrated as defined by Paragraph 1.f.

Development and Submittal of TRE Plan	Within 90 days of two failed toxicity tests.
Initiate Effluent TRE	Within 30 days of TRE Plan submittal to IDEM.
Progress Reports	Every 90 days from the initiation date of the TRE.
Submit Final TRE Results	Within 90 days of the completion of the TRE, not to exceed 3 years from the date of the initial determination of toxicity (two failed toxicity tests).
Post-TRE Biomonitoring Requirements	Immediately upon completion of the TRE, conduct 3 consecutive months of toxicity tests, if no toxicity is shown, reduce toxicity tests to once every 6 months for the duration of the permit term. If post – TRE biomonitoring demonstrates toxicity, revert to implementation of a TRE.

a. Development of TRE Plan

Within 90 days of determination of toxicity, the permittee shall submit plans for an effluent TRE to the Compliance Data Section of the IDEM. The TRE plan shall include appropriate measures to characterize the causative toxicant and the variability associated with these compounds. Guidance on conducting effluent toxicity reduction evaluations is available from EPA and from the EPA publications listed below:

(1) Methods for Aquatic Toxicity Identification Evaluations:

Phase I Toxicity Characterization Procedures, Second Edition (EPA/600/6-91/003), February 1991.

Phase II Toxicity Identification Procedures (EPA 600/R-92/080), September 1993.

Phase III Toxicity Confirmation Procedures (EPA/600/R-92/081), September 1993.

(2) Methods for Chronic Toxicity Identification Evaluations
Phase I Characterization of Chronically Toxic Effluents EPA/600/6-91/005F, May 1992.

(3) Generalized Methodology for Conducting Industrial Toxicity Reduction Evaluations (EPA/600/2-88/070), April 1989.

(4) Toxicity Reduction Evaluation Protocol for Municipal Wastewater Treatment Plants (EPA/833-B-99-022), August 1999.

b. Conduct the TRE

Within 30 days after submittal of the TRE plan to IDEM, the permittee must initiate an effluent TRE consistent with the TRE plan. Progress reports shall be submitted every 90 days to the Compliance Data Section of the Office of Water Quality (OWQ) beginning 90 days after initiation of the TRE.

c. Reporting

Within 90 days of the TRE completion, the permittee shall submit to the Compliance Data Section of the Office of Water Quality (OWQ) the final study results and a schedule for reducing the toxicity to acceptable levels through control of the toxicant source or treatment of whole effluent.

d. Compliance Date

The permittee shall complete items a, b, and c from Section 2 and reduce the toxicity to acceptable levels as soon as possible but no later than three years after the date of determination of toxicity.

e. Post-TRE Biomonitoring Requirements (Only Required After Completion of a TRE)

After the TRE, the permittee shall conduct monthly toxicity tests with 2 or more species for a period of three months. Should three consecutive monthly tests demonstrate no toxicity, the permittee shall conduct chronic tests every six months for the duration of the permit. These tests shall be conducted in accordance with the procedures under the Whole Effluent Toxicity Tests Section. The results of these tests shall be submitted to the Compliance Data Section of the Office of Water Quality (OWQ).

If toxicity is demonstrated as defined in paragraph 1.f after the initial three month period, testing must revert to a TRE as in Part 2 (TRE).

PART II

STANDARD CONDITIONS FOR NPDES PERMITS

A. GENERAL CONDITIONS

1. Duty to Comply

The permittee shall comply with all terms and conditions of this permit in accordance with 327 IAC 5-2-8(1) and all other requirements of 327 IAC 5-2-8. Any permit noncompliance constitutes a violation of the Clean Water Act and IC 13 and is grounds for enforcement action or permit termination, revocation and reissuance, modification, or denial of a permit renewal application.

It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of the permit.

2. Duty to Mitigate

In accordance with 327 IAC 5-2-8(3), the permittee shall take all reasonable steps to minimize or correct any adverse impact to the environment resulting from noncompliance with this permit. During periods of noncompliance, the permittee shall conduct such accelerated or additional monitoring for the affected parameters, as appropriate or as requested by IDEM, to determine the nature and impact of the noncompliance.

3. Duty to Provide Information

The permittee shall submit any information that the permittee knows or has reason to believe would constitute cause for modification or revocation and reissuance of the permit at the earliest time such information becomes available, such as plans for physical alterations or additions to the facility that:

a. could significantly change the nature of, or increase the quantity of, pollutants discharged; or

b. the Commissioner may request to evaluate whether such cause exists.

In accordance with 327 IAC 5-1-3(a)(5), the permittee must also provide any information reasonably requested by the Commissioner.

4. Duty to Reapply

If the permittee wishes to continue an activity regulated by this permit after the expiration date of this permit, the permittee must obtain and submit a renewal of this permit in accordance with 327 IAC 5-3-2(a)(2). It is the permittee's responsibility to obtain and

submit the application. In accordance with 327 IAC 5-2-3(c), the owner of the facility or operation from which a discharge of pollutants occurs is responsible for applying for and obtaining the NPDES permit, except where the facility or operation is operated by a person other than an employee of the owner in which case it is the operator's responsibility to apply for and obtain the permit. The application must be submitted at least 180 days before the expiration date of this permit. This deadline may be extended if:

a. permission is requested in writing before such deadline;

b. IDEM grants permission to submit the application after the deadline; and

c. the application is received no later than the permit expiration date.

As required under 327 IAC 5-2-3(g)(1) and (2), POTWs with design influent flows equal to or greater than one million (1,000,000) gallons per day and POTWs with an approved pretreatment program or that are required to develop a pretreatment program, will be required to provide the results of whole effluent toxicity testing as part of their NPDES renewal application.

5. Transfers

In accordance with 327 IAC 5-2-8(4)(D), this permit is nontransferable to any person except in accordance with 327 IAC 5-2-6(c). This permit may be transferred to another person by the permittee, without modification or revocation and reissuance being required under 327 IAC 5-2-16(c)(1) or 16(e)(4), if the following occurs:

a. the current permittee notified the Commissioner at least thirty (30) days in advance of the proposed transfer date.

b. a written agreement containing a specific date of transfer of permit responsibility and coverage between the current permittee and the transferee (including acknowledgment that the existing permittee is liable for violations up to that date, and the transferee is liable for violations from that date on) is submitted to the Commissioner.

c. the transferee certifies in writing to the Commissioner their intent to operate the facility without making such material and substantial alterations or additions to the facility as would significantly change the nature or quantities of pollutants discharged and thus constitute cause for permit modification under 327 IAC 5-2-16(d). However, the Commissioner may allow a temporary transfer of the permit without permit modification for good cause, e.g., to enable the transferee to purge and empty the facility's treatment system prior to making alterations, despite the transferee's intent to make such material and substantial alterations or additions to the facility.

d. the Commissioner, within thirty (30) days, does not notify the current permittee and the transferee of the intent to modify, revoke and reissue, or terminate the permit and

to require that a new application be filed rather than agreeing to the transfer of the permit.

The Commissioner may require modification or revocation and reissuance of the permit to identify the new permittee and incorporate such other requirements as may be necessary under the Clean Water Act or state law.

6. Permit Actions

In accordance with 327 IAC 5-2-16(b) and 327 IAC 5-2-8(4), this permit may be modified, revoked and reissued, or terminated for cause, including, but not limited to, the following:

a. Violation of any terms or conditions of this permit;

b. Failure of the permittee to disclose fully all relevant facts or misrepresentation of any relevant facts in the application, or during the permit issuance process; or

c. A change in any condition that requires either a temporary or permanent reduction or elimination of the authorized discharge controlled by the permittee (e.g., plant closure, termination of the discharge by connecting to a POTW, a change in state law or information indicating the discharge poses a substantial threat to human health or welfare).

Filing of either of the following items does not stay or suspend any permit condition: (1) a request by the permittee for a permit modification, revocation and reissuance, or termination, or (2) submittal of information specified in Part II.A.3 of the permit including planned changes or anticipated noncompliance.

The permittee shall submit any information that the permittee knows or has reason to believe would constitute cause for modification or revocation and reissuance of the permit at the earliest time such information becomes available, such as plans for physical alterations or additions to the permitted facility that:

1. could significantly change the nature of, or increase the quantity of, pollutants discharged; or

2. the commissioner may request to evaluate whether such cause exists.

7. Property Rights

Pursuant to 327 IAC 5-2-8(6) and 327 IAC 5-2-5(b), the issuance of this permit does not convey any property rights of any sort or any exclusive privileges, nor does it authorize any injury to persons or private property or an invasion of rights, any infringement of federal, state, or local laws or regulations. The issuance of the permit also does not preempt any duty to obtain any other state, or local assent required by law for the

discharge or for the construction or operation of the facility from which a discharge is made.

8. Severability

In accordance with 327 IAC 1-1-3, the provisions of this permit are severable and, if any provision of this permit or the application of any provision of this permit to any person or circumstance is held invalid, the invalidity shall not affect any other provisions or applications of the permit which can be given effect without the invalid provision or application.

9. Oil and Hazardous Substance Liability

Nothing in this permit shall be construed to relieve the permittee from any responsibilities, liabilities, or penalties to which the permittee is or may be subject to under Section 311 of the Clean Water Act.

10. State Laws

Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the permittee from any responsibilities, liabilities, or penalties established pursuant to any applicable state law or regulation under authority preserved by Section 510 of the Clean Water Act or state law.

11. Penalties for Violation of Permit Conditions

Pursuant to IC 13-30-4, a person who violates any provision of this permit, the water pollution control laws; environmental management laws; or a rule or standard adopted by the Water Pollution Control Board is liable for a civil penalty not to exceed twenty-five thousand dollars ($25,000) per day of any violation. Pursuant to IC 13-30-5, a person who obstructs, delays, resists, prevents, or interferes with (1) the department; or (2) the department's personnel or designated agent in the performance of an inspection or investigation commits a class C infraction.

Pursuant to IC 13-30-10, a person who intentionally, knowingly, or recklessly violates any provision of this permit, the water pollution control laws or a rule or standard adopted by the Water Pollution Control Board commits a class D felony punishable by the term of imprisonment established under IC 35-50-2-7(a) (up to one year), and/or by a fine of not less than five thousand dollars ($5,000) and not more than fifty thousand dollars ($50,000) per day of violation. A person convicted for a violation committed after a first conviction of such person under this provision is subject to a fine of not more than one hundred thousand dollars ($100,000) per day of violation, or by imprisonment for not more than two (2) years, or both.

12. Penalties for Tampering or Falsification

In accordance with 327 IAC 5-2-8(10), the permittee shall comply with monitoring, recording, and reporting requirements of this permit. The Clean Water Act, as well as IC 13-30-10, provides that any person who falsifies, tampers with, or knowingly renders inaccurate any monitoring device or method required to be maintained under a permit shall, upon conviction, be punished by a fine of not more than ten thousand dollars ($10,000) per violation, or by imprisonment for not more than one hundred eighty (180) days per violation, or by both.

13. Toxic Pollutants

If any applicable effluent standard or prohibition (including any schedule of compliance specified in such effluent standard or prohibition) is established under Section 307(a) of the Clean Water Act for a toxic pollutant injurious to human health, and that standard or prohibition is more stringent than any limitation for such pollutant in this permit, this permit shall be modified or revoked and reissued to conform to the toxic effluent standard or prohibition in accordance with 327 IAC 5-2-8(5). Effluent standards or prohibitions established under Section 307(a) of the Clean Water Act for toxic pollutants injurious to human health are effective and must be complied with, if applicable to the permittee, within the time provided in the implementing regulations, even absent permit modification.

14. Operator Certification

The permittee shall have the wastewater treatment facilities under the responsible charge of an operator certified by the Commissioner in a classification corresponding to the classification of the wastewater treatment plant as required by IC 13-18-11-11 and 327 IAC 5-22. In order to operate a wastewater treatment plant the operator shall have qualifications as established in 327 IAC 5-22-7. The permittee shall designate one (1) person as the certified operator with complete responsibility for the proper operations of the wastewater facility.

327 IAC 5-22-10.5(a) provides that a certified operator may be designated as being in responsible charge of more than one (1) wastewater treatment plant, if it can be shown that he will give adequate supervision to all units involved. Adequate supervision means that sufficient time is spent at the plant on a regular basis to assure that the certified operator is knowledgeable of the actual operations and that test reports and results are representative of the actual operations conditions. In accordance with 327 IAC 5-22-3(11), “responsible charge” means the person responsible for the overall daily operation, supervision, or management of a wastewater facility.

Pursuant to 327 IAC 5-22-10(4), the permittee shall notify IDEM when there is a change of the person serving as the certified operator in responsible charge of the wastewater treatment facility. The notification shall be made no later than thirty (30) days after a change in the operator.

15. Construction Permit

Except in accordance with 327 IAC 3, the permittee shall not construct, install, or modify any water pollution treatment/control facility as defined in 327 IAC 3-1-2(24). Upon completion of any construction, the permittee must notify the Compliance Data Section of the Office of Water Quality in writing.

16. Inspection and Entry

In accordance with 327 IAC 5-2-8(8), the permittee shall allow the Commissioner, or an authorized representative, (including an authorized contractor acting as a representative of the Commissioner) upon the presentation of credentials and other documents as may be required by law, to:

a. Enter upon the permittee's premises where a point source, regulated facility, or activity is located or conducted, or where records must be kept pursuant to the conditions of this permit;

b. Have access to and copy, at reasonable times, any records that must be kept under the terms and conditions of this permit;

c. Inspect at reasonable times any facilities, equipment or methods (including monitoring and control equipment), practices, or operations regulated or required pursuant to this permit; and

d. Sample or monitor at reasonable times, any discharge of pollutants or internal wastestreams for the purposes of evaluating compliance with the permit or as otherwise authorized.

17. New or Increased Discharge of Pollutants

This permit prohibits the permittee from undertaking any action that would result in a new or increased discharge of a bioaccumulative chemical of concern (BCC) or a new or increased permit limit for a regulated pollutant that is not a BCC unless one of the following is completed prior to the commencement of the action:

a. Information is submitted to the Commissioner demonstrating that the proposed new or increased discharges will not cause a significant lowering of water quality as defined under 327 IAC 2-1.3-2(50). Upon review of this information, the Commissioner may request additional information or may determine that the proposed increase is a significant lowering of water quality and require the submittal of an antidegradation demonstration.

b. An antidegradation demonstration is submitted to and approved by the Commissioner in accordance with 327 IAC 2-1.3-5 and 327 IAC 2-1.3-6.

B. MANAGEMENT REQUIREMENTS

1. Facility Operation, Maintenance and Quality Control

a. In accordance with 327 IAC 5-2-8(9), the permittee shall at all times maintain in good working order and efficiently operate all facilities and systems (and related appurtenances) for collection and treatment that are:

(1) installed or used by the permittee; and

(2) necessary for achieving compliance with the terms and conditions of the permit.

Neither 327 IAC 5-2-8(9), nor this provision, shall be construed to require the operation of installed treatment facilities that are unnecessary for achieving compliance with the terms and conditions of the permit. Taking redundant treatment units off line does not violate the bypass provisions of the permit, provided that the permittee is at all times: maintaining in good working order and efficiently operating all facilities and systems; providing best quality effluent; and achieving compliance with the terms and conditions of the permit.

b. The permittee shall operate the permitted facility in a manner which will minimize upsets and discharges of excessive pollutants. The permittee shall properly remove and dispose of excessive solids and sludges.

c. The permittee shall provide an adequate operating staff which is duly qualified to carry out the operation, maintenance, and testing functions required to ensure compliance with the conditions of this permit.

d. Maintenance of all waste collection, control, treatment, and disposal facilities shall be conducted in a manner that complies with the bypass provisions set forth below.

e. Any extensions to the sewer system must continue to be constructed on a separated basis. Plans and specifications, when required, for extension of the sanitary system must be submitted to the Facility Construction and Engineering Support Section, Office of Water Quality in accordance with 327 IAC 3-2-2. There shall also be an ongoing preventative maintenance program for the sanitary sewer system.

2. Bypass of Treatment Facilities

Pursuant to 327 IAC 5-2-8(12):

a. Terms as defined in 327 IAC 5-2-8(12)(A):

(1) “Bypass” means the intentional diversion of a waste stream from any portion of a treatment facility.

(2) "Severe property damage" means substantial physical damage to property, damage to the treatment facilities which would cause them to become inoperable, or substantial and permanent loss of natural resources which can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production.

b. Bypasses, as defined above, are prohibited, and the Commissioner may take enforcement action against a permittee for bypass, unless:

(1) The bypass was unavoidable to prevent loss of life, personal injury, or severe property damage, as defined above;

(2) There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate back-up equipment should have been installed in the exercise of reasonable engineering judgment to prevent a bypass that occurred during normal periods of equipment downtime or preventive maintenance; and

(3) The permittee submitted notices as required under Part II.B.2.d; or

(4) The condition under Part II.B.2.f below is met.

c. Bypasses that result in death or acute injury or illness to animals or humans must be reported in accordance with the "Spill Response and Reporting Requirements" in 327 IAC 2-6.1, including calling 888/233-7745 as soon as possible, but within two (2) hours of discovery. However, under 327 IAC 2-6.1-3(1), when the constituents of the bypass are regulated by this permit, and death or acute injury or illness to animals or humans does not occur, the reporting requirements of 327 IAC 2-6.1 do not apply.

d. The permittee must provide the Commissioner with the following notice:

(1) If the permittee knows or should have known in advance of the need for a bypass (anticipated bypass), it shall submit prior written notice. If possible, such notice shall be provided at least ten (10) days before the date of the bypass for approval by the Commissioner.

(2) The permittee shall orally report or fax a report of an unanticipated bypass within 24 hours of becoming aware of the bypass event. The permittee must also provide a written report within five (5) days of the time the permittee becomes aware of the bypass event. The written report must contain a description of the noncompliance (i.e. the bypass) and its cause; the period of noncompliance, including exact dates and times; if the cause of noncompliance has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate and prevent recurrence of the bypass event. If a complete fax or email submittal is sent within 24 hours of the time that the permittee became aware of the unanticipated bypass event, then that report will

satisfy both the oral and written reporting requirement.

e. The Commissioner may approve an anticipated bypass, after considering its adverse effects, if the Commissioner determines that it will meet the conditions listed above in Part II.B.2.b. The Commissioner may impose any conditions determined to be necessary to minimize any adverse effects.

f. The permittee may allow any bypass to occur that does not cause a violation of the effluent limitations in the permit, but only if it also is for essential maintenance to ensure efficient operation. These bypasses are not subject to the provisions of Part II.B.2.b.,d and e of this permit.

3. Upset Conditions

Pursuant to 327 IAC 5-2-8(13):

a. "Upset" means an exceptional incident in which there is unintentional and temporary noncompliance with technology-based permit effluent limitations because of factors beyond the reasonable control of the permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation.

b. An upset shall constitute an affirmative defense to an action brought for noncompliance with such technology-based permit effluent limitations if the requirements of Paragraph c of this subsection, are met.

c. A permittee who wishes to establish the affirmative defense of upset shall demonstrate, through properly signed, contemporaneous operating logs or other relevant evidence, that:

(1) An upset occurred and the permittee has identified the specific cause(s) of the upset;

(2) The permitted facility was at the time being operated in compliance with proper operation and maintenance procedures;

(3) The permittee complied with any remedial measures required under "Duty to Mitigate", Part II.A.2; and

(4) The permittee submitted notice of the upset as required in the "Incident Reporting Requirements," Part II.C.3, or 327 IAC 2-6.1, whichever is applicable. However, under 327 IAC 2-6.1-3(1), when the constituents of the discharge are regulated by this permit, and death or acute injury or illness to animals or humans does not occur, the reporting requirements of 327 IAC 2-6.1 do not apply.

d. In any enforcement proceeding, the permittee seeking to establish the occurrence of an upset has the burden of proof pursuant to 40 CFR 122.41(n)(4).

4. Removed Substances

Solids, sludges, filter backwash, or other pollutants removed from or resulting from treatment or control of wastewaters shall be disposed of in a manner such as to prevent any pollutant from such materials from entering waters of the State and to be in compliance with all Indiana statutes and regulations relative to liquid and/or solid waste disposal.

a. Collected screenings, slurries, sludges, and other such pollutants shall be disposed of in accordance with provisions set forth in 329 IAC 10, 327 IAC 6.1, or another method approved by the Commissioner.

b. The permittee shall comply with existing federal regulations governing solids disposal, and with applicable provisions of 40 CFR Part 503, the federal sludge disposal regulation standards.

c. The permittee shall notify the Commissioner prior to any changes in sludge use or disposal practices.

d. The permittee shall maintain records to demonstrate its compliance with the above disposal requirements.

5. Power Failures

In accordance with 327 IAC 5-2-10 and 327 IAC 5-2-8(14) in order to maintain compliance with the effluent limitations and prohibitions of this permit, the permittee shall either:

a. provide an alternative power source sufficient to operate facilities utilized by the permittee to maintain compliance with the effluent limitations and conditions of this permit, or

b. shall halt, reduce or otherwise control all discharge in order to maintain compliance with the effluent limitations and conditions of this permit upon the reduction, loss, or failure of one or more of the primary sources of power to facilities utilized by the permittee to maintain compliance with the effluent limitations and conditions of this permit.

6. Unauthorized Discharge

Any overflow or release of sanitary wastewater from the wastewater treatment facilities or collection system that results in a discharge to waters of the state and is not specifically authorized by this permit is expressly prohibited. These discharges are subject to the reporting requirements in Part II.C.3 of this permit.

C. REPORTING REQUIREMENTS

1. Planned Changes in Facility or Discharge

Pursuant to 327 IAC 5-2-8(11)(F) and 5-2-16(d), the permittee shall give notice to the Commissioner as soon as possible of any planned alterations or additions to the facility (which includes any point source) that could significantly change the nature of, or increase the quantity of, pollutants discharged. Following such notice, the permit may be modified to revise existing pollutant limitations and/or to specify and limit any pollutants not previously limited. Material and substantial alterations or additions to the permittee's operation that were not covered in the permit (e.g., production changes, relocation or combination of discharge points, changes in the nature or mix of products produced) are also cause for modification of the permit. However those alterations which constitute total replacement of the process or the production equipment causing the discharge converts it into a new source, which requires the submittal of a new NPDES application.

2. Monitoring Reports

Pursuant to 327 IAC 5-2-8(10), 327 IAC 5-2-13, and 327 IAC 5-2-15, monitoring results shall be reported at the intervals and in the form specified in "Data On Plant Operation", Part I.B.2.

3. Incident Reporting Requirements

Pursuant to 327 IAC 5-2-8(11) and 327 IAC 5-1-3, the permittee shall orally report to the Commissioner information on the following incidents within 24 hours from the time permittee becomes aware of such occurrence. If the incident meets the emergency criteria of item b (Part II.C.3.b) or 327 IAC 2-6.1, then the report shall be made as soon as possible, but within two (2) hours of discovery. However, under 327 IAC 2-6.1-3(1), when the constituents of the discharge are regulated by this permit, and death or acute injury or illness to animals or humans does not occur, the reporting requirements of 327 IAC 2-6.1 do not apply.

a. Any unanticipated bypass which exceeds any effluent limitation in the permit;

b. Any emergency incident which may pose a significant danger to human health or the environment. Reports under this item shall be made as soon as the permittee becomes aware of the incident by calling 317/233-7745 (888/233-7745 toll free in Indiana). This number should only be called when reporting these emergency events;

c. Any upset (as defined in Part II.B.3 above) that exceeds any technology-based effluent limitations in the permit;

d. Any release, including basement backups, from the sanitary sewer system (including satellite sewer systems operated or maintained by the permittee) not specifically authorized by this permit. Reporting of known releases from private laterals not caused by a problem in the sewer system owned or operated by the permittee is not

required under Part II.C.3, however, documentation of such events must be maintained by the permittee and available for review by IDEM staff; or

e. Any discharge from any outfall from which discharge is explicitly prohibited by this permit as well as any discharge from any other outfall or point not listed in this permit.

The permittee can make the oral reports by calling 317/232-8670 during regular business hours. A written submission shall also be provided within five (5) days of the time the permittee becomes aware of the circumstances. For incidents involving effluent limit violations or discharges, the written submission shall contain: a description of the event and its cause; the period of occurrence, including exact dates and times, and, if the event has not concluded, the anticipated time it is expected to continue; and steps taken or planned to reduce, mitigate and eliminate the event and steps taken or planned to prevent its recurrence. For sewer releases which do not meet the definition of a discharge, the written submission shall contain: a description of the event and its believed cause; the period of occurrence; and any steps taken or planned to mitigate the event and steps taken or planned to prevent its recurrence. The permittee may submit a "Bypass Overflow/Incident Report" or a "Noncompliance Notification Report", whichever is applicable, to IDEM at 317/232-8637 or 317/232-8406 or to wwreports@idem.IN.gov. If a complete fax or email submittal is sent within 24 hours of the time that the permittee became aware of the occurrence, then that report will satisfy both the oral and written reporting requirements.

4. Other Noncompliance

Pursuant to 327 IAC 5-2-8(11)(D), the permittee shall report any instance of noncompliance not reported under the "Incident Reporting Requirements" in Part II.C.3 at the time the pertinent Discharge Monitoring Report is submitted. The written submission shall contain: a description of the noncompliance and its cause; the period of noncompliance, including exact dates and times, and, if the noncompliance has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate and prevent the noncompliance.

5. Other Information

Pursuant to 327 IAC 5-2-8(11)(E), where the permittee becomes aware that it failed to submit any relevant facts or submitted incorrect information in a permit application or in any report to the Commissioner, the permittee shall promptly submit such facts or corrected information to the Commissioner.

6. Signatory Requirements

Pursuant to 327 IAC 5-2-22 and 327 IAC 5-2-8(15):

a. All reports required by the permit and other information requested by the Commissioner shall be signed and certified by a person described below or by a duly authorized representative of that person:

(1) For a corporation: by a principal executive defined as a president, secretary, treasurer, any vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy-making functions for the corporation or the manager of one or more manufacturing, production, or operating facilities employing more than two hundred fifty (250) persons or having gross annual sales or expenditures exceeding twenty-five million dollars ($25,000,000) (in second quarter 1980 dollars), if authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures.

(2) For a partnership or sole proprietorship: by a general partner or the proprietor, respectively; or

(3) For a federal, state, or local governmental body or any agency or political subdivision thereof: by either a principal executive officer or ranking elected official.

b. A person is a duly authorized representative only if:

(1) The authorization is made in writing by a person described above.

(2) The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity, such as the position of plant manager, operator of a well or a well field, superintendent, or position of equivalent responsibility. (A duly authorized representative may thus be either a named individual or any individual occupying a named position.); and

(3) The authorization is submitted to the Commissioner.

c. Certification. Any person signing a document identified under paragraphs a and b of this section, shall make the following certification:

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are

significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

7. Availability of Reports

Except for data determined to be confidential under 327 IAC 12.1, all reports prepared in accordance with the terms of this permit shall be available for public inspection at the offices of the Indiana Department of Environmental Management and the Regional Administrator. As required by the Clean Water Act, permit applications, permits, and effluent data shall not be considered confidential.

8. Penalties for Falsification of Reports

IC 13-30 and 327 IAC 5-2-8(15) provides that any person who knowingly makes any false statement, representation, or certification in any record or other document submitted or required to be maintained under this permit, including monitoring reports or reports of compliance or noncompliance, shall, upon conviction, be punished by a fine of not more than $10,000 per violation, or by imprisonment for not more than 180 days per violation, or by both.

9. Progress Reports

In accordance with 327 IAC 5-2-8(11)(A), reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule of this permit shall be submitted no later than fourteen (14) days following each schedule date.

10. Advance Notice for Planned Changes

In accordance with 327 IAC 5-2-8(11)(B), the permittee shall give advance notice to IDEM of any planned changes in the permitted facility, any activity, or other circumstances that the permittee has reason to believe may result in noncompliance with permit requirements.

11. Additional Requirements for POTWs and/or Treatment Works Treating Domestic Sewage

a. All POTWs shall identify, in terms of character and volume of pollutants, any significant indirect discharges into the POTW which are subject to pretreatment standards under section 307(b) and 307 (c) of the CWA.

b. All POTWs must provide adequate notice to the Commissioner of the following:

(1) Any new introduction of pollutants into the POTW from an indirect discharger that would be subject to section 301 or 306 of the CWA if it were directly discharging those pollutants.

(2) Any substantial change in the volume or character of pollutants being introduced into that POTW by any source where such change would render the source subject to pretreatment standards under section 307(b) or 307(c) of the CWA or would result in a modified application of such standards.

As used in this clause, "adequate notice" includes information on the quality and quantity of effluent introduced into the POTW, and any anticipated impact of the change on the quantity or quality of the effluent to be discharged from the POTW.

c. This permit incorporates any conditions imposed in grants made by the U.S. EPA and/or IDEM to a POTW pursuant to Sections 201 and 204 of the Clean Water Act, that are reasonably necessary for the achievement of effluent limitations required by Section 301 of the Clean Water Act.

d. This permit incorporates any requirements of Section 405 of the Clean Water Act governing the disposal of sewage sludge from POTWs or any other treatment works treating domestic sewage for any use for which rules have been established in accordance with any applicable rules.

e. POTWs must develop and submit to the Commissioner a POTW pretreatment program when required by 40 CFR 403 and 327 IAC 5-19-1, in order to assure compliance by industrial users of the POTW with applicable pretreatment standards established under Sections 307(b) and 307(c) of the Clean Water Act. The pretreatment program shall meet the criteria of 327 IAC 5-19-3 and, once approved, shall be incorporated into the POTW's NPDES permit.

D. ADDRESSES

1. Municipal NPDES Permits Section

Indiana Department of Environmental Management
Office of Water Quality – Mail Code 65-42
Municipal NPDES Permits Section
100 N. Senate Avenue
Indianapolis, Indiana 46204-2251

The following correspondence shall be sent to the Municipal NPDES Permits Section:

a. NPDES permit applications (new, renewal or modifications) with fee

b. Preliminary Effluent Limits request letters

c. Comment letters pertaining to draft NPDES permits

d. NPDES permit transfer of ownership requests

e. NPDES permit termination requests

f. Notifications of substantial changes to a treatment facility, including new industrial sources

g. Combined Sewer Overflow (CSO) Operational Plans

h. CSO Long Term Control Plans (LTCP)

i. Stream Reach Characterization and Evaluation Reports (SRCER)

2. Facility Construction and Engineering Support Section

Indiana Department of Environmental Management
Office of Water Quality – Mail Code 65-42
Facility Construction and Engineering Support Section
100 N. Senate Avenue
Indianapolis, Indiana 46204-2251

The following correspondence shall be sent to the Facility Construction and Engineering Support Section:

a. Construction permit applications with fee

3. Compliance Data Section

Indiana Department of Environmental Management
Office of Water Quality – Mail Code 65-42
Compliance Data Section
100 N. Senate Avenue
Indianapolis, Indiana 46204-2251

The following correspondence shall be sent to the Compliance Data Section:

a. Discharge Monitoring Reports (DMRs)

b. Monthly Reports of Operation (MROs)

c. Monthly Monitoring Reports (MMRs)

d. CSO MROs

e. Gauging station and flow meter calibration documentation

f. Compliance schedule progress reports

g. Completion of Construction notifications

h. Whole Effluent Toxicity Testing reports

i. Toxicity Reduction Evaluation (TRE) plans and progress reports

j. Bypass/Overflow Reports

k. Anticipated Bypass/Overflow Reports

l. Streamlined Mercury Variance Annual Reports

4. Pretreatment Group

Indiana Department of Environmental Management
Office of Water Quality – Mail Code 65-42
Compliance Data Section – Pretreatment Group
100 N. Senate Avenue
Indianapolis, Indiana 46204-2251

The following correspondence shall be sent to the Pretreatment Group:

a. Organic Pollutant Monitoring Reports

b. Significant Industrial User (SIU) Quarterly Noncompliance Reports

c. Pretreatment Program Annual Reports

d. Sewer Use Ordinances

e. Enforcement Response Plans (ERP)

f. Sludge analytical results

PART III

NON-DELEGATED PRETREATMENT PROGRAM REQUIREMENTS

A. DEFINITIONS

The definitions contained in 327 IAC 5-17 are incorporated herein. Such definitions include, but are not limited to, the following:

1. Control Authority ("CA")

"Control authority" means the commissioner of the Indiana Department of Environmental Management.

2. Industrial User

"Industrial user" means an indirect discharger.

3. Indirect Discharger

"Indirect discharger" means a nondomestic discharger introducing pollutants into a POTW, regardless of whether the discharger is within the governmental jurisdiction of the permittee.

4. Interference

"Interference" means a discharge that, alone or in conjunction with a discharge or discharges from other sources, does one (1) of the following:

a. Inhibits or disrupts the POTW, its treatment processes or operations, its sludge processes, or its selected sludge use or disposal methods.

b. Causes a violation of any requirement of the POTW's NPDES permit, including an increase in the magnitude or duration of a violation.

c. Prevents the use of the POTW's sewage sludge or its sludge disposal method selected in compliance with the following statutory provisions, regulations, or permits issued thereunder or more stringent state or local regulations:

(1) Section 405 of the Clean Water Act (33 U.S.C. 1345).

(2) The Solid Waste Disposal Act (SWDA) (42 U.S.C. 6901), including:

(A) Title II, more commonly referred to as the Resource Conservation and Recovery Act (RCRA); and

(B) the rules contained in any state sludge management plan prepared pursuant to Subtitle D of the SWDA (42 U.S.C. 6941).

(3) The Clean Air Act (42 U.S.C. 7401).

(4) The Toxic Substances Control Act (15 U.S.C. 2601).

5. Pass-through

"Pass through" means a discharge proceeding through a POTW into waters of the state in quantities or concentrations that, alone or in conjunction with a discharge or discharges from other sources, are a cause of a violation of any requirement of the POTW's NPDES permit, including an increase in the magnitude or duration of a violation.

6. Pretreatment requirements

"Pretreatment requirements" means any substantive or procedural requirement related to pretreatment, other than a pretreatment standard, imposed on an industrial user, including applicable local limits.

7. Pretreatment standards

"Pretreatment standards" means:

a. state pretreatment standards as established in 327 IAC 5-18-8;

b. pretreatment standards for prohibited discharges, as established in 327 IAC 5-18-2; and

c. national categorical pretreatment standards incorporated by reference in 327 IAC 5-18-10.

8. Publicly Owned Treatment Works ("POTW")

"Publicly Owned Treatment Works" means a treatment works owned by the State or a municipality, except that it does not include pipes, sewers or other conveyances not connected to a facility providing treatment. The term includes any devices and systems used in the storage, treatment, recycling and reclamation of municipal sewage or compatible industrial wastes. The term also includes sewers, pipes, and other conveyances only if they convey wastewater to a POTW treatment plant. "POTW" also means the municipality that has jurisdiction over the indirect discharges to and the discharges from such treatment works.

9. Significant Industrial User ("SIU")

"Significant Industrial User" or "SIU" means the following:

a. Industrial users subject to categorical pretreatment standards under 327 IAC 5-18-10.

b. An industrial user that:

(1) discharges an average of twenty-five thousand (25,000) gallons per day or more of process wastewater (excluding sanitary, noncontact cooling and boiler blowdown wastewater) to the POTW;

(2) contributes a process wastestream that makes up five percent (5%) or more of the average dry weather hydraulic or organic capacity of the POTW treatment plant; or

(3) is designated as a significant industrial user by the control authority on the basis that the industrial user has a reasonable potential to:

(A) adversely affect the POTW's operation;

(B) violate a pretreatment standard; or

(C) violate a requirement of 327 IAC 5-19-3.

c. The control authority may, on its own initiative or in response to a petition received from an industrial user or a POTW and in accordance with 327 IAC 5-19-3(6), determine that an industrial user is not a significant industrial user if it does not meet Part III.A.9.b.(3) of this permit.

B. PROGRAM DEVELOPMENT REQUIREMENTS

In accordance with 327 IAC 5-19-7, the permittee shall comply with the following pretreatment program requirements:

1. Within 30 days of the effective date of this permit, the permittee shall evaluate its sewer use ordinance to determine whether the following prohibitions, conditions, and requirements are included:

a. A user of the POTW, whether or not the user is subject to national categorical standards or state, local, or any other national pretreatment standard or requirement, shall not allow the introduction of the following into the POTW:

(1) A pollutant from any source of nondomestic wastewaters that could pass through or cause interference with the operation or performance of the POTW.

(2) A pollutant that could create a fire or explosion hazard in the POTW, including waste streams with a closed cup flashpoint of less than one hundred forty (140) degrees Fahrenheit (sixty (60) degrees Celsius) using the test methods in 40 CFR 261.21.

(3) A pollutant that could cause corrosive structural damage to the POTW, including a discharge with pH lower than five (5.0), unless the POTW is specifically designed to accommodate such a discharge.

(4) A solid or viscous pollutant in an amount that could cause obstruction to the flow in a sewer or other interference with the operation of the POTW.

(5) A pollutant, including an oxygen demanding pollutant (such as biochemical oxygen demand) released in a discharge at a flow rate or pollutant concentration that could cause interference in the POTW.

(6) Heat in an amount that could:

(A) inhibit biological activity in the POTW and result in interference or damage to the POTW; or

(B) exceed forty (40) degrees Celsius or one hundred four (104) degrees Fahrenheit at the POTW treatment plant unless the commissioner, upon request of the POTW, approves alternate temperature limits.

(7) Petroleum, oil, nonbiodegradable cutting oil, or products of mineral oil origin in an amount that could cause interference or pass through.

(8) A pollutant that could result in the presence of toxic gases, vapors, or fumes within the POTW in a quantity that may cause acute worker health and safety problems.

(9) A trucked or hauled pollutant, except:

(A) with the permission of the POTW; and

(B) when introduced to the POTW at a discharge point designated by the POTW.

b. Specific limits on the prohibited substances listed in Part III.B.1.a above, such that the following are limited:

(1) a pollutant contributed by an industrial user that has caused or is likely to cause interference or pass through at the receiving POTW; and

(2) the recurrence of the contributed pollutant's affect on the POTW.

c. The legal authority to:

(1) develop and enforce specific limits on prohibited substances;

(2) enter the premises of any industrial user to conduct inspections, surveillance, record review, and/or monitoring, as necessary to determine compliance with the SUO and, if applicable, any effective industrial wastewater pretreatment permit;

(3) accept or deny any new or increased discharges from any indirect discharger;

(4) immediately halt or prevent any discharge of pollutants to the POTW which reasonably appears to present an imminent endangerment to the health or welfare of the public, the environment, and/or which threatens to interfere with the operation of the POTW;

(5) require compliance with all applicable pretreatment standards and requirements by indirect dischargers;

(6) Impose fees, if necessary, to offset the cost incurred by the permittee for administering the pretreatment program requirements established in Part III of this permit;

(7) Impose a fine of not more than $2,500 per day, per violation for a first violation nor more than $7,500 per day, per violation for subsequent violations, in accordance with IC 36-1-3-8(a)(10)(B).

2. Within 90 days of the effective date of this permit, the permittee shall submit to the IDEM Office of Water Quality Pretreatment Group, either:

   a. A copy of the existing SUO, highlighting where the requirements listed in Part III.B.1 are located, and a statement certifying that the evaluation required pursuant to Part III.B.1 was conducted and that the SUO contains the requirements listed in Part III.B.1; or

   b. A copy of the existing SUO, a statement certifying that the evaluation required pursuant to Part III.B.1 was conducted, a description of the requirements listed in Part III.B.1 that are not contained in the existing SUO, and proposed modifications to the SUO that will ensure that all requirements listed in Part III.B.1 are contained in the SUO.

3. In the event that proposed modifications to the SUO submitted pursuant to Part III.B.2.b of this permit are determined to be deficient by IDEM, the permittee shall, within 30 days of receipt of written notice of the deficiencies, correct the deficiencies and resubmit the proposed modifications to the SUO to IDEM.

4. The permittee shall adopt the proposed modifications to the SUO, as approved by IDEM, within 120 days of receipt of written approval by IDEM.

5. In accordance with 327 IAC 5-18-2(b), the permittee shall, in the event that proposed modifications to the SUO pertain to the development and enforcement of specific effluent limits, provide individual notice, in writing, to persons or groups that have requested to be notified and given an opportunity to comment about the development and enforcement of specific effluent limits.

6. The permittee shall provide sufficient resources and qualified personnel to implement the pretreatment program requirements contained in Part III of this permit.

7. The permittee shall submit any significant proposed program modifications to IDEM for approval. A significant modification shall include, but not be limited to, a change in the local limitations contained in the SUO or a change in the industrial survey.

C. PROGRAM IMPLEMENTATION REQUIREMENTS

1. The permittee shall implement and enforce its SUO.

2. Upon the effective date of this permit, the permittee shall implement a program of monitoring the discharge from all SIU's, in accordance with the following minimum requirements:

   a The permittee shall, no less than twice per calendar year, measure the volume of flow and sample and analyze the discharge from each SIU for all parameters contained in the industrial wastewater pretreatment (IWP) permit issued to the SIU by the CA, with the exception of Total Toxic Organics (TTOs), which shall be sampled and analyzed no less than once per calendar year.

   b. The permittee shall, for each parameter, including flow, utilize the sample type (e.g. 24- hour composite or grab) specified in the IWP permit issued by the CA.

   c. The permittee shall collect samples at the sample location specified in the IWP Permit issued by the CA.

   d. The permittee shall utilize the analytical methods contained in the IWP Permit issued by the CA.

   e. The permittee shall sample and analyze the discharge from any IU, including an SIU with an IWP permit issued by the CA, for any parameter, as necessary to:

      (1) achieve and/or maintain compliance with the requirements of this NPDES permit; and/or

      (2) determine compliance with the requirements of the permittee's SUO.

   f. The permittee shall, in accordance with Part III.C.4 of this permit, record and maintain all sampling and analytical data at the permitted facility.

3. Upon the effective date of this permit, the permittee shall implement a program of inspecting all SIU's, in accordance with the following minimum requirements:

    a. The permittee shall, no less than once annually, inspect each SIU.

    b. The permittee shall, during each inspection conducted pursuant to Part III.C.3.a, evaluate areas including, but not limited to, the following:

        (1) pretreatment system(s);

        (2) spill reporting and response procedures;

        (3) sampling location; and

        (4) disposal of sludge and other wastestreams not regulated by the IWP permit issued by the CA.

    c. The permittee shall inspect any IU, including an IU with an IWP permit issued by the CA, as necessary to:

        (1) achieve and/or maintain compliance with the requirements of this NPDES permit; and/or

        (2) determine compliance with the requirements of the permittee's SUO.

    d. The permittee shall, for each inspection conducted pursuant to Part III.C.3.a, complete a report, utilizing an inspection report form that is at least equivalent to the form that is available from the IDEM Pretreatment Group.

    e. The permittee shall, in accordance with Part III.C.4 of this permit, maintain at the permitted facility, copies of all inspection reports.

4. The permittee shall establish a file for each SIU that includes, but is not necessarily limited to:

    a. A copy of the IWP permit issued by the CA;

    b. Information and data pertaining to and resulting from the sampling and analysis required pursuant to Part III.C.2 of this permit. Such information and data shall, for each sample or measurement taken, include, but not necessarily be limited to:

        (1) the date, exact place and time of sampling or measurement;

        (2) the name of the person(s) who performed the sampling or measurement;

        (3) the sample type utilized;

(4) the date(s) and time(s) analyses were performed;

(5) the analytical techniques or methods used; and

(6) the results of such measurements and analyses.

c. Copies of all inspection reports required pursuant to Part III.C.3 of this permit and;

d. Copies of all documents (including correspondence and discharge monitoring reports) relating to the SIU and/or the IWP permit issued by the CA.

5. The permittee shall retain, at the wastewater treatment plant, all records required pursuant to Part III.C.4 of this permit, for a minimum of three (3) years and shall make such records available for inspection and copying by IDEM or the U.S. EPA in accordance with 327 IAC 5-16-5(d). This period of retention shall be extended during the course of any unresolved litigation regarding the discharge of pollutants by the industrial user or the operation of the pretreatment program or when requested by IDEM or the U.S. EPA.

   For permittee's with an existing IDEM approved, ERP, the permittee shall submit a statement certifying that the ERP contains the requirements in a-d below and the permittee is implementing the ERP as approved to the IDEM Office of Water Quality Pretreatment Group within 90 days of the effective date of this permit.**]**

   The ERP shall contain, at the minimum, the following:

   a. Categories of noncompliance, including a category for noncompliance considered to be "significant noncompliance" pursuant to 327 IAC 5-17-24;

   b. A description of the types of violations included within each identified category of noncompliance;

   c. A narrative description of each enforcement response;

   d. An enforcement response guide which discusses the policies and criteria for evaluating violations and deciding the appropriate enforcement response.

   An ERP guidance document may be obtained from the IDEM Pretreatment Group.

7. In the event that the permittee is or should be aware of any activity or other circumstances, including wastewater treatment plant operational conditions, that the permittee has reason to believe may result in noncompliance with permit requirements, the permittee shall:

   a. Immediately upon becoming aware of the activity or other circumstances, take all reasonable steps to cease or eliminate the activity or other circumstances;

   b. Immediately upon becoming aware of the activity or other circumstances and continuing until such time as such activity or other circumstances cease or are eliminated, sample and analyze the wastewater entering the wastewater treatment

plant, the wastewater from intermediate unit treatment processes, and the discharge from Outfall 001 for the pollutants identified in this NPDES permit as well as any pollutants suspected of interfering with WWTP operation;

c. Immediately upon becoming aware of the activity or other circumstances, notify the Compliance Data Section of the Office of Water Quality.

d. Immediately upon becoming aware of the activity or other circumstances, notify industrial users;

e. Immediately upon becoming aware of the activity or other circumstances, halt or prevent any trucked or hauled pollutants from being introduced into the POTW; and

f. Immediately upon becoming aware of the activity or other circumstances, halt or prevent the discharge from any indirect discharger, including any SIU, that the permittee has reason to believe may cause or contribute to interference with POTW operations or noncompliance with permit requirements.

8. The permittee shall notify the Office of Water Quality's Compliance Data Section of any violation by any indirect discharger that constitutes "significant noncompliance" pursuant to 327 IAC 5-17-24, within ten days of becoming aware of the significant noncompliance. The permittee shall provide a copy of all correspondence between any indirect discharger and the permittee to the IDEM Pretreatment Group regarding the significant noncompliance.

9. The permittee shall conduct an industrial survey at a minimum frequency of once every two (2) years. The industrial survey shall consist of, but not be limited to, requiring all industrial users (IU's), discharging wastewater other than sanitary, non-contact cooling water, boiler blowdown, or compressor condensate, to complete and return the survey form attached to this permit. The permittee shall utilize the completed survey forms to identify changes in operations and/or volume and nature of the discharge from each IU. The permittee shall include copies of the completed survey forms, along with a written description of the identified changes in operations and/or volume and nature of the discharge from each IU, with the Annual Report required pursuant to Part III.C.12.

10. The permittee shall notify the IDEM Pretreatment Group of any IU proposing a new discharge of process wastewater to the POTW that meets any of the following conditions:

    a. The industrial user is subject to categorical pretreatment standards under 327 IAC 5-18-10.

    b. The industrial user:

        (1) proposes to discharge an average of twenty-five thousand (25,000) gallons per day or more of process wastewater (excluding sanitary, noncontact cooling and boiler blowdown wastewater) to the POTW;

(2) would contribute a process wastestream that makes up five percent (5%) or more of the average dry weather hydraulic or organic capacity of the POTW treatment plant; or,

(3) would have a reasonable potential to:

(A) adversely affect the POTW's operation;

(B) violate a pretreatment standard; or

(C) violate a requirement of 327 IAC 5-19-3.

The permittee shall not allow the proposed discharge until the industrial user obtains authorization from IDEM, and in the event that IDEM determines that a pretreatment permit or a pretreatment permit modification is necessary, the effective date of a pretreatment permit or pretreatment permit modification issued by IDEM.

11. The permittee shall sample and analyze the POTW's final sludge during the first and third calendar quarter or the second and fourth calendar quarter of each year for the following parameters: cadmium, copper, lead, mercury, molybdenum, nickel, and zinc. The permittee shall analyze the samples using 40 CFR 503, SW-846, "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods."

    The permittee shall report the analytical results in mg/kg on a dry weight basis and shall report the results on the Non-Delegated Pretreatment Sludge Discharge Monitoring Report (DMR).

12. The permittee shall submit an annual report to the IDEM Pretreatment Group by April 1 of each year that includes:

    a A summary of the results of the industrial user survey conducted by the permittee, including a description of changes in operations of and/or discharges from each IU.

    b A copy of the completed industrial user survey forms.

    c. A summary of the compliance status of each IU for the prior calendar year;

    d. A summary of the IU inspections conducted by the permittee during the prior calendar year, including a description of any deficiencies or violations found during the inspections;

    e. A summary of the IU discharge monitoring conducted by the permittee during the prior calendar year, including analytical results that indicate a violation of an applicable IWP permit or the SUO;

    f. A summary of enforcement activities conducted by the permittee during the prior calendar year;

g. An evaluation of the pretreatment program, including:

(1) Program effectiveness as measured by the impact of discharges from IUs on the operation/ performance of the POTW.

(2) The adequacy of the local SUO and local limits;

(3) The adequacy of resources, including personnel, training, equipment, and laboratory;

(4) The need for program modifications to improve program effectiveness.

13. The permittee shall prohibit the introduction of trucked or hauled pollutants into the POTW, except under the following conditions:

a. The permittee has provided prior written permission to the person seeking to discharge the hauled or trucked pollutants into the POTW;

b. The person seeking to discharge the hauled or trucked pollutants into the POTW possesses a valid wastewater management permit and valid vehicle licenses, as required by IDEM;

c. The pollutants are introduced into the POTW via a discharge point designated by the permittee.

14. In the event that the permittee allows the introduction of trucked or hauled pollutants under the conditions specified in item 13 above, the permittee shall:

a. Obtain and retain, for a minimum of forty-eight hours, samples that are representative of the hauled or trucked pollutants;

b. Analyze the samples obtained pursuant to item “a” above in the event that the permittee believes or has reason to believe that the hauled or trucked pollutants may be causing and/or contributing to pass-through and/or interference;

c. Maintain records, for each discharge of trucked or hauled pollutants into the POTW, of the following:

(1) Name of the person discharging the trucked or hauled pollutants;

(2) Wastewater management permit number (if applicable) and vehicle license number and expiration date;

(3) Origination, volume, and nature of the trucked or hauled pollutants;

(4) Date and time of the discharge;

(5) Any sampling conducted;

(6) Analytical Results, if any.

NOTE: A summary of the revisions to the General Pretreatment Regulations (40 CFR 403), along with other pretreatment regulations, are available at the EPA website. http://www.epa.gov/lawsregs/search/40cfr.html

ATTACHMENT A

Precipitation Related Combined Sewer Overflow Discharge Authorization Requirements

I. Discharge Authorization

A. Combined Sewer Overflows are point sources subject to both technology-based and water quality-based requirements of the Clean Water Act and state law. The permittee is authorized to have wet weather discharges from outfall(s) listed below subject to the requirements and provisions of this permit, including Attachment A.

Outfall	Location	Receiving Water
046	North of East Waters Street 40º 39' 35" N 84º 56' 20" W	Sprunger Ditch

B. At all times the discharge from any and all CSO outfalls herein shall not cause receiving waters:

1. including the mixing zone, to contain substances, materials, floating debris, oil, scum, or other pollutants:
   a. that will settle to form putrescent or otherwise objectionable deposits;
   b. that are in amounts sufficient to be unsightly or deleterious;
   c. that produce color, visible oil sheen, odor, or other conditions in such a degree as to create a nuisance;
   d. which are in amounts sufficient to be acutely toxic to, or otherwise severely injure or kill aquatic life, other animals, plants, or humans;
   e. which are in concentrations or combinations that will cause or contribute to the growth of aquatic plants or algae to such a degree as to create a nuisance, be unsightly, or otherwise impair the designated uses.
2. outside the mixing zone, to contain substances in concentrations which on the basis of available scientific data are believed to be sufficient to injure, be chronically toxic to, or be carcinogenic, mutagenic, or teratogenic to humans, animals, aquatic life, or plants.

C. Dry weather discharges from any portion of the sewer collection system, except WWTP outfall No. 001, are prohibited. If such a prohibited discharge should occur, the permittee is required to report the discharge in accordance with the provisions in Part II.C.3 of this permit.

II. Monitoring and Reporting Requirements

The permittee shall complete and submit accurate monitoring reports to the Indiana Department of Environmental Management. The permittee shall submit data specified on the CSO Monthly Report of Operation (MRO) for untreated CSO events (State Form 50546 (R3/7-13)), including but not limited to, WWTP data, precipitation data, and performance data for all discharges from untreated CSO Outfalls identified in Part I of

this Attachment A. Submitted CSO MROs shall contain results obtained during each month (a monitoring period) and shall be postmarked no later than 28 days following each completed monitoring period.

All reports shall be mailed to IDEM, Office of Water Quality – Mail Code 65-42, Compliance Data Section, 100 North Senate Ave., Indianapolis, Indiana 46204-2251. Please note that IDEM will no longer accept paper DMR or MRO forms after December 31, 2016. After that date all NPDES permit holders will be required to submit their monitoring data to IDEM using NetDMR. Electronically submitted reports (using NetDMR) have the same deadline as mailed reports.

III. CSO Operational Plan

A. The permittee shall comply with the following minimum technology-based controls, in accordance with EPA's National CSO Control Policy:

1. The permittee shall implement proper operation and regular maintenance programs for the sewer system and the CSOs. The purpose of the operation and maintenance programs is to reduce the magnitude, frequency and duration of CSOs. The programs shall consider regular sewer inspections; sewer, catch basin, and regulator cleaning; equipment and sewer collection system repair or replacement, where necessary; and disconnection of illegal connections.
2. The permittee shall implement procedures that will maximize the use of collection system for wastewater storage that can be accommodated by the storage capacity of the collection system in order to reduce the magnitude, frequency and duration of CSOs.
3. The permittee shall review and modify, as appropriate, its existing pretreatment program to minimize CSO impacts from non-domestic users. The permittee shall identify all industrial users that discharge to the collection system upstream of any CSO outfalls; this identification shall also include the pollutants in the industrial user's wastewater and the specific CSO outfall(s) that are likely to discharge the wastewater.
4. The permittee shall operate the POTW at the maximum treatable flow during all wet weather flow conditions to reduce the magnitude, frequency and duration of CSOs. The permittee shall deliver all flows to the treatment plant within the constraints of the treatment capacity of the POTW.
5. Dry weather overflows from CSO outfalls are prohibited. Each dry weather overflow must be reported to IDEM as soon as the permittee becomes aware of the overflow. When the permittee detects a dry weather overflow, it shall begin corrective action immediately. The permittee shall inspect the dry weather overflow each subsequent day until the overflow has been eliminated.
6. The permittee shall implement measures to control solid and floatable materials in CSO discharges.
7. The permittee shall implement a pollution prevention program focused on reducing the impact of CSOs on receiving waters.
8. The permittee shall implement a public notification process to inform citizens of when and where CSO discharges occur and their impacts. This notification

must also be done in accordance with 327 IAC 5-2.1.

9. The permittee shall monitor to effectively characterize CSO impacts and the efficacy of CSO controls.

B. The permittee's implementation of each of the minimum controls in Part III.A of this Attachment A shall be documented in its approved CSO Operational Plan (CSOOP). The permittee shall update the CSOOP, as necessary, to reflect changes in its operation or maintenance practices; changes to measures taken to implement the above minimum requirements; and changes to the treatment plant or collection system, including changes in collection system flow characteristics, collection system or WWTP capacity or discharge characteristics (including volume, duration, frequency and pollutant concentration). All updates to the CSOOP must be submitted to IDEM, Office of Water Quality, Municipal NPDES Permits Section for approval.

The CSOOP update(s) shall include a summary of the proposed revisions to the CSOOP as well as a reference to the page(s) that have been modified. Any CSOOP updates shall not result in:

1. a lower amount of flow being sent to and through the plant for treatment, or
2. more discharges (measured either by volume, duration, frequency, or pollutant concentration) occurring from the CSO outfalls.

The permittee shall maintain a current CSO Operational Plan, including all approved updates, on file at the POTW.

IV. Sewer Use Ordinance Review/Revision and Enforcement

The permittee's Sewer Use Ordinance must contain provisions which: (1) prohibit introduction of inflow sources to any sanitary sewer; (2) prohibit construction of new combined sewers outside of the existing combined sewer service area; and (3) provide that for any new building the inflow/clear water connection to a combined sewer shall be made separate and distinct from sanitary waste connection to facilitate disconnection of the former if a separate storm sewer subsequently becomes available. The permittee shall continuously enforce these provisions.

V. Reopening Clauses

A. This permit may be reopened to address changes in the EPA National CSO Policy or state or federal law.
B. The permit may be reopened, after public notice and opportunity for hearing, to incorporate applicable provisions of IC 13-18.

Fact Sheet
October 2016
Updated: December 2016

City of Berne Wastewater Treatment Plant
located at 343 South 550 South, Berne, Indiana, Adams County

Outfall Location	Latitude:	40° 36' 55" N
	Longitude:	84° 56' 25" W

NPDES Permit No. IN0021369

Background

This is the proposed revocation and reissuance of the NPDES permit for the City of Berne Wastewater Treatment Plant which was issued on May 31, 2012, and has an expiration date of July 31, 2017. The permittee submitted an application, which was received on September 23, 2016. During the public comment period one comment letter was received by this Office. The comments received and this Office's corresponding responses are included in the "Post Public Notice Addendum" section of this Fact Sheet.

The permittee currently operates a Class II, 1.08 MGD treatment facility. The treatment facility was recently upgraded as approved in Construction Approval Permit No. L-0439, issued on June 16, 2014, from a 0.683 MGD controlled discharge waste stabilization lagoon facility. The upgraded 1.08 MGD facility consists of a partial-mix aerated lagoon, a secondary lagoon, four (4) submerged attached growth reactors, two (2) secondary clarifiers, phosphorus removal via chemical addition, disc filters, and ultraviolet light disinfection.

During the summer months, wastewater is allowed to pass from a partial-mix lagoon, into the four (4) submerged attached growth reactors and disc filter unit. During the winter months a second lagoon is utilized for additional detention time. Flows greater than 1.92 MGD are stored within the existing lagoons until it can be sent on for full treatment.

Collection System

The collection system is comprised of combined sanitary and storm sewers with one (1) Combined Sewer Overflow (CSO) location. The CSO location has been identified and permitted with provisions in Attachment A of the permit.

CSO Statutory or Regulatory Basis for Permit Provisions

CSOs are point sources subject to NPDES permit requirements, including both technology-based and water quality-based requirements of the CWA and state law. Thus the permit contains provisions IDEM deems necessary to meet water quality standards, as well as technology-based treatment requirements, operation and maintenance requirements, and best management practices. This permit is based on various provisions of state and federal law, including (1) Title

13 of the Indiana Code; (2) the water quality standards set forth in 327 IAC 2-1.5; (3) the NPDES rules set forth in 327 IAC 2 and 327 IAC 5, including 327 IAC 5-2-8 and 327 IAC 5-2-10; and (4) section 402(q) of the CWA (33 USC § 1342), which requires all permits or orders issued for discharges from municipal CSOs to conform with the provisions of EPA's National CSO Control Policy (58 Fed. Reg. 18688, April 19, 1994). EPA's CSO Policy contains provisions that, among other things, require permittees to develop and implement minimum technological and operational controls and long term control plans to meet state water quality standards. The permit's penalty provisions are based in large part on IC 13-30. In addition to the regulatory provisions previously cited, the data collection and reporting requirements are based in part on 327 IAC 5-1-3, 327 IAC 5-2-13 and section 402(q) of the CWA.

Explanation of Effluent Limitations and Conditions

The effluent limitations set forth in Part I of Attachment A are derived in part from the narrative water quality standards set forth in 327 IAC 2-1-6. The narrative standards are minimum standards that apply to all waters at all times, and therefore are applicable to all discharges of pollutants. Because EPA has not issued national effluent limitation guidelines for this category of discharges, the technology-based BAT/BCT provisions are based on best professional judgment (BPJ) in addition to section 402(q) of the CWA. (CSO discharges are not subject to the secondary treatment requirements applicable to publicly owned treatment works because overflow points have been determined to not be part of the treatment plant. Montgomery Environmental Coalition v. Costle, 646 F.2d 568 (D.C. Cir. 1980).)

CSO Long-Term Control Plan

The City of Berne is currently implementing their approved CSO Long Term Control Plan (LTCP). The LTCP involves implementing sewer separation projects and transporting residual combined sewer flows to the wastewater treatment plant for treatment. After full implementation of the LTCP, the City will continue to evaluate and implement green infrastructure projects, correct faulty manholes, and implement a post construction compliance monitoring program.

The LTCP has an implementation schedule of 18 years and is expected to result in the elimination of all CSO discharges. Full LTCP implementation is anticipated to be completed in 2024**.** The implementation schedule is enforced through Agreed Order Case No. 2004-14217-W.

Spill Reporting Requirements

Reporting requirements associated with the Spill Reporting, Containment, and Response requirements of 327 IAC 2-6.1 are included in Part II.B.2.c. and Part II.C.3. of the NPDES permit. Spills from the permitted facility meeting the definition of a spill under 327 IAC 2-6.1-4(15), the applicability requirements of 327 IAC 2-6.1-1, and the Reportable Spills requirements of 327 IAC 2-6.1-5 (other than those meeting an exclusion under 327 IAC 2-6.1-3 or the criteria outlined below) are subject to the Reporting Responsibilities of 327 IAC 2-6.1-7.

It should be noted that the reporting requirements of 327 IAC 2-6.1 do not apply to those discharges or exceedences that are under the jurisdiction of an applicable permit when the substance in question is covered by the permit and death or acute injury or illness to animals or humans does not occur. In order for a discharge or exceedence to be under the jurisdiction of this NPDES permit, the substance in question (a) must have been discharged in the normal course of operation from an outfall listed in this permit, and (b) must have been discharged from an outfall for which the permittee has authorization to discharge that substance.

Solids Disposal

The permittee is required to dispose of its sludge in accordance with 329 IAC 10, 327 IAC 6.1, or 40 CFR Part 503.

Receiving Stream

The facility discharges to the Wabash River via Outfall 001. The receiving water has a seven day, ten year low flow ($Q_{7,10}$) of 5.1 cubic feet per second (3.3 MGD) at the outfall location. This provides a dilution ratio of receiving stream flow to treated effluent of 3:1.The receiving stream is designated for full body contact recreational use and shall be capable of supporting a well-balanced warm water aquatic community in accordance with 327 IAC 2-1.

Industrial Contributions

The permittee accepts industrial flow from Indiana Coatings, Inc. Based on this industrial contribution, Non-delegated Pretreatment Program Requirements have been included in Part III of the permit. In addition, the permittee is required to conduct annual Whole Effluent Toxicity testing on its discharge.

Antidegradation

327 IAC 2-1.3 outlines the state's Antidegradation Standards and Implementation Procedures. The Tier 1 antidegradation standard found in 327 IAC 2-1.3-3(a) applies to all surface waters of the state regardless of their existing water quality. Based on this standard, for all surface waters of the state, existing uses and the level of water quality necessary to protect existing uses shall be maintained and protected. IDEM implements the Tier 1 antidegradation standard by requiring NPDES permits to contain effluent limits and best management practices for regulated pollutants that ensure the narrative and numeric water quality criteria applicable to the designated use are achieved in the water and any designated use of the downstream water is maintained and protected.

The Tier 2 antidegradation standard found in 327 IAC 2-1.3-3(b) applies to surface waters of the state where the existing quality for a parameter is better than the water quality criterion for that parameter established in 327 IAC 2-1-6. These surface waters are considered high quality for the parameter and this high quality shall be maintained and protected unless the commissioner finds that allowing a significant lowering of water quality is necessary and accommodates important social or economic development in the area in which the waters are located. IDEM implements the Tier 2

antidegradation standard for regulated pollutants with numeric water quality criteria quality adopted in or developed pursuant to 327 IAC 2-1 and utilizes the antidegradation implementation procedures in 327 IAC 2-1.3-5 and 2-1.3-6.

According to 327 IAC 2-1.3-1(b), the antidegradation implementation procedures in 327 IAC 2-1.3-5 and 2-1.3-6 apply to a proposed new or increased loading of a regulated pollutant to surface waters of the state from a deliberate activity subject to the Clean Water Act, including a change in process or operation that will result in a significant lowering of water quality.

The new or increased loading of the regulated pollutant(s) established in the NPDES permit does not result in a significant lowering of water quality as defined in 327 IAC 2-1.3-2(50). The finding of no significant lowering was determined by conducting a wasteload allocation (WLA) analysis. The WLA was completed by Office of Water Quality (OWQ) Permits Branch staff on February 14, 2014.

Effluent Limitations and Rationale

The effluent limitations proposed herein are based on Indiana Water Quality Standards, NPDES regulations, and a Wasteload Allocation (WLA) analysis performed by this Office's Permits Branch staff on February 14, 2014. These limits are in accordance with antibacksliding regulations specified in 327 IAC 5-2-10(a)(11)(A). Monitoring frequencies are based upon facility size and type. IDEM has waived the 85% removal requirement for $CBOD_5$ and TSS under the provisions of 40 CFR 133.103(a). The periodic improvements required under the permittee's LTCP would make the percent removal level a dynamic measurement and any limitation based on percent removal impractical.

The final effluent limitations to be limited and/or monitored include: Flow, Carbonaceous Biochemical Oxygen Demand ($CBOD_5$), Total Suspended Solids (TSS), Ammonia-nitrogen (NH_3-N), Phosphorus, pH, Dissolved Oxygen (DO), *Escherichia coli* (*E. coli)*, and mercury.

Final Effluent Limitations

The summer monitoring period runs from May 1 through November 30 of each year and the winter monitoring period runs from December 1 through April 30 of each year. The disinfection season runs from April 1 through October 31 of each year.

The mass limits for $CBOD_5$, TSS and ammonia-nitrogen have been calculated utilizing the peak design flow of 1.92 MGD. This is to facilitate the maximization of flow through the treatment facility in accordance with this Office's CSO policy.

Influent Monitoring

The raw influent and the wastewater from intermediate unit treatment processes, as well as the final effluent shall be sampled and analyzed for the pollutants and operational parameters specified by the applicable Monthly Report of Operation Form, as appropriate, in accordance with 327 IAC 5-2-13 and Part I.B.2 of the permit. Except where the permit specifically states otherwise, the sample frequency for the raw influent and intermediate unit treatment process shall be at a minimum the same frequency as that for the final effluent. The measurement frequencies specified in each of the tables in Part I.A. are the minimum frequencies required by the permit.

Flow

Flow is to be measured five (5) times weekly as a 24-hour total. Reporting of flow is required by 327 IAC 5-2-13.

$CBOD_5$

$CBOD_5$ is limited to 20 mg/l (320 lbs/day) as a monthly average and 30 mg/l (481 lbs/day) as a weekly average during the summer monitoring period. During the winter monitoring period, $CBOD_5$ is limited to 25 mg/l (401 lbs/day) as a monthly average and 40 mg/l (641 lbs/day) as a weekly average.

Monitoring is to be conducted three (3) times weekly by 24-hour composite sampling. The $CBOD_5$ concentration limitations included in this permit are set in accordance with the Wasteload Allocation (WLA) analysis performed by this Office's Permits Branch staff on February 14, 2014.

TSS

TSS is limited to 24 mg/l (385 lbs/day) as a monthly average and 36 mg/l (577 lbs/day) as a weekly average during the summer monitoring period. During the winter monitoring period, TSS is limited to 30 mg/l (481 lbs/day) as a monthly average and 45 mg/l (721 lbs/day) as a weekly average.

Monitoring is to be conducted three (3) times weekly by 24-hour composite sampling. The TSS concentration limitations included in this permit are set in accordance with the Wasteload Allocation (WLA) analysis performed by this Office's Permits Branch staff on February 14, 2014.

Ammonia-nitrogen

Ammonia-nitrogen is limited to 1.5 mg/l (24.0 lbs/day) as a monthly average and 2.3 mg/l (36.9 lbs/day) as a weekly average during the summer monitoring period. During the winter monitoring period, ammonia-nitrogen is limited to 3.8 mg/l (60.9 lbs/day) as a monthly average and 5.7 mg/l (91.3 lbs/day) as a weekly average.

Monitoring is to be conducted three (3) times weekly by 24-hour composite sampling. The ammonia-nitrogen concentration limitations included in this permit are set in accordance with the Wasteload Allocation (WLA) analysis performed by this Office's Permits Branch staff on February 14, 2014.

Phosphorus

Huntington Lake is located within 40 miles downstream of the treatment facility outfall. In accordance with 327 IAC 5-10-2(b), phosphorus removal facilities are required. As this facility continues to have the use of extended holding times the sliding removal scale found in 327 IAC 5-10-2 has not been included in the permit. Compliance with the phosphorus removal requirement in the permit is measured by a monthly average limit of 1.0 mg/l of phosphorus. Monitoring is to be conducted three (3) times weekly by 24-hour composite sampling. The phosphorus limitation is the same as the limitation found in the facility's previous permit.

pH

The pH limitations have been based on 40 CFR 133.102 which is cross-referenced in 327 IAC 5-5-3. To ensure conditions necessary for the maintenance of a well-balanced aquatic community, the pH of the final effluent must be between 6.0 and 9.0 standard units in accordance with provisions in 327 IAC 2-1-6(b)(2). pH must be measured five (5) times weekly by grab sampling. These pH limitations are the same as the limitations found in the facility's previous permit.

Dissolved Oxygen

Dissolved oxygen shall not fall below 5.0 mg/l as a daily minimum average during the summer monitoring period. During the winter monitoring period, dissolved oxygen shall not fall below 4.0 mg/l as a daily minimum average.

These dissolved oxygen limitations are based on the Wasteload Allocation (WLA) analysis performed by this Office's Permits Branch staff on February 14, 2014. Dissolved oxygen measurements must be based on the average of three (3) grab samples taken within a 24-hr. period. This monitoring is to be conducted five (5) times weekly.

E. coli

The *E. coli* limitations and monitoring requirements apply from April 1 through October 31, annually. *E. coli* is limited to 125 count/100 ml as a monthly average, and 235 count/100 ml as a daily maximum. The monthly average *E. coli* value shall be calculated as a geometric mean. This monitoring is to be conducted three (3) times weekly by grab sampling. These *E. coli* limitations are set in accordance with regulations specified in 327 IAC 5-10-6.

Mercury

The NPDES permit requires that mercury sampling be conducted bi-monthly (every other month)

for the term of the permit (influent and effluent). The collected data will be evaluated at the next permit renewal to determine if there is reasonable potential to exceed the water quality criteria for mercury in the receiving water.

Whole Effluent Toxicity Testing

The permittee is scheduled to conduct a Whole Effluent Toxicity Tests (WETT) in late October 2016.

The permittee shall conduct the whole effluent toxicity tests described in Part I.D. of the permit to monitor the toxicity of the discharge from Outfall 001. This toxicity testing is to be performed annually for the duration of this NPDES permit. Acute toxicity will be demonstrated if the effluent is observed to have exceeded 1.0 TU_a (acute toxic units) based on 100% effluent for the test organism in 48 and 96 hours for *Ceriodaphnia dubia* or *Pimephales promelas*, which ever is more sensitive. Chronic toxicity will be demonstrated if the effluent is observed to have exceeded **1.8** TU_c (chronic toxic units) for *Ceriodaphnia dubia* or *Pimephales promelas*. If acute or chronic toxicity is found in any of the tests specified above, another toxicity test using the specified methodology and same test species shall be conducted within two weeks. If any two tests indicate the presence of toxicity, the permittee must begin the implementation of a toxicity reduction evaluation (TRE) as is described in Part I.D.2. of the permit.

Backsliding

None of the concentration limits included in this permit conflict with antibacksliding regulations found in 327 IAC 5-2-10(a)(11)(A), therefore, backsliding is not an issue.

Reopening Clauses

Five reopening clauses were incorporated into the permit in Part I.C. One clause is to incorporate effluent limits from any further wasteload allocations performed; a second clause is to allow for changes in the sludge disposal standards; a third clause is to incorporate any applicable effluent limitation or standard issued or approved under section 301(b)(2)(C), (D) and (E), 304(b)(2), and 307(a)(2) of the Clean Water Act; a fourth clause is to include whole effluent toxicity limitations or to include limitations for specific toxicants; and a fifth clause is to reduce the mercury monitoring frequency or include effluent limitations for mercury.

Compliance Status

The permittee entered into an Agreed Order (Case No. 2004-14217-W) with this Office. The Order is in regards to the CSO LTCP. Please refer to the CSO sections of this Fact Sheet.

Expiration Date

A five-year NPDES permit is proposed.

Drafted by: Jason House
October 2016

Updated by: Jason House
December 2016

POST PUBLIC NOTICE ADDENDUM: December 2016

The draft NPDES permit renewal for the City of Berne Wastewater Treatment Plant was made available for public comment from October 28, 2016, through November 29, 2016, as part of Public Notice No. 2016-10H-RD. During this comment period, a comment letter dated November 30, 2016, from Brady Dryer, consultant for the City of Berne, was received. The comments submitted by Mr. Dryer, and this Office's corresponding responses are summarized below: Any changes to the permit and/or Fact Sheet are so noted below.

Comment 1:
PART l.A.1. TABLE 2 (Page 3 of 48)

"The Summer and Winter Dissolved Oxygen (DO) limitations were not included in the previous NPDES Permit that was effective on August 1, 2012 and expires on July 31, 2017. We understand that this requirement was disclosed as part of the Preliminary Effluent Limitation Letter dated February 20, 2014 and was also included as an element of design for the recently completed wastewater treatment plant (WWTP) improvements project. While we do not believe there will be an issue in meeting the proposed DO limitations, we must modify our sampling protocol by purchasing sampling equipment and we must have ample time to adapt to the use of the new sampling equipment. Given the expiration of the permit in July 2017, we request that the DO limitations be suspended until the renewed permit is effective in July 2017. This approach will allow the City of Berne to adequately prepare for monitoring and reporting of this new limitation."

Response 1:

No changes have been made to the permit due to this comment.

The dissolved oxygen limitations and sampling requirements will become effective upon the

effective date of the revocation/reissuance of this NPDES permit.

Comment 2:
PART l.A.1.TABLE 1 (Page 2 of 48)

"The Sample Type for CBODs, TSS, Ammonia-nitrogen, and Phosphorus has been changed from Grab to 24-hour composite. While we understand that this change is a function of the new process that provides for continuous discharge, the City will need to significantly change sampling protocol to adapt to the 24-hour sampling regime. As the City does not currently own and operate an automatic sampler, it is likely that the alternative method as described in Part l.B.4.b.4 of taking a minimum of three (3) samples over equal time intervals. This method will require manpower that is not currently available to the Wastewater Department. Given the limited staff and intensive nature of the flow proportioned sample method, we would ask that the 24-hour composite requirement be suspended until the permit officially expires and is renewed on August 1, 2017."

Response 2:

No changes have been made to the permit due to this comment.

The sampling requirements for CBODs, TSS, Ammonia-nitrogen, and Phosphorus will become effective upon the effective date of the permit and are appropriate for the type and size of wastewater treatment facility the permittee now operates.

Comment 3:
PART l.A.3. TABLE 3 (Page 4 of 48) & PART l.A.4. TABLE 4 (Page 5 of 48)

"Mercury monitoring 6 X Annually has been added to the Draft NPDES Permit No. IN0021369. As mercury monitoring is not currently required, the City requests justification of the purpose and intent of mercury monitoring. Furthermore, the City requests that IDEM OWQ remove the mercury monitoring requirement from the Draft permit until the renewed permit is effective on August 1, 2017 due to that fact that this is a new parameter that will require sample collection training and will impact the Wastewater Department operating budget as it is a costly analysis. If the removal of mercury monitoring is not granted, the City requests that mercury monitoring be reduced to 2 X Annually."

Response 3:

No changes have been made to the permit due to this comment.

The mercury monitoring has been included in this permit due to the fact that the facility is now a major facility above 1.0 MGD average design flow. The data will be evaluated to

determine if mercury is of concern in the discharge. If the monitoring results indicate that mercury is not of concern, then this Office could reduce or remove the monitoring requirement for mercury.

As no substantial changes were made to the permit due to these comments, no additional public notice is required.

Drafted by: Jason House
December 2016

STATE OF INDIANA
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
PUBLIC NOTICE NO: 2016 – 12B – F
DATE OF NOTICE: DECEMBER 16, 2016

The Office of Water Quality issues the following NPDES FINAL PERMIT.

MAJOR – REVOKE & REISSUE

BERNE (city) WWTP, Permit No. IN0021369, ADAMS COUNTY, 343 E 550 S, Berne, IN. This major municipal permit is being revoked & reissued due to substantial changes in operations. Permit Manager: Jason House, jahouse@idem.in.gov, 317/233-0470.

Notice of Right to Administrative Review [Permits]

If you wish to challenge this Permit, you must file a Petition for Administrative Review with the Office of Environmental Adjudication (OEA), and serve a copy of the Petition upon IDEM. The requirements for filing a Petition for Administrative Review are found in IC 4-21.5-3-7, IC 13-15-6-1 and 315 IAC 1-3-2. A summary of the requirements of these laws is provided below.

A Petition for Administrative Review must be filed with the Office of Environmental Adjudication (OEA) within fifteen (15) days of the issuance of this notice (eighteen (18) days if you received this notice by U.S. Mail), and a copy must be served upon IDEM. Addresses are:

Director
Office of Environmental Adjudication
Indiana Government Center North
Room 501
100 North Senate Avenue
Indianapolis, Indiana 46204

Commissioner
Indiana Department of Environmental Management
Indiana Government Center North
Room 1301
100 North Senate Avenue
Indianapolis, Indiana 46204

The Petition must contain the following information:

1. The name, address and telephone number of each petitioner.
2. A description of each petitioner's interest in the Permit.
3. A statement of facts demonstrating that each petitioner is:
    a. a person to whom the order is directed;
    b. aggrieved or adversely affected by the Permit; or
    c. entitled to administrative review under any law.
4. The reasons for the request for administrative review.
5. The particular legal issues proposed for review.
6. The alleged environmental concerns or technical deficiencies of the Permit.
7. The Permit terms and conditions that the petitioner believes would be appropriate and would comply with the law.
8. The identity of any persons represented by the petitioner.
9. The identity of the person against whom administrative review is sought.
10. A copy of the Permit that is the basis of the petition.
11. A statement identifying petitioner's attorney or other representative, if any.

Failure to meet the requirements of the law with respect to a Petition for Administrative Review may result in a waiver of your right to seek administrative review of the Permit. Examples are:

1. Failure to file a Petition by the applicable deadline;
2. Failure to serve a copy of the Petition upon IDEM when it is filed; or
3. Failure to include the information required by law.

If you seek to have a Permit stayed during the Administrative Review, you may need to file a Petition for a Stay of Effectiveness. The specific requirements for such a Petition can be found in 315 IAC 1-3-2 and 315 IAC 1-3-2.1.
Pursuant to IC 4-21.5-3-17, OEA will provide all parties with Notice of any pre-hearing conferences, preliminary hearings, hearings, stays, or orders disposing of the review of this action. If you are entitled to Notice under IC 4-21.5-3-5(b) and would like to obtain notices of any pre-hearing conferences, preliminary hearings, hearings, stays, or orders disposing of the review of this action without intervening in the proceeding you must submit a written request to OEA at the address above.
If you have procedural or scheduling questions regarding your Petition for Administrative Review you may contact the Office of Environmental Adjudication at (317) 232-8591 or see OEA's website at http://www.in.gov/oea.

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)

GENERAL INFORMATION FORM

(TO BE SUBMITTED WITH FORMS 2C, 2D AND 2E)

(Replaces EPA General Form 1)

Revised 11/23/15

1. Name of Facility: City of Berne Wastewater Treatment Plant

2. Facility Contact:

Name: William McKean, Mayor

Address: 158 West Franklin Street

City or Town: Berne State: IN Zip Code: 46711

Telephone: Work: (260) 589-8526 Home: (_____) _____-_____

3. Certified Operator

Name: Terry L. Kongar

Certification #: WW17648 Classification: II

Address: 343 East 550 South

City or Town: Berne State: IN Zip Code: 46711

Telephone: Work: (260) 589-3425 Home: (_____)_____-_____

4. Facility Mailing Address

Street or P.O. Box: 158 West Franklin St.

City or Town: Berne State: IN Zip Code: 46711

5. Facility Location

Street, Route No. or Other Specific Identifier:

343 East 550 South

Berne, IN 46711

6. Type of Permit Action:

New ___ Renewal _X_ Modification ___

7. EPA I.D. Number: ~~IN0021369~~ IN0021369

8. Does or will this facility (either existing or proposed) include a concentrated animal feeding operation or aquatic animal production facility which results in a discharge to waters of the state? (Form 2B)

Yes ___ No _____Form Attached ___ N/A__X_____

9. Is this a facility which currently results in discharges to waters of the state other than described in 8? (Form 2C-Process Wastewater or Form 2E-Nonprocess Wastewater)

Yes ___ No __Form Attached ___ N/A_X__

10. Is this a proposed facility (other than described in 8) which will result in a discharge to waters of the state? (Form 2D)

Yes ___ No ___ Form Attached ___ N/A___X

11. SIC Codes (4-digit, in order of priority)

First: 4952	Specify: Wastewater Treatment Plant
Second:	Specify:
Third:	Specify:
Fourth:	Specify:
Fifth:	Specify:

12. Existing Environmental Permits (Identification #)

NPDES (Discharges to Surface Waters): IN0021639

UIC (Underground Injection of Fluids):_____

RCRA (Hazardous Wastes): _____

PSD (Air Emissions from Proposed Sources):_____

Other: _____Specify: _____

Other: _____Specify: _____

13. Nature of Business (Provide a Brief Description)

The City of Berne operates a Class II wastewater treatment facility with an average design flow of 1.08 MGD and a peak design flow of 1.92 MGD. During summer months, wastewater is allowed to pass from a partial-mix lagoon, containing fine bubble diffusers for aeration, into four (4) Submerged Attached Growth Reactors (SAGR) and a disc filter unit. During winter months, a second lagoon is utilized for additional detention time. Flows greater than 1.92 MGD are stored within the existing lagoons until such time as influent flows subside and stored flows can be released to the remaining treatment processes. Phosphorus removal occurs via chemical injection prior to the disc filters. Ultraviolet light disinfection is provided in the effluent pump station and force main. Influent and effluent flow meters are also provided. The collection system is comprised of combined sanitary and storm sewers with one (1) Combined Sewer Overflow (CSO) (Outfall 046) location.

14. Map

Attach to this application a topographic map of the area extending to at least one mile beyond property boundaries. The map must show the outline of the facility, the location of each of its existing and proposed intake and discharge structures, each of its hazardous waste treatment, storage, or disposal facilities, and

each well where it injects fluid underground. Include all springs, rivers and other surface water bodies in the map area.

15. Signature Block:

This application must be signed by a person in responsible charge to be valid. This signature attests to the following:

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations".

William McKean Mayor
(Printed Name) (Title)

William McKean, Mayor Sept. 20, 2016
(Signature) (Date Signed)

Return Completed Application, Fee and Associated Materials to:
Indiana Department of Environmental Management
Cashiers Office – Mail Code 50-10C
100 North Senate Avenue
Indianapolis, Indiana 46204-2251

2016 SEP 23 A 8:24
IDEM OFFICE OF WATER QUALITY

Section 2
Municipal NPDES Permit Completeness Checklist & Submittal Form

MUNICIPAL NPDES PERMIT COMPLETENESS CHECKLIST & SUBMITTAL FORM

MAIL TO:
Indiana Department of Environmental Management
Cashiers Office – Mail Code 50-10C
100 North Senate Avenue
Indianapolis, Indiana 46204-2251

NPDES PERMIT No. IN0021369

Facility Name City of Berne Wastewater Treatment Plant

Mailing Address 158 West Franklin Street
Berne, IN 46711

Facility Location 343 East 550 South
Berne, IN 46711

Contact & Telephone: Terry L. Kongar, WWTP Superintendent Phone: (260) 589-3425

REQUIRED INFORMATION

REQUIRED WITH ALL APPLICATIONS	TECHNICAL APPLICATIONS
X $50.00 Permit Application Fee	___ Whole Effluent Toxicity Test*
X Affected Parties Identification Form	X Major Municipal Application / EPA Form
X Request for Information Form	___ Semi Public / Minor Municipal

* **Not currently included as facility has not been classified as a major discharger via NPDES Permit No. IN0021369. However, a WETT is being conducted in Oct-Nov 2016, and will be appended upon completion.**

The Permit Fee, Affected Parties Form and Request for Information Forms are required with all applications. Whole Effluent Toxicity Testing is required for all major facility renewal applications in accordance with regulations specified in 327 IAC 5-2-3(g)(1) and (2). Please check the information that is included, and insure that all forms are completely filled out with date and signature.

(Account No. & Revenue Code: 2830-411200-100600)

Section 3
EPA Standard Form A – Municipal, Applicant and Facility Description

IDEM
OFFICE OF
WATER QUALITY

Form Approved OMB No. 2040-0086
Approval expires 7-31-88

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM
APPLICATION FOR PERMIT TO DISCHARGE WASTEWATER

2011 SEP 23 A 8:25

STANDARD FORM A - MUNICIPAL

SECTION I APPLICANT AND FACILITY DESCRIPTION

Unless otherwise specified on this form all items are to be completed. If an item is not applicable indicate "NA"

ADDITIONAL INSTRUCTIONS FOR SELECTED ITEMS APPEAR IN SEPARATE INSTRUCTION BOOKLET AS INDICATED. REFER TO BOOKLET BEFORE FILLING OUT THESE ITEMS.

Please Print or Type

1.	Legal Name of Applicant (See instructions)	101	City of Berne Wastewater Treatment Plant
2.	Mailing Address of Applicant (See instructions) Number and Street	102a	158 West Franklin Street
	City	102b	Berne
	State	102c	IN
	Zip Code	102d	46711
3.	Applicant's Authorized Agent (See instructions) Name and Title	103a	Brady Dryer, Environmental Compliance Manager
			Commonwealth Engineers, Inc.
	Number and Street	103b	7256 Company Drive
	City	103c	Indianapolis
	State	103d	IN
	Zip Code	103e	46237
	Telephone	103f	(317) 888-1177 (Area Code / Number)
4.	Previous Application If a previous application for a permit under the National Pollutant Discharge Elimination System has been made, give the date of application	104	2012 (YR) 08 (MO) 01 (DAY)

I certify that I am familiar with the information contained in this application and that to the best of my knowledge and belief such information is true, complete and accurate.

William McKean	102e	Mayor
Printed Name of Person Signing		Title
William McKean Mayor	102f	2016 (YR) 9 (MO) 20 (DAY) Date Application Signed
Signature of Applicant or Authorized Agent		

18 U.S.C. Section 1001 provides that:
Whoever, in any matter within the jurisdiction of any department or agency of the United States knowingly and wilfully falsifies, conceals or covers up by any trick, scheme, or device a material fact, or makes any false, fictitious or fraudulent statement or representation, or makes or uses any false writing or document knowing same to contain any false, fictitious or fraudulent statement or entry, shall be fined not more than $10,000 or imprisoned not more than five years, or both.

5. Facility (see instructions)
Give the name, ownership, and physical location of the plant or other operating facility where discharge(s) presently occur(s) or will occur.

Name	105a	City of Berne Wastewater Treatment Plant
Ownership	105b	X Public ___ Private ___ Both Public and Private
Federal Facility	105c	___ Yes X No
GSA Inventory Control Number	105d	
Location: Number and Street	105e	343 East 550 South
City	105f	Berne
County	105g	Adams
State	105h	IN

6. Discharge to Another Municipal Facility (See instructions)

a. Indicate if part of your discharge is into a municipal waste transport system under another responsible organization. If yes, complete the rest of this item and continue with item 7. If no, go directly to item 7.

106a ___ Yes X No

b. Responsible Organization Receiving Discharge

Name	106b	N/A
Number and Street	106c	
City	106d	
State	106e	
Zip Code	106f	

c. Facility which Receives Discharge
Give the name of the facility (Waste treatment plant) which receives and is ultimately responsible for treatment of the discharge from your facility.

106g N/A

d. Average Daily Flow to Facility (mgd) Give your average daily flow into the receiving facility.

106h ___ mgd

7. Facility Discharges, Number and Discharge Volume (see Instructions)
Specify the number of discharges described in this application and the volume of water discharged or lost to each of the categories below. Estimate average volume per day in million gallons per day. Do not include intermittent or noncontinuous overflows, bypasses or seasonal discharges from lagoons, holding ponds, etc.

Form Approved OMB No. 2040-0086
Approval expires 7-31-88

			Number of Discharge Points		Total Volume Discharged, Million Gallons Per Day
To:	Surface Water	107a1	1	107a2	1.08
	Surface Impoundment with no Effluent	107b1		107b2	
	Underground Percolation	107c1		107c2	
	Well (Injection)	107d1		107d2	
	Other	107e1		107e2	
Total Item 7		107f1	1	107f2	1.08
If "Other" is specified, describe		107g1			

If any of the discharges from this facility are intermittent, such as from overflow or bypass points, or are seasonal or periodic from lagoons, holding ponds, etc., complete Item 8.

8. Intermittent Discharges

a.	Facility bypass points indicate number of bypass points for the facility that are discharge points. (See instructions)	108a	0
B.	Facility Overflow Points Indicate the number of overflow points to a surface water for the facility. (See instructions)	108b	1 (CSO 046)
C.	Seasonal or Periodic Discharge Points Indicate the number of points where seasonal discharges occur from holding ponds, lagoons, etc.	108c	0

9. Collection System Type
Indicate the type and length (in miles) of the collection system used by this facility. (See instructions) — 109a

Separate Storm		SST
Separate Sanitary	X	SAN
Combined Sanitary and Storm		CSS
Both Separate Sanitary and Combined Sewer Systems		BSC
Both Separate Storm and Combined Sewer Systems		SSC
Length	109b +/- 30	Miles

10. Municipalities or Areas Served (See instructions)

	Name		Actual Population Served
110a	City of Berne	110b	4,084*
110a		110b	
110a		110b	
110a		110b	
110a		110b	
Total Population Served	Total	110c	4,084

* Population estimate for 2015 from the U.S. Census Bureau

11. Average Daily Industrial Flow
Total estimated average daily waste flow from all industrial sources.

111 N/A Mgd

Note: All major industries (as defined in Section IV) discharging to the municipal system must be listed in Section iV.

12. Permits, Licenses and Applications
List all existing, pending or denied permits, licenses and applications related to discharges from this facility. (See instructions)

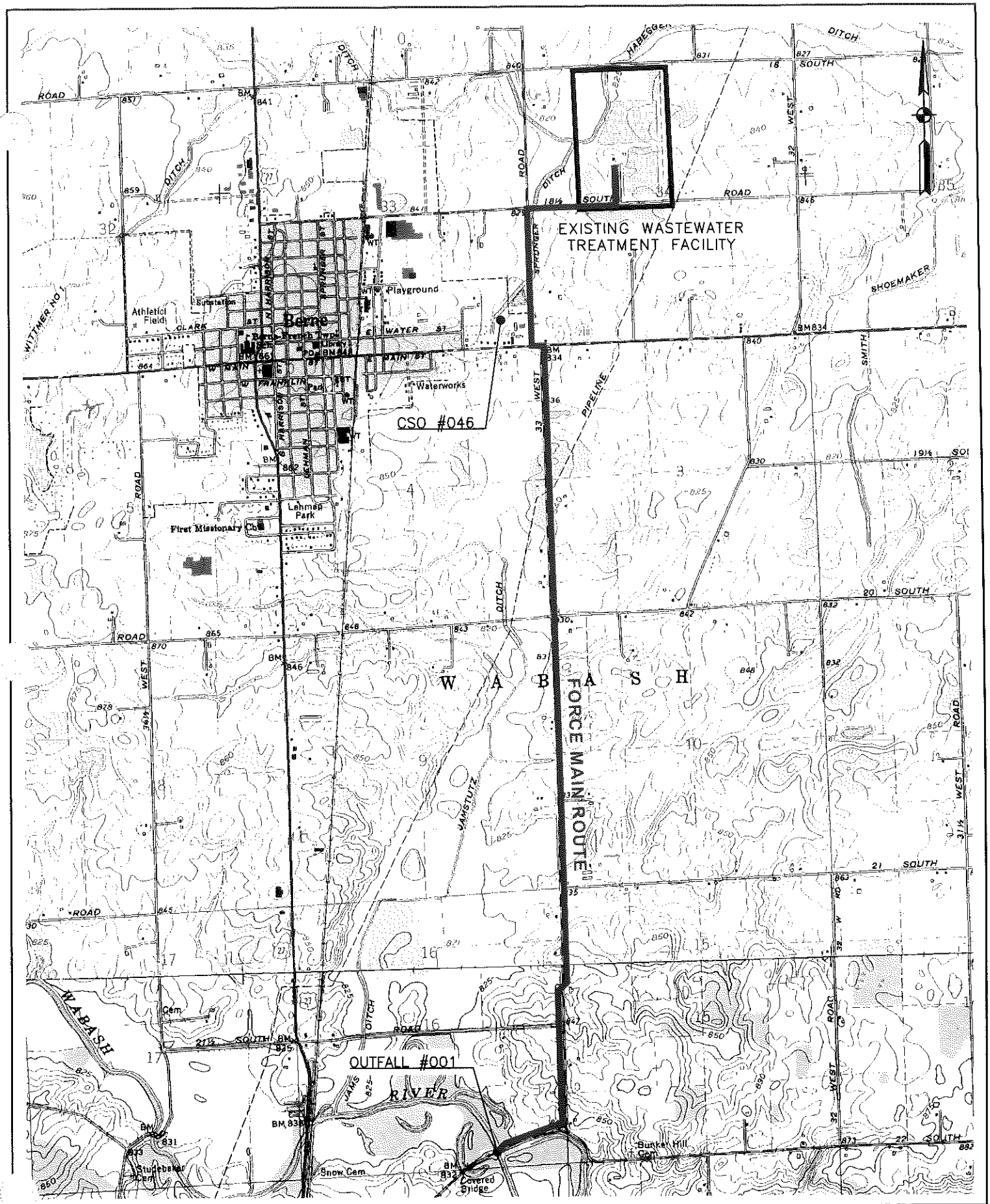
	Issuing Agency	For Agency Use	Type of Permit or License	ID Number	Date Filed YR/MO/DA	Date Issued YR/MO/DA	Date Denied YR/MO/DA	Expiration Date YR/MO/DA
112	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)
1.	IDEM		NPDES	IN0021369	12/05/31	12/08/01	N/A	17/07/31
2.								
3.								

13. Maps and Drawings
Attach all required maps and drawings to the back of this application. (See instructions)

14. Additional Information

114	Item Number	Information

Figure 1
Wastewater Treatment Plant - Topographical Map



SCALE: 1" = 2400'

2400' 0 2400'

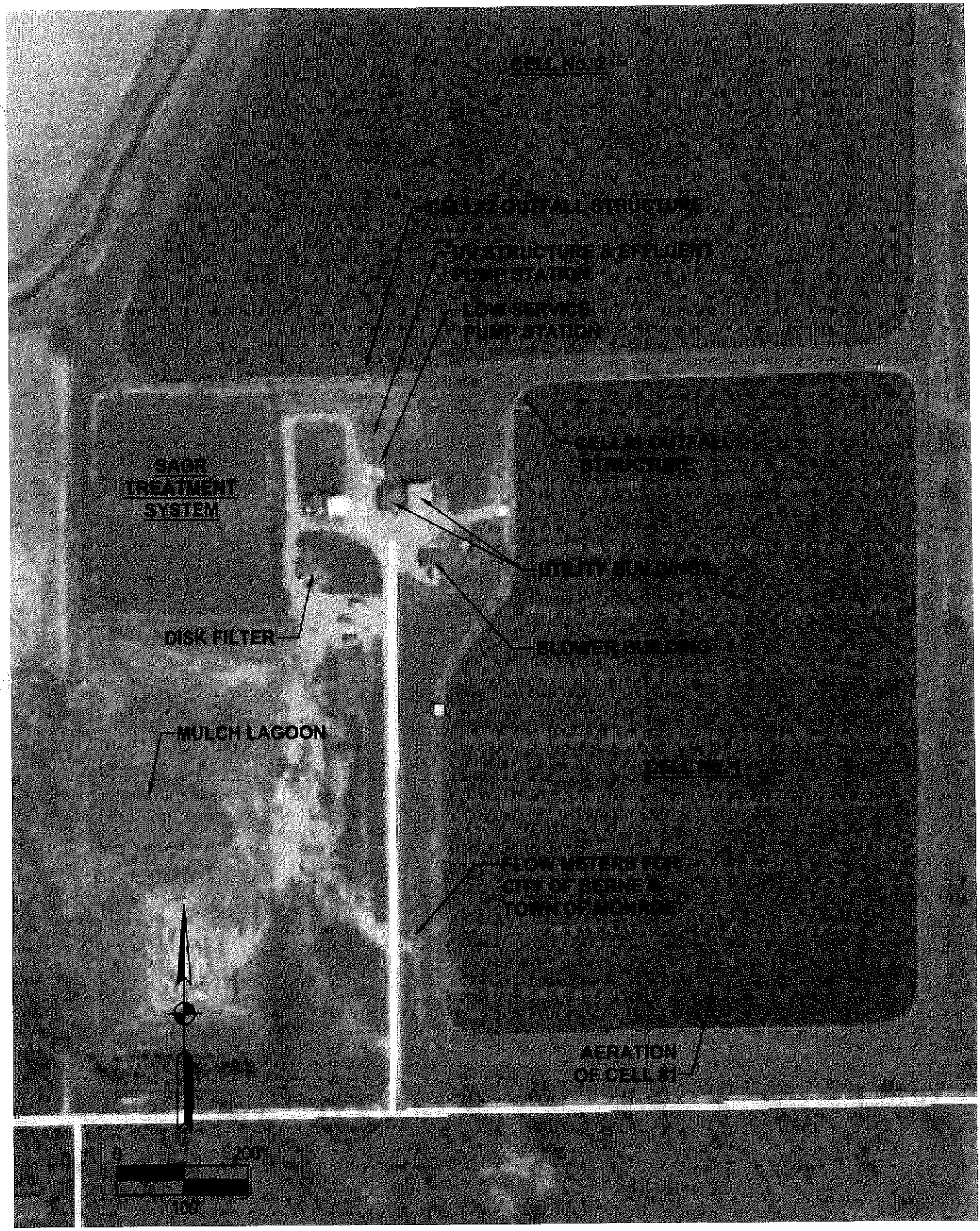
COMMONWEALTH ENGINEERS, INC.

CITY OF BERNE
ADAMS COUNTY, INDIANA

2016 NPDES PERMIT

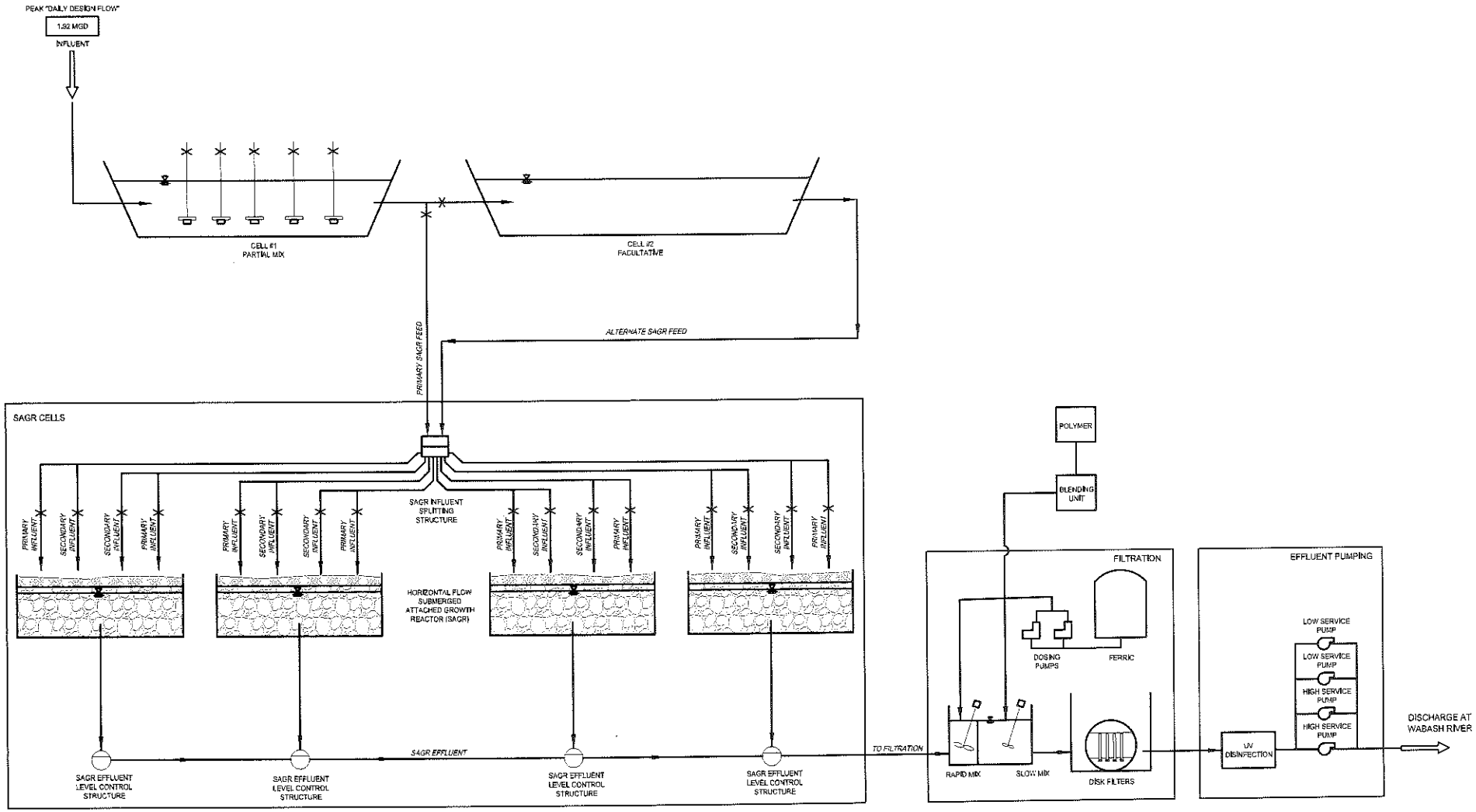
WASTEWATER TREATMENT FACILITY
TOPOGRAPHIC MAP – FIGURE 1

Figure 2
Wastewater Treatment Plant - Aerial Layout Map



COMMONWEALTH ENGINEERS, INC.	CITY OF BERNE ADAMS COUNTY, INDIANA
	2016 NPDES PERMIT
	WASTEWATER TREATMENT FACILITY AERIAL MAP - FIGURE 2

Figure 3
Wastewater Treatment Plant Process Flow Schematic



COMMONWEALTH ENGINEERS, INC.

CITY OF BERNE
ADAMS COUNTY, INDIANA

2016 NPDES PERMIT

WASTEWATER TREATMENT FACILITY
PROCESS FLOW SCHEMATIC - FIGURE 3

Section 4
EPA Standard Form A – Municipal, Basic Discharge Description

Form Approved OMB No.158-R0100

STANDARD FORM A - MUNICIPAL

SECTION II BASIC DISCHARGE DESCRIPTION

Complete this section for each present or proposed discharge indicated in Section I, Items 7 and 8, that is to surface waters. This includes discharges to other municipal sewerage systems in which the waste water does not go through a treatment works prior to being discharged to surface waters. Discharges to wells must be described where there are also discharges to surface waters from this facility. Separate descriptions of each discharge are required even if several discharges originate in the same facility. All values for an existing discharge should be representative of the twelve previous months of operation. If this is a proposed discharge, values should reflect best engineering estimates.

ADDITIONAL INSTRUCTIONS FOR SELECTED ITEMS APPEAR IN SEPARATE INSTRUCTION BOOKLET AS INDICATED. REFER TO BOOKLET BEFORE FILLING OUT THESE ITEMS.

1. Discharge Serial No. And Name
   a. Discharge Serial No. (See instructions) — 201a: 001
   b. Discharge Name Give name of discharge, if any (See instructions) — 201b: Berne Wastewater Treatment Plant Outfall
   c. Previous Discharge Serial No. If a previous NPDES permit Application was made for this discharge (item 4 Section I) provide previous discharge serial number — 201c: 001

2. Discharge Operating Dates
   a. Discharge to Begin Date If the discharge has never occurred but is planned for some future date, give the date the discharge will begin. — 202a: N/A (Year and Month)
   b. Discharge to End Date If the discharge is scheduled to be discontinued within the next 5 years, give the date (within best estimate) the discharge will end. Give reason for discontinuing this discharge in Item 17. — 202b: N/A (Year and Month)

3. Discharge Location
   Name the political boundaries within which the point of discharge is located

			Agency Use	
State	203a	Indiana	203d	
County	203b	Adams	203e	
City or Town (if applicable)	203c	Berne	203f	

4. Discharge Point Description (See instructions)
   Discharge is into (check one)

Stream (includes ditches, arroyos, and other watercourses)	204a	X	STR
Estuary			EST
Lake			LKE
Ocean			OCE
Well (injection)			WEL
Other			OTH
If "other" is checked, specify type	204b		

5. Discharge Point - Lat/Long
   State the precise location of the point of discharge to the nearest second. (See instructions)

Latitude	205a	40	DEG	36	MIN	54.6984	SEC
Longitude	205b	84	DEG	56	MIN	25.5984	SEC

DISCHARGE SERIAL NUMBER

001

6. Discharge Receiving Water Name
Name the waterway at the point of discharge. (See instructions)

206a: Wabash River

For Agency Use

Major	Minor	Sub

For Agency Use

303e

If the discharge is through an outfall that extends beyond the shoreline or is below the mean low water line, complete in Item 7.

206b

7. Offshore Discharge

a. Discharge distance from shore — 207a: N/A Feet

b. Discharge depth below water surface — 207b: N/A Feet

If discharge is from a bypass or an overflow point or is a seasonal discharge from a lagoon, holding pond, etc., complete Items 8, 9 or 10, as applicable, and continue with Item 11.

8. Bypass Discharge (see instructions)

a. Bypass Occurrence
Check when bypass occurs

		Yes	No
Wet weather	208a1	X*	
Dry weather	208a2		X

*Recent bypasses due to construction.

b. Bypass Frequency
Actual or approximate number of bypass incidents per year

Wet weather	208b1	N/A Times per year
Dry weather	208b2	N/A Times per year

c. Bypass Duration
Average bypass duration in hours

Wet weather	208c1	N/A Hours
Dry weather	208c2	N/A Hours

d. Bypass Volume
Average volume per bypass

Wet weather	208d1	N/A Thousand gallons per incident
Dry weather	208d2	N/A Thousand gallons per incident

e. Bypass Reasons
Give reasons why bypass occurs — 308e: N/A

Proceed to Item 11

9. Overflow Discharge (see instructions)

a. Overflow Occurrence
Check when overflow occurs

		Yes	No
Wet weather	209a1	N/A	
Dry weather	209a2	N/A	

b. Overflow Frequency
Actual or approximate number of bypass incidents per year

Wet weather	208b1	N/A Times per year
Dry weather	208b2	N/A Times per year

EPA Form 7550-22 (7-73)

Form Approved OMB No.158-R0100

DISCHARGE SERIAL NUMBER
001

c.	Overflow Duration Average duration in hours			
	Wet weather	209c1	N/A	Hours
	Dry weather	209c2	N/A	Hours
d.	Overflow Volume Average volume per overflow incident in thousand gallons			
	Wet weather	209d1	N/A	Thousand gallons per incident
	Dry weather	209d2	N/A	Thousand gallons per incident
	Proceed to Item 11			
10.	Seasonal/Periodic Discharges			
a.	Seasonal/periodic Discharge Frequency. If discharge is intermittent from a holding pond, lagoon, etc., give the actual or approximate number of times this discharge occurs per year.	210a	N/A	Times per year
b.	Seasonal/Periodic Discharge Volume. Give the average volume per discharge occurrence in thousand gallons.	210b	N/A	Thousand gallons per discharge occurrence
c.	Seasonal/Periodic Discharge Duration. Give the average duration of each discharge occurrence in days.	210c	N/A	Days
d.	Seasonal/Periodic Discharge Occurrence - Months. Check the months during the year when the discharge normally occurs.	210d	Jan, Feb, Mar, Apr, May, Jun, Jul, Aug, Sep, Oct, Nov, Dec	
11.	Discharge Treatment			
a.	Discharge Treatment Description Describe waste abatement practices used on this discharge with a brief narrative. (See instructions)	211a	The City of Berne operates a Class II wastewater treatment facility with an average design flow of 1.08 MGD and a peak design flow of 1.92 MGD. During summer months, wastewater is allowed to pass from a partial-mix lagoon, containing fine bubble diffusers for aeration, into four (4) Submerged Attached Growth Reactors (SAGR) and a disc filter unit. During winter months, a second lagoon is utilized for additional detention time. Flows greater than 1.92 MGD are stored within the existing lagoons until such time as influent flows subside and stored flows can be released to the remaining treatment processes. Phosphorus removal occurs via chemical injection prior to the disc filters. Ultraviolet light disinfection is provided in the effluent pump station and force main. Influent and effluent flow meters are also provided. The collection system is comprised of combined sanitary and storm sewers with one (1) Combined Sewer Overflow (CSO) (Outfall 046) location.		

DISCHARGE SERIAL NUMBER

001

b.	Discharge Treatment Codes Using the codes listed in Table I of the Instruction Booklet, describe the waste abatement processes applied to this discharge in the order in which they occur, if possible. Separate all codes with commas except where slashes are used to designate parallel operations.	211b	J (Flow Equalization), LA (Lagoon-Aeration Provided), LH (Lagoon-Holding or Detention), WNA (Biological Nitrification 1 Stage), WP (Phosphorus Removal), F (Filters), P (Disinfection)

If this discharge is from a municipal waste treatment plant (not an overflow or bypass) complete Items 12 and 13

12. Plant Design and Operation Manuals Check which of the following are currently available

a.	Engineering Design Report	212a	X
b.	Operation & Maintenance Manual	212b	X

13. Plant Design Data (see instructions)

a.	Plant Design Flow (mgd)	313a	1.08	mgd
b.	Plant Design BOD Removal (%)	213b	82.6/93.5	% ($CBOD_5$)
c.	Plant Design N Removal (%)	213c	93.5/52.4	% (Ammonia)
d.	Plant Design P Removal (%)	213d	78.3/78.9	%
e.	Plant Design SS Removal (%)	213e	81.4/83.9	% (Total Suspended Solids)
f.	Plant Began Operation (year)	213f	1971	year
g.	Plant Last Major Revision (year)	213g	2014	year

****2014 Design Summary-Construction Permit Removal/2015 Actual Percent Removal (August has been omitted due to construction)**

EPA Form 7550-22 (7-73)

Form Approved OMB No.156-R0100

DISCHARGE SERIAL NUMBER

001 (2015 MRO Data Set)

14. Description of Influent and Effluent (see instructions)

	Influent	Effluent					
Parameter and Code 214	Annual Average Value (1)	Annual Average Value (2)	Lowest Monthly Average Value (3)	Highest Monthly Average Value (4)	Frequency of Analysis (5)	Number of Analyses (6)	Sample Type (7)
Flow Million gallons per day 50050	0.91	0.63	0.4565	0.7853	Daily	365	24-Hr. Total
pH Units (reporting 2015 max/min values) 00400			6.7	8.9	5x/wk	260	grab
Temperature (winter) °F Dec. 1 - Apr. 30 74026	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Temperature (summer) °F May 1 - Nov 30 74027	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Fecal Streptococci Bacteria Number/100 ml 74054 (Provide if available)				N/A	N/A	N/A	N/A
Fecal Coliform Bacteria Number/100 ml [2] 74055 (E. coli.) (Provide if available)		38	8	97	3x/wk	93	grab
Total Coliform Bacteria Number/100 ml 74056 (Provide if available)				N/A	N/A	N/A	N/A
BOD 5-day mg/l [3] 00310	126	7.2	2.0	11.7	3x/wk	156	Grab
Chemical Oxygen Demand (COD) mg/l 00340 (Provide if available OR Total Organic Carbon (TOC) mg/l 00680 (Provide if available) (Either analysis is acceptable)	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Chlorine-Total Residual mg/l 50060	N/A	N/A	N/A	N/A	N/A	N/A	N/A

[1] Averages taken from 2015 MRO Data Set
[2] E. Coli in lieu of Fecal Coliform
[3] Testing done in CBOD5 units, not BOD5

EPA Form 7550-22 (7-73)

DISCHARGE SERIAL NUMBER

001 (2015 MRO Data Set)

14. Description of Influent and Effluent (see instructions) (Continued)

	Influent	Effluent					
Parameter and Code 214	Annual Average Value (1)	Annual Average Value (2)	Lowest Monthly Average Value (3)	Highest Monthly Average Value (4)	Frequency of Analysis (5)	Number of Analyses (6)	Sample Type (7)
Total Solids mg/l 50500	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total Dissolved Solids mg/l 70300	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total Suspended Solids mg/l 00530	113	16.6	8.3	29.9	3x/wk	156	Grab
Settleable Matter (Residue) ml/l 00545	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Ammonia (as N) mg/l 00610 (Provide if available)	18.2	6.52	0.032	17.22	3x/wk	260	Grab
Kjeldahl Nitrogen mg/l 00625 (Provide if available)	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Nitrite (as N) mg/l 00620 (Provide if available)	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Nitrite (as N) mg/l 00615 (Provide if available)	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Phosphorus Total (as P) mg/l 00665 (Provide if available	4.5	0.9	0.7	0.9	3x/wk	156	24hr Comp
Dissolved Oxygen (DO) mg/l 00300	N/A	N/A	N/A	N/A	N/A	N/A	N/A

EPA Form 7550-22 (7-73)

DISCHARGE SERIAL NUMBER

001

15 Additional Wastewater Characteristics

Check the box next to each parameter if it is present in the effluent. (See instructions)

Parameter (215)	Present	Parameter (215)	Present	Parameter (215)	Present
Bromide 71870		Cobalt 01037		Thallium 01059	
Chloride 00940		Chromium 01034		Titanium 01152	
Cyanide 00720		Copper 01042		Tin 01102	
Fluoride 00951		Iron 01045		Zinc 01092	
Sulfide 00745		Lead 01051		Algicides* 74051	
Aluminum 01105		Manganese 01055		Chlorinated organic compounds* 74052	
Antimony 01097		Mercury 71900		Oil and grease 00550	
Arsenic 01002		Molybdenum 01062		Pesticides* 74053	
Beryllium 01012		Nickel 01067		Phenols 32730	
Barium 01007		Selenium 01147		Surfactants 328260	
Boron 01022		Silver 01077		Radioactivity* 74050	
Cadmium 01027					

*Provide specific compound and/or element in Item 17, if known.

Pesticides (Insecticides, fungicides, and rodenticides) must be reported in terms of the acceptable common names specified in *Acceptable Common Names and Chemical Names for the Ingredient Statement on Pesticide Labels*, 2nd Edition, Environmental Protection Agency, Washington, DC 20250, June 1972, as required by Subsection 162.7(b) of the Regulations for the Enforcement of the Federal Insecticide, fungicide, and rodenticide Act.

DISCHARGE SERIAL NUMBER

001

16. Plant Controls

Check if the following plant controls are available for this discharge

316		
Alternate power source for major pumping facility including those for collection system lift stations	X	APS
Alarm for power or equipment failure	X	ALM

17. Additional Information

317	Item Number	Information

EPA Form 7550-22 (7-73)

U.S. GOVERNMENT PRINTING OFFICE: 1975-627-728/394 3-1

Form Approved OMB No.158-R0100

STANDARD FORM A - MUNICIPAL

SECTION II BASIC DISCHARGE DESCRIPTION

Complete this section for each present or proposed discharge indicated in Section I, Items 7 and 8, that is to surface waters. This includes discharges to other municipal sewerage systems in which the waste water does not go through a treatment works prior to being discharged to surface waters. Discharges to wells must be described where there are also discharges to surface waters from this facility. Separate descriptions of each discharge are required even if several discharges originate in the same facility. All values for an existing discharge should be representative of the twelve previous months of operation. If this is a proposed discharge, values should reflect best engineering estimates.

ADDITIONAL INSTRUCTIONS FOR SELECTED ITEMS APPEAR IN SEPARATE INSTRUCTION BOOKLET AS INDICATED. REFER TO BOOKLET BEFORE FILLING OUT THESE ITEMS.

1. Discharge Serial No. And Name
   - a. Discharge Serial No. (See instructions) — 201a: 046
   - b. Discharge Name Give name of discharge, if any (See instructions) — 201b: Combined Sewer Overflow Outfall (North of East Waters St.)
   - c. Previous Discharge Serial No. If a previous NPDES permit Application was made for this discharge (Item 4 Section I) provide previous discharge serial number — 201c: 046

2. Discharge Operating Dates
   - a. Discharge to Begin Date If the discharge has never occurred but is planned for some future date, give the date the discharge will begin. — 202a: N/A (Year and Month)
   - b. Discharge to End Date If the discharge is scheduled to be discontinued within the next 5 years, give the date (within best estimate) the discharge will end. Give reason for discontinuing this discharge in Item 17. — 202b: N/A (Year and Month)

3. Discharge Location
   Name the political boundaries within which the point of discharge is located

			Agency Use
State	203a: Indiana	203d	
County	203b: Adams	203e	
City or Town (if applicable)	203c: Berne	203f	

4. Discharge Point Description (See instructions)
   Discharge is into (check one)

Stream (includes ditches, arroyos, and other watercourses)	204a: X	STR
Estuary		EST
Lake		LKE
Ocean		OCE
Well (Injection)		WEL
Other		OTH
If "other" is checked, specify type	204b:	

5. Discharge Point - Lat/Long
   State the precise location of the point of discharge to the nearest second. (See instructions)

		DEG	MIN	SEC
Latitude	205a	40	39	35
Longitude	205b	84	56	20

EPA Form 7550-22 (7-73)

THIS SECTION CONTAINS 8 PAGES

DISCHARGE SERIAL NUMBER

046

6. Discharge Receiving Water Name
Name the waterway at the point of discharge. (See instructions) 206a: Sprunger Ditch

For Agency Use

Major	Minor	Sub

For Agency Use

303e

If the discharge is through an outfall that extends beyond the shoreline or is below the mean low water line, complete in Item 7. 206b

7. Offshore Discharge

a. Discharge distance from shore 207a: N/A Feet

b. Discharge depth below water surface 207b: N/A Feet

If discharge is from a bypass or an overflow point or is a seasonal discharge from a lagoon, holding pond, etc., complete Items 8, 9 or 10, as applicable, and continue with Item 11.

8. Bypass Discharge (see instructions)

a. Bypass Occurrence
Check when bypass occurs

Wet weather	208a1	N/A Yes	No
Dry weather	208a2	N/A Yes	No

b. Bypass Frequency
Actual or approximate number of bypass incidents per year

Wet weather	208b1	N/A	Times per year
Dry weather	208b2	N/A	Times per year

c. Bypass Duration
Average bypass duration in hours

Wet weather	208c1	N/A	Hours
Dry weather	208c2	N/A	Hours

d. Bypass Volume
Average volume per bypass

Wet weather	208d1	N/A	Thousand gallons per incident
Dry weather	208d2	N/A	Thousand gallons per incident

e. Bypass Reasons
Give reasons why bypass occurs 308e: N/A

Proceed to Item 11

9. Overflow Discharge (see instructions)

a. Overflow Occurrence
Check when overflow occurs

Wet weather	209a1	X Yes	No
Dry weather	209a2	Yes	X No

b. Overflow Frequency
Actual or approximate number of bypass incidents per year

Wet weather	208b1	-->	Times per year
Dry weather	208b2	N/A	Times per year

Year	Days of Overflow
2015	94
2014	72
2013	59
2012	60

EPA Form 7550-22 (7-73)

DISCHARGE SERIAL NUMBER
046

c. Overflow Duration
Average duration in hours

Wet weather	209c1	N/A	Hours
Dry weather	209c2	N/A	Hours

d. Overflow Volume
Average volume per overflow incident in thousand gallons

Wet weather	209d1		Thousand gallons per incident
Dry weather	209d2		Thousand gallons per incident

Proceed to Item 11

10. Seasonal/Periodic Discharges

a. Seasonal/periodic Discharge Frequency. If discharge is intermittent from a holding pond, lagoon, etc., give the actual or approximate number of times this discharge occurs per year.	210a	N/A	Times per year
b. Seasonal/Periodic Discharge Volume. Give the average volume per discharge occurrence in thousand gallons.	210b	N/A	Thousand gallons per discharge occurrence
c. Seasonal/Periodic Discharge Duration. Give the average duration of each discharge occurrence in days.	210c	N/A	Days

d. Seasonal/Periodic Discharge Occurrence - Months. Check the months during the year when the discharge normally occurs. (210d)

Jan	Feb	Mar
Apr	May	Jun
Jul	Aug	Sep
Oct	Nov	Dec

11. Discharge Treatment

a. Discharge Treatment Description
Describe waste abatement practices used on this discharge with a brief narrative. (See instructions) 211a

Section 5
EPA Standard Form A – Municipal, Scheduled Improvements and Schedule of Implementation

Form Approved OMB No. 158-R0100

STANDARD FORM A - MUNICIPAL

SECTION III SCHEDULED IMPROVEMENTS AND SCHEDULES OF IMPLEMENTATION

This Section requires information on any uncompleted implementation schedule which has been imposed for construction of waste treatment facilities. Requirement schedules may have been established by local, State, or Federal agencies or by court action. IF YOU ARE SUBJECT TO SEVERAL DIFFERENT IMPLEMENTATION SCHEDULES, EITHER BECAUSE OF DIFFERENT LEVELS OF AUTHORITY IMPOSING DIFFERENT SCHEDULES (ITEM 1b) AND/OR STAGED CONSTRUCTION OF SEPARATE OPERATIONAL UNITS (ITEM 1c), SUBMIT A SEPARATE SECTION III FOR EACH ONE.

1. Improvements Required ***No scheduled improvements are planned at this time.**

a. Discharge Serial Numbers Affected List the discharge serial numbers, assigned in Section II, that are covered by This implementation Schedule — 300

FOR AGENCY USE
Schedule No.

b. Authority Imposing Requirement Check the appropriate item indicating the authority for the Implementation schedule. If the identical implementation schedule has been ordered by more than one authority, check the appropriate items. (See Instructions) — 301a _____ _____ _____ _____ _____

Locally developed plan	301b	___ LOC
Areawide Plan		___ ARE
Basin Plan		___ BAS
State approved implementation schedule		___ SQS
Federal approved water quality standards implementation plan		___ WQS
Federal enforcement procedure or action		___ ENF
State court order		___ CRT
Federal court order		___ FED

c. Improvement Description Specify the 3 character code for the General Action Description in Table II that best describes the Improvements required by the implementation schedule. If more than one schedule applies to the facility because of a staged construction schedule, state the stage of construction being described here with the appropriate general action code. Submit a separate Section III for each stage of construction planned. Also, list all the 3-character (Specific Action) codes which describe in more detail pollution abatement practices that the implementation schedule requires.

3-character general action description	301c	_____
3-character specific action descriptions	301d	____/ ____/ ____/ ____/

2. Implementation Schedule and 3. Actual Completion Dates

Provide dates imposed by schedule and any actual dates of completion for implementation steps listed below. Indicate dates as accurately as possible. (See instructions)

Implementation Steps		2. Schedule (Yr/ Mo/ Day)	3. Actual Completion (Yr/ Mo/ Day)
a. Preliminary plan complete	302a	____/____/____	____/____/____
b. Final plan complete	302b	____/____/____	____/____/____
c. Financing complete and contract awarded	302c	____/____/____	____/____/____
d. Site acquired	302d	____/____/____	____/____/____
e. Begin construction	302e	____/____/____	____/____/____
f. End construction	302f	____/____/____	____/____/____
g. Begin discharge	302g	____/____/____	____/____/____
h. Operational level attained	302h	____/____/____	____/____/____

Section 6
EPA Standard Form A – Municipal, Industrial Waste Contribution to Municipal System

Form Approved OMB No.158-R0100

STANDARD FORM A - MUNICIPAL

SECTION IV. INDUSTRIAL WASTE CONTRIBUTION TO MUNICIPAL SYSTEM

Submit a description of each major industrial facility discharging to the municipal system, using a separate Section IV for each facility description. Indicate the 4 digit Standard Industrial Classification (SIC) Code for the industry, the major product or raw material, the flow (in thousand gallons per day), and the characteristics of the wastewater discharged from the industrial facility into the municipal system. Consult Table III for standard measures of products or raw materials. (See instructions)

1. Major Contributing Facility (See instructions)

Name	401a	Indiana Coatings, Inc.
Number & Street	401b	917 Liechty Road
City	401c	Berne
County	401d	Adams
State	401e	Indiana
Zip Code	401f	46711

2. Primary Standard Industrial Classification Code (See instructions) — 402: 3089

3. Principal Product or Raw Material (See instructions)

			Quanity		Units (see Table III)
Product	403a	molds/paints plastic/metal parts for auto industry	403c	403e	
Raw Material	403b	Plastic	403d	403f	

4. Flow — Indicate the volume of water discharged into the municipal system in thousand gallons per day and whether this discharge is intermittent or continuous

404a ---> _____ Thousand gallons per day

404b ___X___ Intermittent (Int) ___X___ Continuous (con)

Source	Flow (GPD)
Wastestream 1	1,300 (1)
Wastestream 2	14,000 (2)
Sanitary	1,350

5. Pretreatment Provided — Indicate if pretreatment is provided prior to entering the municipal system. — 405: ___X___ Yes ____ No

(1) Process Wastestream #1 is wastewater from the combined process overflow water (continuous) and stored process water (batch discharged) from the pre-wash system, Stage 2A system, Stage 2B system, and Stage 3 DI water. This wastestream is sent to the pretreatment system. This is a batch discharge of about 1 ,300 gallons, approximately 20 times per year.

6. Characteristics of Wastewater (See instructions)

	Parameter Name	Cd	Cr(T)	Cu	Pb	Ni	Ag	Zn
406a	Parameter Number	01027	01034	01042	01051	01067	01075	01092
406b	Value	0.11/0.07	2.77/1.71	3.38/2.07	0.69/0.43	3.98/2.38	0.43/0.24	2.61/1.48

(Daily Max/Month Avg in mg/l)

CN(T)	TTO
00720	-
1.20/0.65	2.13/NA

pH
00403
Daily Min: 6.0
Daily Max: 9.0

(2) Process Wastestream #2 is generated from the down drafting system in the painting operations. This wastestream is sent to the pretreatreatment system. This is a batch discharge of about 14,000 gallons, twice per year.

Section 7
Identification of Potentially Affected Persons

CITY OF BERNE WWTP NPDES PERMIT REAPPLICATION
SEPTEMBER 2016

Please provide on the following form the names of those persons affected by these statutes, and include mailing labels with your application. These mailing labels should have the names and addresses of the affected parties along with our mailing code (65-42PS) listed above each affected party listing.

Example: 65-42PS
John Doe
111 Circle Drive
City, State, Zip Code

I. Identification of Potentially Affected Persons

Please list here any and all persons whom you have reason to believe have a substantial or proprietary interest in this matter, or could otherwise be considered to be potentially affected under the law. Failure to notify any person who is later determined to be potentially affected could result in voiding our decision on procedural grounds. To ensure conformance with AOPA and to avoid reversal of a decision, please list all such parties. The letter attached to this form will further explain the requirements under the AOPA. Attach additional names and addresses on a separate sheet of paper, as needed. Please indicate below the type of action you are requesting.

Name:	Brent Lehman	Name:	Virginia Nussbaum
Street:	202 E 550 S	Street:	222 E 550 S
City/State/Zip:	Berne, IN 46711	City/State/Zip:	Berne, IN 46711
Name:	Adam Lehman	Name:	Dean Lehman
Street:	211 E 550 S	Street:	110 E 550 S
City/State/Zip:	Berne, IN 46711	City/State/Zip:	Berne, IN 46711
Name:	Troy Kirchhofer	Name:	Adams County Park and Recreation
Street:	158 E 550 S	Street:	313 W. Jefferson Street
City/State/Zip:	Berne, IN 46711	City/State/Zip:	Decatur, IN 46733
Name:		Name:	
Street:		Street:	
City/State/Zip:		City/State/Zip:	
Name:		Name:	
Street:		Street:	
City/State/Zip:		City/State/Zip:	
Name:		Name:	
Street:		Street:	
City/State/Zip:		City/State/Zip:	
Name:		Name:	
Street:		Street:	
City/State/Zip:		City/State/Zip:	

II. Please complete this form by signing the following statement.

I certify to the best of my knowledge I have listed all potentially affected parties, as defined by IC 4-21.5.
Signature: William McKean, Mayor Printed name: William McKean, Mayor Date: Sept 20, 2016
Facility Name: City of Berne Wastewater Treatment Plant
Facility Address: .343 East 550 South, Berne, Indiana 46711

III. Type of Action (check one)

☒ NPDES Permit-327 IAC 5
☐ Land Application Permit-327 IAC 6.1
☐ Confined Feeding Approval-IC 13-18-10
☐ Sewer Ban Waiver Request-327 IAC 4
☐ Operator Certification-327 IAC 5-22
☐ Pretreatment Permit -327 IAC 5
☐ Construction Permit-327 IAC 3

If Fee Is Required, Return To: (include NPDES permit No. on check)
INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
Cashiers Office – Mail Code 50-10C
100 North Senate Avenue
Indianapolis, IN 46204-2251

If No Fee Is Required, Return To:
INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
Office of Water Quality – Mail Code 65-42
Municipal Permit Section
100 North Senate Avenue
Indianapolis, Indiana 46204-2251

IDEM
OFFICE OF
WATER QUALITY
2016 SEP 23 A 8:24

William E. McKean, Mayor

Gwendolyn J. Mattax, Clerk-Treasurer

City of Berne

Founded 1887
168 West Franklin Street
Berne, Indiana 46711
(260) 589-8526 (260) 589-8181
Fax (260) 589-3983

City Council
Ronald N. Dull
Philip E. Provost
Greg A. Sprunger
Curtis L. Wurster
Mark D. Wyss

May 6, 2013

Mr. Dave Tennis
CSO Project Manager
Office of Water Quality
Permits Branch
Indiana Department of Environmental Management
100 North Senate Avenue
Mail Code 65-42 IGCN 1255
Indianapolis, IN 46204

RE City of Berne
PCMP for Internal CSO Outfall 003 & Related NPDES Modification Request
NPDES No. IN0021369

Dear Mr. Tennis

As related to you by our engineering consultant, Don Larson with Commonwealth Engineer's Inc., the City of Berne has completed their Post Construction Monitoring Program (PCMP) associated with outfall location Permitted as CSO No. 003. CSO Outfall 003 is internal. When active it flowed to previous CSO Outfall 006. As noted in the City's CSO LTCP Update dated May 31, 2012 (copy attached) sanitary sewage outfalls to this now storm water only sewer were diverted and internal Outfall 003 removed. Photographic evidence of this correction was provided at that time and is again attached for your records. Subsequent to this correction the City initiated a PCMP at external Outfall, previously identified as No. 006, utilizing optical brightener testing on collected discharges using UV light radiation.

PCMP MONITORING DATA FOR OUTFALL NO. 003

DATE	TIME	WATER FLUORESCE
8/07/12	9:00 am	No
8/12/12	10:30 am	No
8/28/12	1:00 pm	No
9/10/12	12:30 pm	No
9/28/12	10:00 am	No
10/08/12	10:30 am	No
10/19/12	8:30 am	No
11/13/12	9:00 am	No
12/10/12	10:00 am	No
12/12/12	2:00 pm	No
1/04//13	1:30 pm	No
2/27/13	2:00 pm	No
3/11/13	12:45 pm	No
4/09/13	8:30 am	No

WILLIAM P. MCKLAD, MAYOR

GWENDOLYN J. HATTER, CLERK-TREASURER

City of Berne

ESTABLISHED 1837
158 WEST FRANKLIN STREET
BERNE, INDIANA 46711
(260) 589-2526 (260) 589-0081
FAX (260) 589-8683

CITY COUNCIL
RONALD D. DUEI
PHILIP E. PROVOST
GREGG A. SPRUNGER
CURTIS L. WURSTER
MARK D. WYNN

May 31, 2012

Mr. Dave Tennis
CSO Project Manager
Office of Water Quality
Permits Branch
Indiana Department of Environmental Management
100 North Senate Avenue
Mail Code 65-42 IGCN 1255
Indianapolis, IN 46204

RE: City of Berne
Agreed Order Case No. 2004-14217-W
NPDES Permit No. IN0021369
CSO LTCP Update Milestone Status

Dear Mr. Tennis:

Per your request to Don Larson of Commonwealth Engineers Inc. the City of Berne would like to take this opportunity to update you on the status of the implementation of the Combined Sewer Overflow (CSO) Long Term Control Plan (LTCP) per Agreed Order Case No. 2004-14217-W for a subsequent update of IDEM's WAL Tasks Report. To assist in your review we have enclosed an updated and clarified schedule with no adjustment made to end dates.

- **Manhole Rehabilitation:** The City replaced and rehabbed several manholes and storm sewer inlets/catch basins as a part of the recently completed sewer separation and related storm sewer Utility Improvement projects. This work was initiated August 1, 2009 and completed March 30, 2012. Additional structures will be rehabilitated as found during routine collection maintenance.
- **Green Infrastructure Projects:** The Lehman and Lower Sprunger Ponds project incorporated the addition of vegetative slopes which in part replaced rock erosion control. These projected were completed August 2009. See attached photographs.
- **CSO Outfall 006:** CSO Outfall 006 was sealed and related dam wall removed on May 19, 2012 (see enclosed photographs). A PCMP on the resulting storm water only discharge has been initiated and will run till the end of the year. Utility staff will sample storm rate discharges and perform optical brightener testing using UV light radiation. A log of the results will be maintained at the WWTP with final results report to IDEM at the conclusion of the PCMP (December 31, 2012). Upon successful completion of the PCMP an NPDES Permit Modification to removes CSO Outfall 006 will be submitted to your Department.
- **New Ammonia - Nitrogen Effluent Limitation:** The City's Draft NPDES Permit was issued April 25, 2012. When finalized the City will be subject to a 3 year compliance schedule for the attainment of water quality based Ammonia Nitrogen limitations. The

City of Berne
CSO Long Term Control Plan (LTCP) Schedule
Revised November 2011

Project No.	Location	Type	Completed	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
1-D	Parkway & Hendricks	Storm	2005																					
1-E	Manhole Rehab	Sanitary																						
1-F	Hendricks St. Ext.	Sanitary	2006																					
2-A	Van Buren/Lynn Gove	Storm	2007																					
2-B	Franklin & Hendricks	Storm	2011																					
2-C	Sherwane Add.	Storm																						
2-D	Poplar Ave	Storm																						
2-E	Manholes	Sanitar																						
2-F	Lehman Park Conn																							
2-G	Van Buren & Lynn Grove	Sanitar																						
2-H	Buckeye & Columbia	Storm	2011																					
2-I	East Franklin	Sanitar																						
2-J	East Water	Storm																						
2-K	SR 218	Sanitar																						
2-L	West Water St	Sanitary																						
	Evaluation & Implementation of Cost Effective Green Sustainable Initiatives																							
2-N	WWTP																							
2-O	Lift Stations	Sanitary	2011-2012																					
2-P	Retention Pond Rehab	Storm	2009																					
2-Q																								
2-R	Downtown SR 218																							
	Lehman Pond	Storm	2008	(2)																				
Phase I	Post Construction Monitoring																							
Phase II	Post Construction Monitoring																							
Corrective Action Plan Projects (if necessary)																								

(1) Assumed NPDES permit modifications for [illegible]

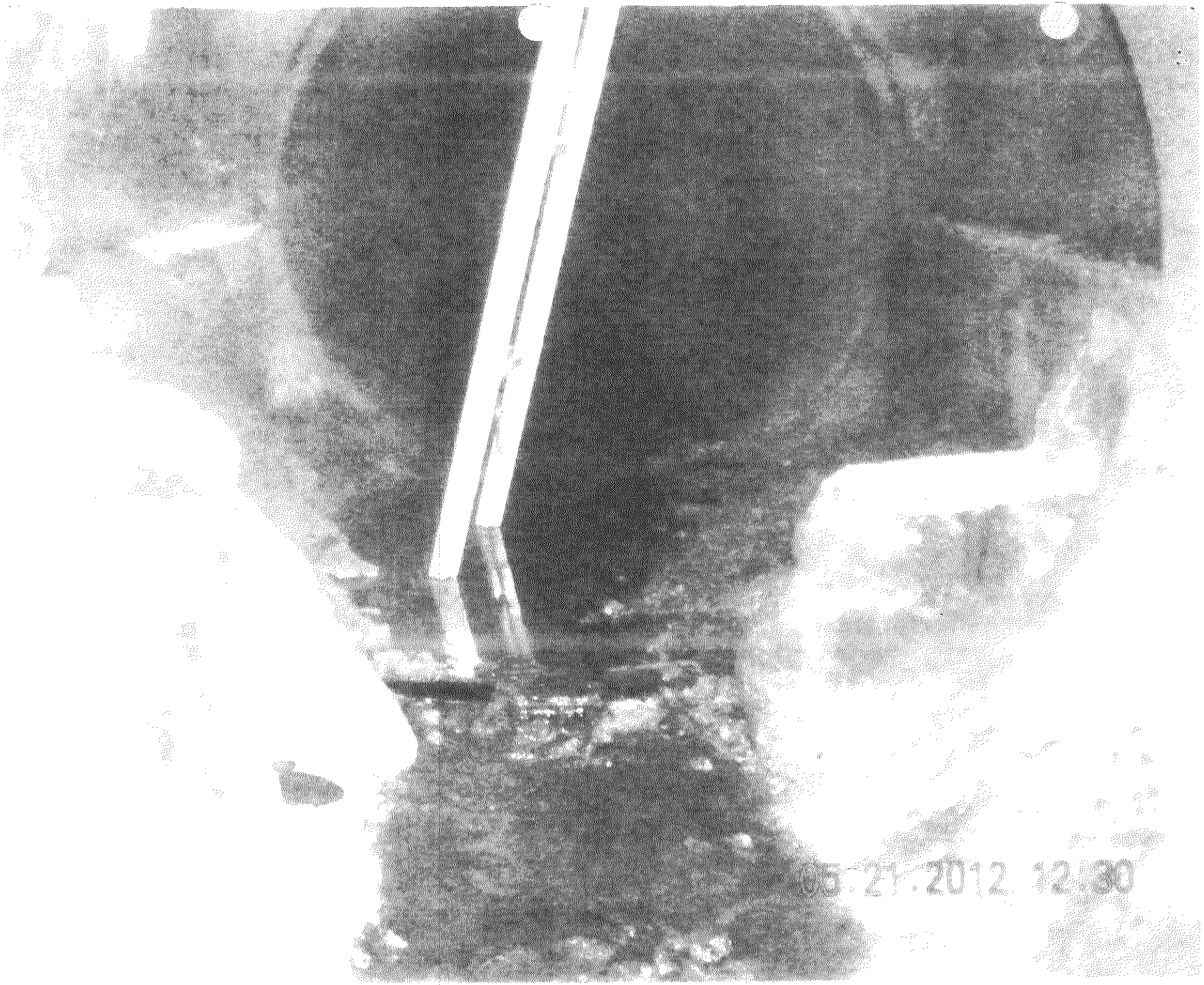
(2) Lehman Pond project incorporated vegetative slopes to increase evapotranspiration and ground water recharge [illegible]

(3) City purchased [illegible] and [illegible] collection system cleaning

(4) City replaced and rehabbed several manholes and storm sewer inlets/catch basins as a part of a 2011 [illegible] utility improvements project

COMMONWEALTH


03 21 2012 12:30


06.21.2012 12:30

COMMONWEALTH
ENGINEERS, INC
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April 30, 2013

HAND DELIVERED

Mr. Dave Tennis
CSO Project Manager
Office of Water Quality
Permits Branch
Indiana Department of Environmental Management
100 North Senate Avenue
Mail Code 65-42 IGCN 1255
Indianapolis, IN 46204

RE: City of Berne
PCMP for Outfall 006 & Related NPDES Modification Request
NPDES No. IN0021369

Dear Mr. Tennis:

On behalf of the City of Berne, and in follow-up to our meeting earlier this month, the City of Berne has complete their Post Construction Monitoring Program (PCMP) associated with outfall location Permitted as CSO No. 006. As noted in the City's CSO LTCP Update dated May 31 2012 (copy attached) sanitary sewage outfalls to this now storm water only outfall were diverted and internal outfall removed. Photographic evidence of this correction was provided at that time and is again attached for your records. Subsequent to this correction the City initiated a PCMP at Outfall No. 006 utilizing optical brightener testing on collected discharges using UV light radiation.

PCMP MONITORING DATA OUTFALL NO. 006

DATE	TIME	WATER FLUORESCE
8/07/12	9:00 am	No
8/12/12	10:30 am	No
8/28/12	1:00 pm	No
9/10/12	12:30 pm	No
9/28/12	10:00 am	No
10/08/12	10:30 am	No
10/19/12	8:30 am	No
11/13/12	9:00 am	No
12/10/12	10:00 am	No
12/12/12	2:00 pm	No
1/04//13	1:30 pm	No
2/27/13	2:00 pm	No
3/11/13	12:45 pm	No
4/09/13	8:30 am	No

7256 Company Drive
Indianapolis, IN 46237
Phone: (317) 888-1177
Toll Free: 1-800-289-1177
Fax: (317) 887-8641

www.commonwealth-engineers.com

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November 30, 2016

Mr. Jason House, Permit Manager
Municipal NPDES Section
Office of Water Quality
Indiana Department of Environmental Management
100 N. Senate Avenue, Mail Code 65-42
Indianapolis, IN 46204

RE: City of Berne
NPDES Permit No. IN0021369
Adams County
Revoke & Reissue
Public Notice No. 2016-10H-RD

Dear Mr. House:

On behalf of the City of Berne, Commonwealth Engineers, Inc. has reviewed Draft NPDES IN0021369. The following comments are offered for Indiana Department of Environmental Management (IDEM) Office of Water Quality (OWQ) consideration:

PART I.A.1. TABLE 2 (Page 3 of 48)

The Summer and Winter Dissolved Oxygen (DO) limitations were not included in the previous NPDES Permit that was effective on August 1, 2012 and expires on July 31, 2017. We understand that this requirement was disclosed as part of the Preliminary Effluent Limitation Letter dated February 20, 2014 and was also included as an element of design for the recently completed wastewater treatment plant (WWTP) improvements project. While we do not believe there will be an issue in meeting the proposed DO limitations, we must modify our sampling protocol by purchasing sampling equipment and we must have ample time to adapt to the use of the new sampling equipment. Given the expiration of the permit in July 2017, we request that the DO limitations be suspended until the renewed permit is effective in July 2017. This approach will allow the City of Berne to adequately prepare for monitoring and reporting of this new limitation.

PART I.A.1. TABLE 1 (Page 2 of 48)

The Sample Type for $CBOD_5$, TSS, Ammonia-nitrogen, and Phosphorus has been changed from Grab to 24-hour composite. While we understand that this change is a function of the new process that provides for continuous discharge, the City will need to significantly change sampling protocol to adapt to the 24-hour sampling regime. As the City does not currently own and operate an automatic sampler, it is likely that the alternative method as described in Part I.B.4.b.4 of taking a minimum of three (3) samples over equal time intervals. This method will require manpower that is not currently available to the Wastewater Department. Given the limited staff and intensive nature of the flow proportioned sample method, we would ask that the

7256 Company Drive
Indianapolis, IN 46237
(317) 888-1177
FAX: (317) 887-8641

24-hour composite requirement be suspended until the permit officially expires and is renewed on August 1, 2017

PART I.A.3. TABLE 3 (Page 4 of 48) & PART I.A.4. TABLE 4 (Page 5 of 48)

Mercury monitoring 6 X Annually has been added to the Draft NPDES Permit No. IN0021369. As mercury monitoring is not currently required, the City requests justification of the purpose and intent of mercury monitoring. Furthermore, the City requests that IDEM OWQ remove the mercury monitoring requirement from the Draft permit until the renewed permit is effective on August 1, 2017 due to that fact that this is a new parameter that will require sample collection training and will impact the Wastewater Department operating budget as it is a costly analysis. If the removal of mercury monitoring is not granted, the City requests that mercury monitoring be reduced to 2 X Annually.

We appreciate the Agency's consideration of the proposed comments and look forward to working with you through the renewal of NPDES Permit No. IN0023124. If you should have any questions or concerns, please contact me by phone at (317) 888-1177 or by e-mail at bdryer@contactcei.com.

Sincerely,

COMMONWEALTH ENGINEERS, INC.

Brady M. Dryer
Compliance Manager

Cc: The Honorable William McKean - City of Berne
Curt Dailey, Workforce Manager – City of Berne
Terry Kongar, Wastewater Superintendent – City of Berne

7256 Company Drive
Indianapolis, IN 46237
(317) 888-1177
FAX: (317) 887-8641

State Form 4336

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

INDIANAPOLIS

OFFICE MEMORANDUM

Date: February 14, 2014

To: Leigh Voss
Permits Branch

Thru: Jerry Dittmer, Chief
Municipal NPDES Permits Section
John Elliott, Reviewer
Permits Branch

From: Gurdeo Sondhe
Industrial NPDES Permits Section

Subject: WLA Analysis Report for the upgrade of Berne WWTP
Adams County, (IN0021369,WLA002021)

The staff has revised November 2013 WLA Report, and water-quality based effluent limitations (WQBELs) for parameters cBOD5, ammonia-N and DO were recalculated for a new design flow of 1.08 mgd instead of 0.683 mgd. An antidegradation analysis for ammonia-N was also conducted for the facility. This analysis is required to determine effluent limitations for ammonia-N that will not cause a significant lowering of water quality for antidegradation purposes. The City of Berne plans to upgrade existing controlled discharge waste stabilization lagoon facility to a continuous discharge biomechanical plant.

The receiving stream of the facility is the Wabash River, which has a Q7, 10 flow of 5.1 cfs. The Wabash River is covered under Rule 327 IAC 2-1, and designated for full-body contact recreation and shall be capable of supporting a well-balanced, warm water aquatic community. The proposed revised design flow used in the WLA analysis is 1.08 mgd.

The Wabash River (Assessment Unit INB0161_01) is not on the 2012 303(d) list. A TMDL for the Wabash River in 12 Digit HUC (051201010601) has been done and approved on September 22, 2006. The TMDL addressed impairments for ***E.coli,*** Nutrients and Impaired Biotic Communities.

The water quality-based effluent limits for Ammonia-N, CBOD5, and DO are included in Table 1. The effluent limits for ammonia-N are more stringent than the November 2013 WLA report. The proposed summer/winter mass loadings for ammonia-N in Table 1 will not result in an increase in the loading of ammonia-N above what is allowed under the current permit. Therefore, antidegradation is not applicable in accordance with IAC 327 IAC 2-1.3-1(b).

Based on present available information/data, the wasteload allocation analysis results are shown in the attached table. The documentation of the wasteload allocation analysis is included as an attachment. This WLA Report will replace November 2013 WLA Report.

GSS/gss
Attachments

TABLE 1
Water Quality-based Effluent Limitations
For BERNE WWTP in ADAMS County
Outfall 001 to Wabash River
Proposed Design Flow of 1.08 mgd.
(IN0021369, WLA002021)

Parameter	Quality or Concentration*				Quantity or Loading*				Monthly Sampling Frequency
	Monthly Average	Weekly Average	Daily Average	Units	Monthly Average	Weekly Average	Daily Average	Units	
cBOD5									
Summer	20			mg/l	180			lbs/day	
Winter	25			mg/l	225			lbs/day	
Dissolved Oxygen									
Summer			5.0	mg/l					
Winter			4.0	mg/l					
Total Ammonia (as N)									
Summer	1.5			mg/l	14			lbs/day	20
Winter	3.8			mg/l	34			lbs/day	20

* Based on an effluent flow of 1.08 mgd.

2/14/2014

Documentation of Wasteload Allocation Analysis
For Discharges in the Non-Great Lakes System

Analysis By: Gurdeo Sondhe
Date: February 14, 2014
Reviewed By: John Elliott
Permit Writer: Leigh Voss
WLA Number: WLA002021

Facility Information

- **Name:** Berne WWTP
- **NPDES Permit Number:** IN0021369
- **Permit Expiration Date:** July 31, 2017
- **County:** Adams
- **Purpose of Analysis:** WLA Analysis is for the upgrade of the facility.
- **Type of Treatment:** The Berne WWTP is Class II, 0.683 mgd, controlled discharge waste stabilization lagoon facility consisting of a 16.42 acre lagoon, a final 21.15 acre lagoon, two (2) clarifiers for phosphorus removal, ultraviolet light disinfection, and influent and effluent flow meters. The collection system is comprised of combined sanitary and storm sewers with one Combined Sewer Overflow (CSO) location. There are plans to replace the existing plant with a 1.08 mgd continuous discharge biomechanical wastewater treatment plant.
- **Outfall Number:** 001 Attachment 1
- **Average Design Flow for WLA Analysis:** 1.08 mgd

Current Effluent Limits: Effluent limitations for conventional parameters are based on the average design flow of 0.683 mgd.

Parameter	Summer		Winter		Frequency
	Monthly Ave (mg/l)	Weekly (mg/l)	Monthly Ave (mg/l)	Weekly (mg/l)	
Effluent/Stream Ratio	0.10 Daily maximum				Daily
cBOD5	25	40	25	40	3 X Weekly (G)
TSS	70	105	70	105	3 X Weekly (G)
Ammonia-N*	3.3	5.0	7.9	11.9	3 X Weekly (G)
Phosphorus	1 (mg/l) Monthly Average				3 X Weekly (G)
* These limits are subject to 3-year schedule of compliance from the permit effective date of August 1, 2012.					

Pollutants of Concern	
Parameters	**Reason for Inclusion on Pollutants of Concern List**
cBOD5	Requested by the permit writer/consultant
Ammonia-N	Requested by the permit writer/consultant
Dissolved Oxygen	Requested by the permit writer/consultant

Receiving Stream Information

- **Receiving Stream:** The Wabash River
- **Designated Stream Use:** The Wabash River is covered under Rule 327 IAC 2-1, and designated for full-body contact recreation and shall be capable of supporting a well-balanced, warm water aquatic community.
- **Public Water System Intakes Downstream:** None
- **12 Digit HUC:** (051201010601) [Wabash River]
- **Assessment Unit (2012):** INB0161_01
- **2012 303(d) List** The Wabash River (Assessment Unit INB0161_01) is not on the 2012 303(d) list.
- **TMDL Status:** A TMDL for the Wabash River in 12 Digit HUC (051201010601) has been done and approved on September 22, 2006 to address impairments for ***E.coli,*** Nutrients and Impaired Biotic Communities. The pollutants included in the TMDL are ***E coli,*** total phosphorus and nitrate.
- **Q7, 10 (Outfall):**

5.1 cfs (Receiving Stream : The Wabash River)
412 sq.miles (Drainage Area u/s of Outfall)

Continuous USGS Gaging Station 03322900 Wabash River (Q7,10 = 5.6 cfs, Q30,10 = 6.7 cfs, Q50 = 118 cfs, and Drainage Area = 453 sq.miles), downstream bridge on State Highway 218 north of Linn Grove in Adams County is used for Q7,10, Q30,10 and Q50 flows calculation for Wabash River downstream of outfall.

The information for the above gaging station for calculating Q7, 10, Q30, 10 and Q50 of the receiving stream was obtained from the book entitled Low-Flow Characteristics of Indiana Streams by Kathleen K. Fowler and John T. Wilson, published in 1996 by the USGS.

USGS StreamStats web site was used for determination of drainage area upstream of the outfall.

- **Q30,10 (0utfall):** 6.1 cfs
- **Q50 (0utfall):** 107 cfs
- **Nearby Dischargers:** The City of Geneva (IN0039357, average design flow of 0.3 mgd), an upstream facility, does not influence this WLA analysis.

Ammonia-N Analysis

Water quality data were obtained from nearby upstream fixed water quality monitoring station WB-467, Wabash River @ Stateline bridge, Jay County for the geometrical mean background ammonia-N concentrations. Downstream water quality data for pH were obtained from the station WB-449, Wabash River at Adams CR 300W, NE of Geneva in Adams County. The data sets were limited to the last five years of available data (January 2008 through 2012) in **Attachment 2.**

The 75th percentile downstream (summer/winter) pH values of 8.5/8.3 s.u. and typical Indiana summer/winter temperature values of 24/10°C were used in the determination of chronic ammonia-N criteria. Default (summer/winter) pH values of 7.8/7.8 s.u. were used in the determination of acute ammonia-N criteria. The summer/winter geometric mean background ammonia-N concentration values of 0.08/0.22 mg/l were used. The coefficient of variation used to calculate monthly average and daily maximum WQBELs was set equal to the default value of 0.6. The number of samples per month used to calculate monthly average WQBELs for ammonia-N was set equal to the value of 20 (Reference: Samples/Month are based on the ISBH Technical Release 71-3-R1 December 1971). The spreadsheet that was used to calculate the effluent limits is included in **Attachment 3.**

Dissolved Oxygen Analysis

The U.S. EPA Simplified steady-state mathematical water quality model was not used to simulate instream water quality for dissolved oxygen. Instead, effluent limitations for cBOD5 and DO given to other facilities with 3:1 dilution can be applied. A summary of the water quality-based effluent limitations that are protective of instream-dissolved oxygen are included in the table below.

Water Quality-based Effluent Limitations Protective of Instream Dissolved Oxygen at a Design Flow of 1.08 mgd (Table 1)		
Parameter	Summer (Monthly Average) (mg/l)	Winter (Monthly Average) (mg/l)
cBOD5	20	25
Ammonia-N	1.5	3.8
Dissolved Oxygen	5.0 mg/l Daily Average	4.0 mg/l

Antidegradation Analysis for Non-BCCs

The existing permit includes effluent limits for ammonia-N that are not yet effective due to a schedule of compliance that ends 3 years from the permit effective date of August 1, 2012. Therefore, the WQBELs for the upgrade to 1.08 mgd will be considered new limits for antidegradation purposes.

The proposed monthly average mass loading (Mp) for ammonia-N is included in **Attachment 3**. The existing monthly average mass loading (Me) was calculated using the summer/winter monthly average projected effluent quality determined in the March 27, 2012 (WLA 001885) WLA Report and the existing average design flow of 0.683 mgd.

Monthly Average Ammonia-N (Summer/Winter)	23/36 mg/l	Monthly Average PEQ values were taken from the March 27,2012 WLA Report, used as existing effluent quality for calculating mass loadings for antidegradation analysis.

Proposed Mass Loading (Mp)

Summer	**16**	lbs/day
Winter	**34**	lbs/day

Existing Mass Loading (Me)

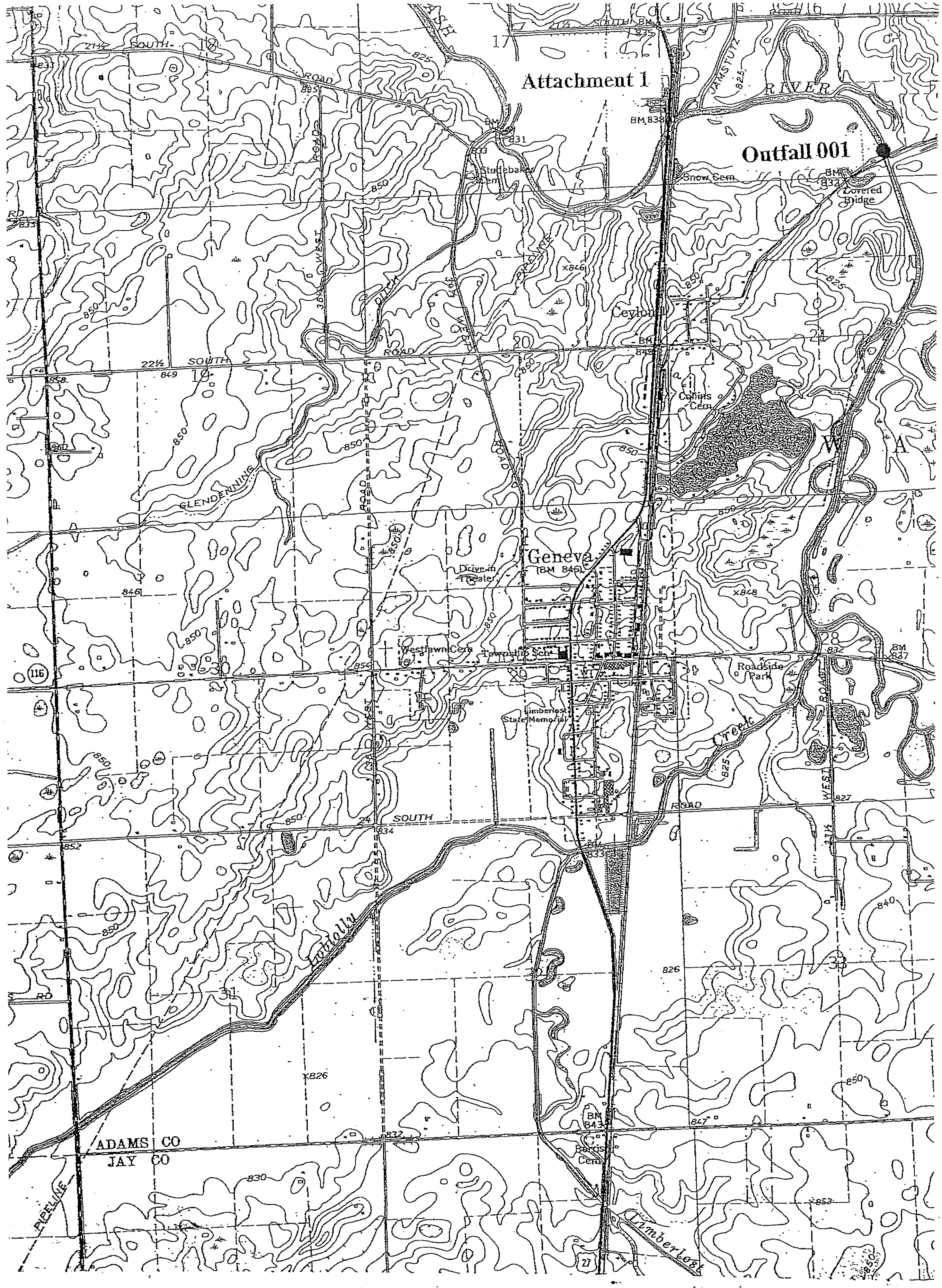
Summer	**131**	lbs/day
Winter	**205**	lbs/day

Proposed Increase in Mass **[Proposed (Mp)- Existing (Me)] Mass Loading**

Summer = -115 lbs/day

Winter = -171 lbs/day

The proposed (summer/winter) mass loadings` are less than existing mass loadings (March 27, 2012 WLA Report), therefore, proposed (summer/winter) ammonia-N effluent limitations will not result in an increase in the loading of ammonia-N. Therefore, antidegradation is not applicable in accordance with 327 IAC 2-1.3-1(b).



Attachment 1
Outfall 001
Covered Bridge
Snow Cem
Studebaker Cem
Ceylon
Collins Cem
Geneva
Drive-in Theater
Westlawn Cem
Township Sch
Roadside Park
Limberlost State Memorial
GLENDENNING
Loblolly
Limberlost
RIVER
ADAMS CO
JAY CO
PIPELINE

Upstream Station Selected : WUW040-0005, WB-467, Wabash River (05120101040010), Wabash River @ Stateline bridge, Jay County ATTACHMENT 2										Downstream Station Selected : WUW060-0007, WB-449, Wabash River (05120101060020), Wabash River at Adams CR 300W, NE of Geneva, Adams County				
Nitrogen, Ammonia (mg/L)			Year-Round	Summer	Winter	pH (Field) (SU)		Year-Round	Summer	Winter	pH (Field) (SU)		Year-Round	Summer	Winter
Sample Date	Lab Value					Sample Date					Sample Date				
1/30/2008	W		0.6		0.6	1/30/2008	W	8.54		8.54	1/30/2008	W	8.44		8.44
2/27/2008	W		0.7		0.7	2/27/2008	W	8.11		8.11	2/27/2008	W	8.03		8.03
3/27/2008	W		0.4		0.4	3/27/2008	W	8.22		8.22	3/26/2008	W	8.06		8.06
4/28/2008	W<	0.1	0.05		0.05	4/28/2008	W	8.79		8.79	4/28/2008	W	8.64		8.64
5/14/2008	S<	0.1	0.05	0.05		6/10/2008	S	7.4	7.4		5/14/2008	S	7.47	7.47	
6/10/2008	S		0.4	0.4		7/8/2008	S	9.1	9.1		6/9/2008	S	7.88	7.88	
7/8/2008	S<	0.1	0.05	0.05		8/27/2008	S	8.59	8.59		7/8/2008	S	8.9	8.9	
8/27/2008	S<	0.1	0.05	0.05		9/10/2008	S	8.05	8.05		8/27/2008	S	8.73	8.73	
9/10/2008	S<	0.1	0.05	0.05		10/7/2008	S	8.36	8.36		9/10/2008	S	7.84	7.84	
10/7/2008	S<	0.1	0.05	0.05		11/17/2008	S	8.69	8.69		10/7/2008	S	8.49	8.49	
11/17/2008	S		0.6	0.6		12/8/2008	W	9		9	11/17/2008	S	8.76	8.76	
12/8/2008	W		0.8		0.8	1/5/2009	W	8.06		8.06	1/5/2009	W	7.95		7.95
1/5/2009	W		0.3		0.3	3/2/2009	W	8.23		8.23	3/3/2009	W	8.03		8.03
3/2/2009	W		0.5		0.5	4/1/2009	W	8.58		8.58	4/1/2009	W	8.26		8.26
4/1/2009	W<	0.1	0.05		0.05	5/11/2009	S	8.93	8.93		5/11/2009	S	8.19	8.19	
5/11/2009	S<	0.1	0.05	0.05		6/9/2009	S	7.8	7.8		6/9/2009	S	8.51	8.51	
6/9/2009	S		0.4	0.4		7/6/2009	S	9.16	9.16		9/14/2009	S	8.61	8.61	
7/6/2009	S<	0.1	0.05	0.05		8/24/2009	S	7.85	7.85		7/6/2009	S	9.1	9.1	
8/24/2009	S		0.3	0.3		9/14/2009	S	7.2	7.2		8/24/2009	S	8.05	8.05	
9/14/2009	S		0.1	0.1		10/29/2009	S	7.98	7.98		10/29/2009	S	7.69	7.69	
10/29/2009	S<	0.1	0.05	0.05		11/13/2009	S	8.19	8.19		11/12/2009	S	8.07	8.07	
11/13/2009	S<	0.1	0.05	0.05		12/9/2009	W	8.4		8.4	12/9/2009	W	8.18		8.18
12/9/2009	W		0.1		0.1	3/1/2010	W	8.41		8.41	3/1/2010	W	8.05		8.05
3/1/2010	W		0.3		0.3	4/7/2010	W	8.28		8.28	4/7/2010	W	8.12		8.12
4/7/2010	W<	0.1	0.05		0.05	5/25/2010	S	8.15	8.15		5/25/2010	S	7.89	7.89	
5/25/2010	S		0.4	0.4		6/7/2010	S	7.58	7.58		6/7/2010	S	7.37	7.37	
6/7/2010	S		0.4	0.4		7/28/2010	S	8.09	8.09		7/28/2010	S	7.98	7.98	
7/28/2010	S<	0.1	0.05	0.05		8/30/2010	S	8.45	8.45		8/30/2010	S	8.17	8.17	
8/30/2010	S<	0.1	0.05	0.05		9/15/2010	S	8.36	8.36		9/15/2010	S	7.84	7.84	
9/15/2010	S<	0.1	0.05	0.05		10/5/2010	S	8.22	8.22		10/5/2010	S	8.12	8.12	
10/5/2010	S<	0.1	0.05	0.05		11/16/2010	S	8.34	8.34		11/16/2010	S	8.09	8.09	
11/16/2010	S<	0.1	0.05	0.05		3/15/2011	W	8.02		8.02	3/15/2011	W	7.74		7.74
3/15/2011	W		0.8		0.8	4/20/2011	W	7.97		7.97	4/20/2011	W	7.9		7.9
4/20/2011	W		0.2		0.2	5/18/2011	S	7.95	7.95		5/18/2011	S	7.77	7.77	
5/18/2011	S<	0.1	0.05	0.05		6/13/2011	S	8.09	8.09		6/13/2011	S	7.64	7.64	
6/13/2011	S<	0.1	0.05	0.05		7/25/2011	S	8.18	8.18		7/25/2011	S	8.6	8.6	
7/25/2011	S		0.3	0.3		8/22/2011	S	8.64	8.64		8/22/2011	S	8.14	8.14	
8/22/2011	S<	0.1	0.05	0.05		9/14/2011	S	8.47	8.47		9/14/2011	S	8.07	8.07	
9/14/2011	S<	0.1	0.05	0.05		10/20/2011	S	7.95	7.95		10/20/2011	S	8.04	8.04	

Upstream Station Selected : WUW040-0005, WB-467, Wabash River (05120101040010), Wabash River @ Stateline bridge, Jay County ATTACHMENT 2

Downstream Station Selected : WUW060-0007, WB-449, Wabash River (05120101060020), Wabash River at Adams CR 300W, NE of Geneva, Adams County

Nitrogen, Ammonia (mg/L)			Year-Round	Summer	Winter
Sample Date	Lab Value				
10/20/2011	S		0.4	0.4	
11/15/2011	S		0.1	0.1	
12/20/2011	W		0.3		0.3
1/5/2012	W		0.4		0.4
2/22/2012	W		0.2		0.2
3/8/2012	W		0.4		0.4
4/24/2012	W<	0.1	0.05		0.05
5/15/2012	S<	0.1	0.05	0.05	
6/19/2012	S<	0.1	0.05	0.05	
7/10/2012	S<	0.1	0.05	0.05	
8/14/2012	S<	0.1	0.05	0.05	
10/22/2012	S<	0.1	0.05	0.05	
11/7/2012	S<	0.1	0.05	0.05	
12/27/2012	W<	0.1	0.05		0.05

pH (Field) (SU)		Year-Round	Summer	Winter
Sample Date				
11/15/2011	S	7.85	7.85	
12/20/2011	W	8.86		8.86
1/5/2012	W	8.43		8.43
2/22/2012	W	8.29		8.29
3/8/2012	W	8.2		8.2
4/24/2012	W	8.44		8.44
5/15/2012	S	8.13	8.13	
6/19/2012	S	8.18	8.18	
7/10/2012	S	8.28	8.28	
8/14/2012	S	8.17	8.17	
10/22/2012	S	7.37	7.37	
11/7/2012	S	8.22	8.22	
12/27/2012	W	8.25		8.25

pH (Field) (SU)		Year-Round	Summer	Winter
Sample Date				
11/15/2011	S	7.8	7.8	
12/20/2011	W	8.54		8.54
1/5/2012	W	8.28		8.28
2/22/2012	W	8.22		8.22
3/8/2012	W	7.94		7.94
4/23/2012	W	8.9		8.9
5/14/2012	S	8.47	8.47	
6/19/2012	S	8.52	8.52	
7/10/2012	S	8.47	8.47	
8/14/2012	S	7.93	7.93	
10/22/2012	S	7.88	7.88	
11/7/2012	S	8.17	8.17	
12/27/2012	W	8.16		8.16

Nitrogen, Ammonia (mg/L)	Year-Round	Summer	Winter
Samples	53	34	19
Minimum	0.05	0.05	0.05
Average	0.20	0.14	0.33
Maximum	0.80	0.60	0.80
Percentile 50%			
Geometric MEAN	0.12	0.08	0.22

pH (Field) (SU)		Year-Round	Summer	Winter
Samples		52	33	19
Minimum		7.20	7.20	7.97
Average		8.25	8.18	8.37
Maximum		9.16	9.16	9.00
Percentile	50%	8.2	8.2	8.3
Percentile	75%	8.4	8.4	8.5

pH (Field) (SU)		Year-Round	Summer	Winter
Samples		52	34	18
Minimum		7.37	7.37	7.74
Average		8.17	8.15	8.19
Maximum		9.10	9.10	8.90
Percentile	50%	8.1	8.1	8.14
Percentile	75%	8.5	8.5	8.3

ATTACHMENT 3

General Information	
Facility Name:	BERNE WWTP
County:	ADAMS
NPDES Number:	IN0021369
WLA Number:	002021
WLA Report Date:	2/14/2014
Outfall:	001
Receiving Stream:	Wabash River

Ambient Downstream Water Quality Characteristics		
Acute Ammonia-N		
Summer pH (75th percentile)	=	7.8 s.u.
Winter pH (75th percentile)	=	7.8 s.u.
Chronic Ammonia-N		
Summer Temperature (75th percentile)	=	24 C
Summer pH (75th percentile)	=	8.5 s.u.
Winter Temperature (75th percentile)	=	10 C
Winter pH (75th percentile)	=	8.3 s.u.

Receiving Stream Questions (Yes or No)	
Acute Mixing Zone Allowed?	No
Public Water System (PWS) Intake Downstream?	No
Put-and-Take Trout Fishing?	No
Fish Early Life Stages Present?	Yes

Mixing Zone Dilution		
Dilution Factor (for acute mixing zone)	=	

		Dilution Fraction	Flow	Location
Chronic Aquatic Life (Except Ammonia)	=	50%	Q7,10	Outfall
Chronic Aquatic Life (Ammonia Only)	=	50%	Q30,10	Outfall
Human Noncancer Drinking Water	=	100%	Q7,10	PWS Intake
Human Noncancer Nondrinking Water	=	50%	Q7,10	Outfall
Human Cancer Drinking Water	=	100%	Q50	PWS Intake
Human Cancer Nondrinking Water	=	25%	Q50	Outfall
Public Water Supply	=	100%	Q7,10	PWS Intake

Effluent Flow	=	1.08 mgd
Receiving Stream Design Flows		
Q1,10 (Outfall)	=	cfs
Q7,10 (Outfall)	=	5.1 cfs
Q7,10 (Public Water System Intake)	=	cfs
Q30,10 (Outfall)	=	6.1 cfs
Q50 (Outfall)	=	cfs
Q50 (Public Water System Intake)	=	cfs

Source of Criteria [1]							Background (Outfall) (ug/l)	Background (Intake) (ug/l)	Remove Mixing Zone? (Yes or Blank)	Samples/ Month	CV	Facility Specific CV? (Yes or No)	CAS Number	Parameters[2]	Indiana Water Quality Criteria for the Non-Great Lakes System (ug/l)							Preliminary Effluent Limitations					
															A	B	C	D	E	F	G						
															Aquatic Life Criteria		Human Health Noncancer Criteria		Human Health Cancer Criteria		Add. PWS Criteria						
A	B	C	D	E	F	G									Acute (AAC)	Chronic (CAC)	Drinking (HNC-D)	Nondrinking (HNC-N)	Drinking (HCC-D)	Nondrinking (HCC-N)	(PWS)	Concentration (ug/l)[3] Average	Concentration (ug/l)[3] Maximum	Mass (lbs/day) Average	Mass (lbs/day) Maximum	Criteria Type [4]	Basis
													7664417	Total Ammonia (as N)[7]													
4	4						80			20	0.6	No		Summer	12138.81	591.09						1500	3700	14	33	Tier I	CAC
4	4						220			20	0.6	No		Winter	12138.81	1523.97						3800	9500	34	90	Tier I	CAC

[1] Source of Criteria
1) Indiana numeric water quality criterion in 327 IAC 2-1-6(a)(3), Table 6-1.
2) Acute (1-hour average) and chronic (30-day average) criteria for total ammonia nitrogen in "1999 Update of Ambient Water Quality Criteria for Ammonia," EPA-822-R-99-014, December 1999.
[2] The monthly average PEL was set equal to the most stringent WLA because the calculated monthly average PEL exceeded the most stringent WLA and a facility specific CV was not determined.

Last revised: October 15, 2009

COMMONWEALTH BIOMONITORING
8802 West Washington St.
Indianapolis, IN 46231
317-297-7713

WHOLE EFFLUENT TOXICITY TEST

BERNE WASTEWATER TREATMENT PLANT

IN0021369

Berne, Indiana

October 2016

Commonwealth Biomonitoring

GLP (Good Laboratory Practices)
COMPLIANCE STATEMENT

Project Name Berne Wastewater Treatment Plant

Project Date October 2016

This project has been conducted under GLP standards, as stated in 40 CFR Part 160, with the following exceptions:

Quality Assurance Officer
Date: 11/7/16

Greg R. Bright

Study Director
Date: 11/7/16

Other Participating Personnel:

Melody Myers-Kinzie, PhD
Anne E. Pratt

Copies of the raw data and final report are maintained in the archives of Commonwealth Biomonitoring, Inc. for five years from the date of completion.

SECTION 1
EXECUTIVE SUMMARY

The City of Berne commissioned a whole effluent toxicity (biomonitoring) test for the city's Wastewater Treatment Plant (WWTP). The purpose of the testing was to submit toxicity data as part of renewal of the city's NPDES permit.

The tests were conducted on composite samples collected October 24-28, 2016. *Ceriodaphnia dubia* and fathead minnows were used as test animals. A total of six toxicity endpoints were measured in the two tests:

Ceriodaphnia tests

48-hr LC50 = greater than 100% effluent (TU_a <1.0)
NOEL for survival = 100% effluent (TU_c = 1.0)
NOEL for reproduction = 100% effluent (TU_c = 1.0)

Fathead minnow tests

96-hr LC50 = greater than 100% effluent (TU_a <1.0)
NOEL for survival = 100% effluent (TU_c = 1.0)
NOEL for growth = 100% effluent (TU_c = 1.0)

No acute or chronic toxicity was observed to *Ceriodaphnia dubia* or fathead minnows during the October 2016 sampling period.

Section 2
Introductory Information

Table I
GENERAL

Permit number:

- IN0021369

Toxicity testing requirements of permit:

- Fathead minnow larval survival and growth test
- Ceriodaphnia survival and reproduction test

Plant location:

- Berne Wastewater Treatment Plant
  343 E 550 S
  Berne, Indiana 46711

Name of receiving water body:

- Wabash River

Name of laboratory conducting the tests:

- Commonwealth Biomonitoring
  8802 West Washington St.
  Indianapolis, Indiana 46231
  (317) 297-7713

Table II
PLANT OPERATIONS

Type of discharger

- Publicly-owned treatment works
- Effluent consists of treated sanitary and industrial wastewaters

Type of waste treatment

- Aerated lagoon, submerged attached growth reactors, secondary clarifiers, disc filters, P removal, and UV disinfection

Volume of wastewater flow during the sampling period

Design flow 1.08 mgd

- October 24,2016 -- mgd
- October 26,2016 -- mgd
- October 28,2016 -- mgd

Table III
SOURCE OF EFFLUENT AND DILUTION WATER

Effluent samples

Sampling point:

- Outfall 001

Collection dates and times:

- October 24,2016 : 12:00 p.m.
- October 26,2016 : 10:00 a.m.
- October 28,2016 : 8:00 a.m.

Sample collection method:

- 24-hr composite samples (sample 1 was a grab due to sampler failure)

Physical and chemical data:

- see Tables 9 and 15

Dilution water samples

Source:

- Moderately hard synthetic water

Collection date and time:

- not applicable

Pretreatment:

- none

Physical and chemical characteristics:

- see Tables 9 and 15

Section 3
Test Methods and Results

CERIODAPHNIA SURVIVAL AND REPRODUCTION TEST

Table IV
METHODOLOGY
Ceriodaphnia Survival and Reproduction Test

Toxicity test method used:

- Ceriodaphnia survival and reproduction test

Endpoints of test:

- survival and reproduction (LC50, NOEL and LOEL)

Reference method and deviations from method:

- EPA-821-R-02-013 (No deviations).

Date and time test started:

- October 25, 2016 : 10:30 a.m.

Date and time test terminated:

- November 1, 2016 : 1:00 p.m.

Type of test chambers:

- polystyrene, 30 ml.

Volume of solution used per chamber:

- 15 ml.

Number of organisms per chamber:

- one

Number of replicate chambers per treatment:

- ten

Test temperature (mean and range):

- 25 degrees C (no deviations)

Table V
ORGANISMS USED
Ceriodaphnia Survival and Reproduction Test

Scientific name:

- *Ceriodaphnia dubia*

Age:

- less than 24 hours

Life stage:

- neonates

Mean length and weight:

- not applicable

Source:

- laboratory culture in moderately hard reconstituted water

Diseases and treatment:

- not applicable

Table VI
RESULTS
Ceriodaphnia Survival and Reproduction Test

Raw data:

- see Table 8

LC_{50} or NOEL obtained:

- 48-hr LC_{50} = greater than 100% effluent
- NOEL for survival = 100% effluent
- NOEL for reproduction = 100% effluent
- Control survival was 90% after seven days. Control reproduction was greater than 15 per surviving female.

Methods used to calculate endpoints:

- Fisher's Exact Test for the survival endpoint.
  Dunnett's Test for the reproduction endpoint.
- No calculations necessary for the acute endpoint.

Table VII
Quality Assurance
Ceriodaphnia Survival and Reproduction Test

Reference toxicant used and source:

- Copper chloride, reagent grade, from Chem Service

Date and time of most recent test:

- October 26-November 2, 2016

Dilution water used in test:

- Moderately hard synthetic water (hardness 100 mg/l)

Results:

- 48-hr LC_{50} = 86 ug/L as Cu
- NOEL (reproduction) = 20 ug/L as Cu
- LOEL (reproduction) = 40 ug/L as Cu

Comparison to recommended range:

- Within the laboratory control range for both acute and chronic endpoints (see attachment).

Table VIII
TEST DATA
Ceriodaphnia Survival and Reproduction Test

Effluent Concentration	Day No.	Number of Young Produced Replicate A	B	C	D	E	F	G	H	I	J	Young Per Female	Total Live Breeders
	1	0	0	0	0	0	0	0	0	0	0		10
	2	0	0	0	0	0	0	0	0	0	0		10
	3	0	0	0	0	0	2	2	0	0	0		10
CONTROL	4	4	2	4	2	2	4	0	2	2	2	14.2	10
	5	0	2	0	5	0	5	4	0	2	4		10
	6	6	4	4	0	5	0	5	5	4	0		10
	7	6	4	5	4	9	6	6	6	13	-		9
	1	0	0	0	0	0	0	0	0	0	0		10
	2	0	0	0	0	0	0	0	0	0	0		10
	3	0	0	0	0	0	0	0	0	0	0		10
6.25%	4	4	2	3	2	3	3	2	2	2	3	15.6	10
	5	0	5	3	4	0	0	2	4	4	0		10
	6	7	0	0	6	6	4	5	6	6	8		10
	7	5	5	4	0	11	9	8	0	10	8		10
	1	0	0	0	0	0	0	0	0	0	0		10
	2	0	0	0	0	0	0	0	0	0	0		10
	3	0	0	2	0	0	0	0	0	0	0		10
12.5%	4	2	3	0	2	2	2	2	2	3	2	15.8	10
	5	0	3	7	0	6	3	2	2	4	6		10
	6	4	0	8	6	0	5	5	6	6	0		10
	7	7	10	0	0	11	0	8	8	9	10		10

Table VIII (cont.)

Effluent Concentration	Day No.	Number of Young Produced Replicate A	B	C	D	E	F	G	H	I	J	Young Per Female	Total Live Breeders
	1	0	0	0	0	0	0	0	0	0	0		10
	2	0	0	0	0	0	0	0	0	0	0		10
	3	0	0	2	0	0	0	0	0	0	0		10
25%	4	4	2	0	2	3	2	2	2	3	2	16.4	10
	5	0	0	6	4	6	4	2	3	2	2		10
	6	8	8	6	6	0	8	6	6	6	7		10
	7	9	11	0	0	9	9	0	0	10	2		10
	1	0	0	0	0	0	0	0	0	0	0		10
	2	0	0	0	0	0	0	0	0	0	0		10
	3	0	0	2	0	0	0	0	0	0	0		10
50%	4	2	0	0	2	2	2	2	2	3	4	18.5	10
	5	0	2	6	0	7	0	2	5-	4	4		9
	6	7	6	8	7	0	10	10	-	9	0		9
	7	7	4	8	7	12	11	7	-	12	9		9
	1	0	0	0	0	0	0	0	0	0	0		10
	2	0	0	0	0	0	0	0	0	0	0		10
	3	0	0	2	0	0	0	0	0	0	0		10
100%	4	4	0	0	2	2	2	3	2	3	2	15.5	10
	5	0	6	4	0	7	4	4	2	4	4		10
	6	6	0	9	8	0	8	0	6	0	6		10
	7	9	6	0	0	10	11	10	0	9	0		10

Table IX
WATER CHEMISTRY
Ceriodaphnia Survival and Reproduction Test

Effluent Concentration	D.O. Range mg/l	Temp. Range °C	pH Range S.U.	Alk. Range $CaCO_3$	Hardness Range $CaCO_3$	Cond. Range µS
CONTROL	8.3-8.8	25	7.6-8.2	50-60	90-100	460-470
6.25%	8.3-8.9	25	7.6-8.2			520-610
25%	8.0-8.8	25	7.6-8.2			800-930
100%	7.9-9.4	25	7.5-8.3	70-80	300-470	1830-1860

FATHEAD MINNOW LARVAL SURVIVAL AND GROWTH TEST

Table X
METHODOLOGY
Fathead Minnow Larval Survival and Growth Test

Toxicity test method used:

- 7-day fathead minnow larval survival and growth test

Endpoints of test:

- 96-hr LC50 and no observable effect level (NOEL) for survival and growth

Reference method and deviations from method:

- EPA-821-R-02-013 (no deviations)

Date and time test started:

- October 25, 2016 : 2:15 p.m.

Date and time test terminated:

- November 1, 2016 : 2:15 p.m.

Type of test chambers:

- polyethylene, 300 ml

Volume of solution used per chamber:

- 250 ml.

Number of organisms per chamber:

- ten

Number of replicate chambers per treatment:

- four

Test temperature (mean and range):

- 25 degrees C (no deviations)

Table XI
ORGANISMS USED
Fathead Minnow Larval Survival and Growth Test

Scientific name:

- *Pimephales promelas*

Age:

- less than 24 hours

Life stage:

- larvae

Mean length and weight:

- not applicable

Source:

- Commonwealth Biomonitoring laboratory

Diseases and treatment:

- none

Table XII
RESULTS
Fathead Minnow Larval Survival and Growth Test

Raw data:

- see Table 14

LC_{50} or NOEL obtained:

- 96-hr LC_{50} = greater than 100% effluent
- NOEL for survival = 100% effluent
  NOEL for growth = 100% effluent
- Control survival and growth fell within the acceptable ranges.

Methods used to calculate endpoints:

- Steel's Many-One Rank Test was required for the survival endpoint because the homogeneity of variance assumption could not be met. Dunnett's Test for the growth endpoint.
- No calculations necessary for the acute endpoint.

Table XIII
Quality Assurance
Fathead Minnow Larval Survival and Growth Test

Reference toxicant used and source:

- Copper chloride, reagent grade, from Chem Service

Date and time of most recent test:

- October 26-November 2, 2016

Dilution water used in test:

- moderately hard synthetic water (hardness 100)

Results:

- 96-hr LC50 = 115 ug/L as Cu
- NOEL (growth) = 25 ug/l as Cu
- LOEL (growth) = 50 ug/L as Cu

Comparison to recommended range:

- Within the laboratory control range for both acute and chronic tests (see attachment)

Table XIV
TEST DATA
Fathead Minnow Larval Survival and Growth Test

Effluent Concentration	% Survival in Each Replicate				Ave. Dry Wt. (ug) in Each Replicate			
	A	B	C	D	A	B	C	D
CONTROL	100	100	100	100	290	310	260	230
6.25%	100	100	100	100	290	340	280	290
12.5%	100	100	100	100	405	290	270	350
25%	90	100	100	100	310	280	320	320
50%	90	100	100	100	320	310	330	280
100%	100	100	100	100	340	300	280	320

Table XV
WATER CHEMISTRY
Fathead Minnow Larval Survival and Growth Test

Effluent Concentration	D.O. Range mg/l	Temp. Range °C	pH Range S.U.	Alk. Range $CaCO_3$	Hardness Range $CaCO_3$	Cond. Range µS
CONTROL	6.2-8.7	25	7.7-7.9	50-60	90-100	400-420
6.25%	6.2-8.7	25	7.6-7.9			490-580
25%	6.1-8.8	25	7.6-7.8			770-980
100%	6.2-9.4	25	7.4-7.7	70-80	300-470	1860-1940

REFERENCE TOXICANT DATA Test Organism - Ceriodaphnia dubia

Reference Toxicant - Copper sulfate/chloride Dilution Water - Moderately hard reconstituted water

DATE	LC50 48-hr ug/L	NOEL ug/l (repro.)	LOEL ug/l (repro.)
01/12	65	10	20
02/12	46	20	40
03/12	75	40	80
04/12	99	40	80
05/12	80	40	80
06/12	92	20	40
08/12	82	20	40
09/12	75	10	20
10/12	95	40	80
11/12	106	40	80
01/13	92	40	80
02/13	53	20	40
03/13	61	40	80
04/13	63	40	80
05/13	49	20	40
06/13	80	40	80
07/13	113	20	40
09/13	43	20	40
10/13	92	40	80
11/13	98	40	80
01/14	102	40	80
02/14	113	40	80
03/14	123	40	80
04/14	113	40	80
05/14	127	40	80
07/14	46	10	20
08/14	92	10	20
09/14	75	20	40
10/14	86	40	80
11/14	75	10	20
12/14	53	20	40
01/15	80	40	80
02/15	92	40	80
03/15	70	40	80
05/15	77	10	20
06/15	65	10	20
07/15	92	40	80
08/15	80	40	80
09/15	75	40	80
10/15	70	40	80
11/15	61	20	40
12/15	61	20	40
01/16	57	40	80
02/16	65	40	80
03/16	65	40	80
04/16	80	20	40
06/16	75	20	40
07/16	86	20	40
08/16	75	40	80
09/16	75	20	40
10/16 Latest	86	20	40
		Central Tendency	
Average	79	20	40
St. Dev.	20		
Upper Limit	119	40	80
Lower Limit	40	10	20

REFERENCE TOXICANT DATA Test Organism - Pimephales promelas

Reference Toxicant - Copper sulfate/chloride Dilution Water - Moderately hard reconstituted water

DATE	LC50 96 hr	NOEL growth	LOEL growth
	ug/l	ug/l	ug/l
01/12	55	25	50
02/12	82	25	50
03/12	63	25	50
04/12	152	50	100
05/12	132	50	100
06/12	180	25	50
08/12	131	50	100
09/12	94	25	50
10/12	110	25	50
11/12	191	100	200
12/12	112	25	50
01/13	119	25	50
03/13	92	50	100
04/13	101	25	50
05/13	113	25	50
06/13	117	25	50
07/13	72	25	50
09/13	49	25	50
10/13	190	50	100
11/13	75	50	100
01/14	60	25	50
02/14	81	50	100
03/14	136	50	100
04/14	102	25	50
05/14	55	25	50
07/14	109	50	100
08/14	157	25	50
09/14	105	25	50
10/14	60	25	50
11/14	37	25	50
12/14	110	50	100
01/15	131	25	50
02/15	70	25	50
03/15	180	50	100
05/15	120	25	50
06/15	111	50	100
07/15	170	100	200
08/15	123	25	50
09/15	151	50	100
10/15	144	25	50
11/15	168	25	50
12/15	165	25	50
01/16	144	25	50
02/16	102	25	50
03/16	107	25	50
04/16	165	25	50
06/16	119	25	50
07/16	141	50	100
08/16	96	25	50
09/16	128	25	50
10/16 Latest	115	25	50
		Central Tendency	
Average	116	50	100
St. Dev.	38		
Upper Limit	192	100	200
Lower Limit	39	25	50

Commonwealth Biomonitoring, Inc
8802 W. Washington Street
Indianapolis, IN 46231
317-297-7713

SAMPLE SUMMARY AND CHAIN OF CUSTODY

CLIENT NAME: Berne Wastewater Treatment Plant

PURPOSE OF SAMPLE: Toxicity tests

SAMPLE IDENTIFICATION NUMBERS: Berne – 1 Monday Oct. 2016

DESCRIPTION: Outfall 001, ~~24-hr composite~~ Grab

DATE SAMPLE COLLECTED: Start Date 10/24/16 Start Time 8:00 AM

End Date 10/24/16 End Time 12: PM

NAME OF PERSON COLLECTING SAMPLE: Terry Kongar

VOLUME OF SAMPLE: 8 liters

SAMPLE CONTAINER: HDPE

NUMBER OF CONTAINERS: Two

SAMPLE STORAGE: Refrigerated/iced

PRESERVATIVES: none

Relinquished by: [signature]

Date: 10/24/16 Time: 12:00 PM

Received by: [signature]

Date: 10/24/16 Time: 1200

Relinquished by: _____

Date: _____ Time: _____

Received by: _____

Date: _____ Time: _____

Sample Temperature When Received _____ C

COMMENTS:

Commonwealth Biomonitoring, Inc
8802 W. Washington Street
Indianapolis, IN 46231
317-297-7713

SAMPLE SUMMARY AND CHAIN OF CUSTODY

CLIENT NAME: Berne Wastewater Treatment Plant

PURPOSE OF SAMPLE: Toxicity tests

SAMPLE IDENTIFICATION NUMBERS: Berne – 2 Wednesday Oct. 2016

DESCRIPTION: Outfall 001, 24-hr composite

DATE SAMPLE COLLECTED: Start Date 10/25/16 Start Time 10:00 AM

End Date 10/26/16 End Time 10:00 AM

NAME OF PERSON COLLECTING SAMPLE: Terry and Brandon

VOLUME OF SAMPLE: 8 liters

SAMPLE CONTAINER: HDPE

NUMBER OF CONTAINERS: Two

SAMPLE STORAGE: (Refrigerated/iced)

PRESERVATIVES: none

Relinquished by: Brandon Allen

Date: 10/26/16 Time: 1345

Received by: John A. Bright

Date: 10/26/16 Time: 1345

Relinquished by: _____

Date: _____ Time: _____

Received by: _____

Date: _____ Time: _____

Sample Temperature When Received 3° C

COMMENTS:

Commonwealth Biomonitoring, Inc.
8802 West Washington Street
Indianapolis, IN 46231
317-297-7713

SAMPLE SUMMARY AND CHAIN OF CUSTODY

CLIENT NAME: **Berne Wastewater Treatment Plant**

PURPOSE OF SAMPLE: **Aquatic Toxicity Tests**

SAMPLE IDENTIFICATION NUMBERS **Berne-3; Friday; October 2016**

DESCRIPTION: **Outfall 001, 24-hour composite**

SAMPLE DATE (Start): 10/27/16 **TIME:** 8:00 AM

SAMPLE DATE (End): 10/28/16 **TIME:** 8:00 AM

NAME OF PERSON COLLECTING SAMPLE: Terry and Brandon

VOLUME: **8 Liters**

SAMPLE CONTAINER: **HDPE**

NUMBER OF CONTAINERS: **two**

SAMPLE STORAGE: **Refrigerated/iced**

PRESERVATIVES: **none**

Relinquished by: [signature]

Date: 10/28/16 **Time:** 1347

Received by: Julie A. Bright

Date: 10/28/16 **Time:** 1347

Relinquished by: _____

Date: _____ **Time:** _____

Received by: _____

Date: _____ **Time:** _____

SAMPLE TEMPERATURE AT TIME OF PICK-UP: 4° C

DATE SAMPLE DISPOSED: _____

COMMENTS:

Client: Berne WWTP

Project #

Analysts: AEP, MMK

Test Dates

Start Date: 10/25/16

Start Time: 1030

End Date: 11/1/16

End Time: 1300

Template # B

Comments:

0 = Number of Live Young
/ = Test Organism Dead
y = Male
M = Lost or Missing

Row 10							
Day	1	0	0	0	0	0	0
	2	0	0	0	0	0	0
	3	0	0	0	0	0	0
	4	3	2	2	2	4	2
	5	0	4	2	4	4	6
	6	8	0	7	6	0	0
	7	8	—	2	0	9	10

Row 9							
Day	1	0	0	0	0	0	0
	2	0	0	0	0	0	0
	3	0	0	0	0	0	0
	4	2	3	3	2	3	3
	5	2	2	4	4	4	4
	6	4	6	9	6	0	6
	7	13	10	12	10	9	9

Row 8							
Day	1	0	0	0	0	0	0
	2	0	0	0	0	0	0
	3	0	0	0	0	0	0
	4	2	2	2	2	2	2
	5	4	5/	2	0	2	3
	6	6	/	6	5	6	6
	7	0	/	8	6	0	0

Row 7							
Day	1	0	0	0	0	0	0
	2	0	0	0	0	0	0
	3	0	0	2	0	0	0
	4	2	2	0	2	2	3
	5	2	2	4	2	2	4
	6	5	5	5	10	6	0
	7	8	8	6	7	0	10

Row 6							
Day	1	0	0	0	0	0	0
	2	0	0	0	0	0	0
	3	0	0	0	0	0	2
	4	2	2	2	2	3	4
	5	0	4	4	3	0	5
	6	10	8	8	5	4	0
	7	11	9	11	0	8+1	6

Row 5							
Day	1	0	0	0	0	0	0
	2	0	0	0	0	0	0
	3	0	0	0	0	0	0
	4	2	2	2+1	3	2	2
	5	7	0	0	6	7	6
	6	0	5	6	0	0	0
	7	6 10	8 9	9+2	9	7+5	7+4

Row 4	Day						
	1	0	0	0	0	0	0
	2	0	0	0	0	0	0
	3	0	0	0	0	0	0
	4	2	2	2	2	2	2
	5	0	0	4	4	3+2	0
	6	6	8	6	6	0	7
	7	0	0	0	0	4	7

Row 3	Day						
	1	0	0	0	0	0	0
	2	0	0	0	0	0	0
	3	2	0	2	2	2	0
	4	0	3	0	0	0	4
	5	6	3	7	4	6	0
	6	8	0	8	9	6	4
	7	8	4	0	0	0	5

Row 2	Day						
	1	0	0	0	0	0	0
	2	0	0	0	0	0	0
	3	0	0	0	0	0	0
	4	2	3	0	2	2	0
	5	0	3	2	5	2	6
	6	8	0	6	0	4	0
	7	11	10	4	5	4	6

Row 1	Day						
	1	0	0	0	0	0	0
	2	0	0	0	0	0	0
	3	0	0	0	0	0	0
	4	4	4	4	4	2	2
	5	0	0	0	0	0	0
	6	6	7	8	6	4	7
	7	6	5	9	9	7	7

Discharger:	Berne WWTP	**Analyst:**	AEP, MMK
Location:	Berne, IN	**Test Start- Date/Time:**	10/25/16 / 1030
Date Sample Collected:	10/24-28, 2016	**Test Stop- Date/Time:**	11/1/16 / 1300

Conc.	Day	Replicate 1	2	3	4	5	6	7	8	9	10	No. of Young	No. of Adults	Young per Adult
Control	1	0	0	0	0	0	0	0	0	0	0	0	10	0.0
	2	0	0	0	0	0	0	0	0	0	0	0	10	0.0
	3	0	0	0	0	0	2	2	0	0	0	4	10	0.4
	4	4	2	4	2	2	4	0	2	2	2	24	10	2.4
	5	0	2	0	5	0	5	4	0	2	4	22	10	2.2
	6	6	4	4	0	5	0	5	5	4	0	33	10	3.3
	7	6	4	5	4	9	6	6	6	13	0 /	59	9	5.9
	Total	16	12	13	11	16	17	17	13	21	6	142	9	14.2

Conc.	Day	Replicate 1	2	3	4	5	6	7	8	9	10	No. of Young	No. of Adults	Young per Adult
6%	1	0	0	0	0	0	0	0	0	0	0	0	10	0.0
	2	0	0	0	0	0	0	0	0	0	0	0	10	0.0
	3	0	0	0	0	0	0	0	0	0	0	0	10	0.0
	4	4	2	3	2	3	3	2	2	2	3	26	10	2.6
	5	0	5	3	4	0	0	2	4	4	0	22	10	2.2
	6	7	0	0	6	6	4	5	6	6	8	48	10	4.8
	7	5	5	4	0	11	9	8	0	10	8	60	10	6.0
	Total	16	12	10	12	20	16	17	12	22	19	156	10	15.6

Conc.	Day	Replicate 1	2	3	4	5	6	7	8	9	10	No. of Young	No. of Adults	Young per Adult
12%	1	0	0	0	0	0	0	0	0	0	0	0	10	0.0
	2	0	0	0	0	0	0	0	0	0	0	0	10	0.0
	3	0	0	2	0	0	0	0	0	0	0	2	10	0.2
	4	2	3	0	2	2	2	2	2	3	2	20	10	2.0
	5	0	3	7	0	6	3	2	2	4	6	33	10	3.3
	6	4	0	8	6	0	5	5	6	6	0	40	10	4.0
	7	7	10	0	0	11	0	8	8	9	10	63	10	6.3
	Total	13	16	17	8	19	10	17	18	22	18	158	10	15.8

Conc.	Day	Replicate 1	2	3	4	5	6	7	8	9	10	No. of Young	No. of Adults	Young per Adult
25%	1	0	0	0	0	0	0	0	0	0	0	0	10	0.0
	2	0	0	0	0	0	0	0	0	0	0	0	10	0.0
	3	0	0	2	0	0	0	0	0	0	0	2	10	0.2
	4	4	2	0	2	3	2	2	2	3	2	22	10	2.2
	5	0	0	6	4	6	4	2	3	2	2	29	10	2.9
	6	8	8	6	6	0	8	6	6	6	7	61	10	6.1
	7	9	11	0	0	9	9	0	0	10	2	50	10	5.0
	Total	21	21	14	12	18	23	10	11	21	13	164	10	16.4

Conc.	Day	Replicate 1	2	3	4	5	6	7	8	9	10	No. of Young	No. of Adults	Young per Adult
50%	1	0	0	0	0	0	0	0	0	0	0	0	10	0.0
	2	0	0	0	0	0	0	0	0	0	0	0	10	0.0
	3	0	0	2	0	0	0	0	0	0	0	2	10	0.2
	4	2	0	0	2	2	2	2	2	3	4	19	10	1.9
	5	0	2	6	0	7	0	2	5 /	4	4	30	9	3.0
	6	7	6	8	7	0	10	10	0 /	9	0	57	9	5.7
	7	7	4	8	7	12	11	7	0 /	12	9	77	9	7.7
	Total	16	12	24	16	21	23	21	7	28	17	185	9	18.5

Conc.	Day	Replicate 1	2	3	4	5	6	7	8	9	10	No. of Young	No. of Adults	Young per Adult
100%	1	0	0	0	0	0	0	0	0	0	0	0	10	0.0
	2	0	0	0	0	0	0	0	0	0	0	0	10	0.0
	3	0	0	2	0	0	0	0	0	0	0	2	10	0.2
	4	4	0	0	2	2	2	3	2	3	2	20	10	2.0
	5	0	6	4	0	7	4	4	2	4	4	35	10	3.5
	6	6	0	9	8	0	8	0	6	0	6	43	10	4.3
	7	9	6	0	0	10	11	10	0	9	0	55	10	5.5
	Total	19	12	15	10	19	25	17	10	16	12	155	10	15.5

SUMMARY OF FISHERS EXACT TESTS

GROUP	IDENTIFICATION	NUMBER EXPOSED	NUMBER DEAD	SIG (P=.05)
	CONTROL	10	1	
1	6.25	10	0	
2	12.5	10	0	
3	25	10	0	
4	50	10	1	
5	100	10	0	

Berne - 10/16
File: ceriorepr Transform: NO TRANSFORMATION

SUMMARY STATISTICS ON TRANSFORMED DATA TABLE 1 of 2

GRP	IDENTIFICATION	N	MIN	MAX	MEAN
1	control	10	6.000	21.000	14.200
2	6.25%	10	10.000	22.000	15.600
3	12.5%	10	8.000	22.000	15.800
4	25%	10	10.000	23.000	16.400
5	50%	10	7.000	28.000	18.500
6	100%	10	10.000	25.000	15.500

Berne - 10/16
File: ceriorepr Transform: NO TRANSFORMATION

SUMMARY STATISTICS ON TRANSFORMED DATA TABLE 2 of 2

GRP	IDENTIFICATION	VARIANCE	SD	SEM
1	control	17.067	4.131	1.306
2	6.25%	16.044	4.006	1.267
3	12.5%	18.178	4.264	1.348
4	25%	24.044	4.904	1.551
5	50%	38.056	6.169	1.951
6	100%	22.500	4.743	1.500

Berne - 10/16
File: ceriorepr Transform: NO TRANSFORMATION

Chi-square test for normality: actual and expected frequencies

INTERVAL	<-1.5	-1.5 to <-0.5	-0.5 to 0.5	>0.5 to 1.5	>1.5
EXPECTED	4.020	14.520	22.920	14.520	4.020
OBSERVED	3	17	20	16	4

Calculated Chi-Square goodness of fit test statistic = 1.2053
Table Chi-Square value (alpha = 0.01) = 13.277

Data PASS normality test. Continue analysis.

Berne - 10/16
File: ceriorepr Transform: NO TRANSFORMATION

Bartletts test for homogeneity of variance

Calculated B statistic = 2.38
Table Chi-square value = 15.09 (alpha = 0.01)
Table Chi-square value = 11.07 (alpha = 0.05)

Average df used in calculation ==> df (avg n - 1) = 9.00
Used for Chi-square table value ==> df (#groups-1) = 5

Data PASS homogeneity test at 0.01 level. Continue analysis.

NOTE: If groups have unequal replicate sizes the average replicate size is used to calculate the B statistic (see above).

Berne - 10/16
File: ceriorepr Transform: NO TRANSFORMATION

ANOVA TABLE

SOURCE	DF	SS	MS	F
Between	5	101.000	20.200	0.892
Within (Error)	54	1223.000	22.648	
Total	59	1324.000		

Critical F value = 2.45 (0.05,5,40)
Since F < Critical F FAIL TO REJECT Ho:All groups equal

Berne - 10/16
File: ceriorepr Transform: NO TRANSFORMATION

DUNNETTS TEST - TABLE 1 OF 2 Ho:Control<Treatment

GROUP	IDENTIFICATION	TRANSFORMED MEAN	MEAN CALCULATED IN ORIGINAL UNITS	T STAT	SIG
1	control	14.200	14.200		
2	6.25%	15.600	15.600	-0.658	
3	12.5%	15.800	15.800	-0.752	
4	25%	16.400	16.400	-1.034	
5	50%	18.500	18.500	-2.020	
6	100%	15.500	15.500	-0.611	

Dunnett table value = 2.31 (1 Tailed Value, P=0.05, df=40,5)

Berne - 10/16
File: ceriorepr Transform: NO TRANSFORMATION

DUNNETTS TEST - TABLE 2 OF 2 Ho:Control<Treatment

GROUP	IDENTIFICATION	NUM OF REPS	Minimum Sig Diff (IN ORIG. UNITS)	% of CONTROL	DIFFERENCE FROM CONTROL
1	control	10			
2	6.25%	10	4.916	34.6	-1.400
3	12.5%	10	4.916	34.6	-1.600
4	25%	10	4.916	34.6	-2.200
5	50%	10	4.916	34.6	-4.300
6	100%	10	4.916	34.6	-1.300

Discharger: Berne WWTP
Location: Berne, IN

Test Dates: 10/25 - 11/1, 2016
Analyst: AEP, MMK

Conc: Control	Day 1	2	3	4	5	6	7	Remarks
Temp.	25	25	25	25	25	25	25	Temp. B
D.O. Initial	8.7	8.5	8.8	8.8	8.7	8.5	8.4	
Final	8.5	8.5	8.4	8.4	8.4	8.3	8.5	
pH Initial	7.8	7.7	7.7	7.6	7.8	7.7	7.8	
Final	7.9	8.0	7.8	8.0	8.1	8.1	8.2	
Alkalinity	60		50		50			
Hardness	90		90		100			
Conductivity	460		470		460			
Chlorine								

Conc: 6.25%	Day 1	2	3	4	5	6	7	Remarks
Temp.	25	25	25	25	25	25	25	
D.O. Initial	8.6	8.5	8.7	8.9	8.7	8.6	8.4	
Final	8.5	8.4	8.5	8.4	8.4	8.3	8.3	
pH Initial	7.8	7.7	7.7	7.6	7.8	7.7	7.8	
Final	7.9	8.0	7.9	8.1	8.1	8.1	8.2	
Alkalinity								
Hardness								
Conductivity	520		570		610			
Chlorine								

Conc: 12.5%	Day 1	2	3	4	5	6	7	Remarks
Temp.	25	25	25	25	25	25	25	
D.O. Initial	8.5	8.5	8.6	8.9	8.7	8.6	8.4	
Final	8.5	8.3	8.5	8.4	8.4	8.3	8.2	
pH Initial	7.7	7.7	7.7	7.6	7.7	7.7	7.8	
Final	7.9	8.1	8.0	8.1	8.1	8.1	8.2	
Alkalinity								
Hardness								
Conductivity	610		670		720			
Chlorine								

Discharger: Berne WWTP
Location: Berne, IN

Test Dates: 10/25 - 11/1, 2016
Analyst: AEP, MMK

Conc: 25%	Day 1	2	3	4	5	6	7	Remarks
Temp.	25	25	25	25	25	25	25	Temp. B
D.O. Initial	8.4	8.6	8.5	8.8	8.8	8.7	8.4	
Final	8.4	8.3	8.5	8.3	8.4	8.2	8.0	
pH Initial	7.7	7.7	7.6	7.6	7.7	7.6	7.7	
Final	7.9	8.1	8.0	8.1	8.1	8.1	8.2	
Alkalinity								
Hardness								
Conductivity	800		820		930			
Chlorine								

Conc: 50%	Day 1	2	3	4	5	6	7	Remarks
Temp.	25	25	25	25	25	25	25	
D.O. Initial	8.3	8.8	8.5	8.7	9.0	8.9	8.4	
Final	8.4	8.2	8.6	8.3	8.4	8.2	8.0	
pH Initial	7.6	7.7	7.6	7.6	7.6	7.6	7.7	
Final	8.0	8.1	8.0	8.2	8.2	8.2	8.1	
Alkalinity								
Hardness								
Conductivity	1190		1160		1250			
Chlorine								

Conc: 100%	Day 1	2	3	4	5	6	7	Remarks
Temp.	25	25	25	25	25	25	25	
D.O. Initial	8.5	8.9	8.5	8.9	9.2	9.4	8.5	
Final	8.3	8.1	8.6	8.3	8.4	8.1	7.9	
pH Initial	7.6	7.7	7.5	7.5	7.5	7.5	7.6	
Final	8.0	8.2	8.1	8.2	8.3	8.2	8.1	
Alkalinity	80		70		70			
Hardness	300		360		470			
Conductivity	1860		1830		1850			
Chlorine	0		0		0			
Ammonia	0.5		0		0			

Discharger: Berne WWTP
Location: Berne, IN

Dates: 10/25 - 11/1, 2016
Analyst: AEP, MMK

Conc:	Rep. No.	No. Surviving Organisms Day 1	2	3	4	5	6	7	Remarks
Control:	A	10	10	10	10	10	10	10	
	B	10	10	10	10	10	10	10	
	C	10	10	10	10	10	10	10	
	D	10	10	10	10	10	10	10	
Conc: 6.25%	A	10	10	10	10	10	10	10	
	B	10	10	10	10	10	10	10	
	C	10	10	10	10	10	10	10	
	D	10	10	10	10	10	10	10	
Conc: 12.5%	A	10	10	10	10	10	10	10	
	B	10	10	10	10	10	10	10	
	C	10	10	10	10	10	10	10	
	D	10	10	10	10	10	10	10	
Conc: 25%	A	10	10	10	10	9	9	9	
	B	10	10	10	10	10	10	10	
	C	10	10	10	10	10	10	10	
	D	10	10	10	10	10	10	10	
Conc: 50%	A	10	10	10	10	9	9	9	
	B	10	10	10	10	10	10	10	
	C	10	10	10	10	10	10	10	
	D	10	10	10	10	10	10	10	
Conc: 100%	A	10	10	10	10	10	10	10	
	B	10	10	10	10	10	10	10	
	C	10	10	10	10	10	10	10	
	D	10	10	10	10	10	10	10	
Conc:									
Conc:									

Comments: Start time: 1415
Fish from lab cultures.

Berne - 10/16
File: fhmsurv Transform: ARC SINE(SQUARE ROOT(Y))

Shapiro Wilks test for normality

D = 0.040

W = 0.614

Critical W (P = 0.05) (n = 24) = 0.916
Critical W (P = 0.01) (n = 24) = 0.884

Data FAIL normality test. Try another transformation.

Warning - The two homogeneity tests are sensitive to non-normal data and should not be performed.

Berne - 10/16
File: fhmsurv Transform: ARC SINE(SQUARE ROOT(Y))

Hartley test for homogeneity of variance
Bartletts test for homogeneity of variance

These two tests can not be performed because at least one group has zero variance.

Data FAIL to meet homogeneity of variance assumption.
Additional transformations are useless.

Berne - 10/16
File: fhmsurv Transform: ARC SINE(SQUARE ROOT(Y))

STEELS MANY-ONE RANK TEST - Ho:Control<Treatment

GROUP	IDENTIFICATION	TRANSFORMED MEAN	RANK SUM	CRIT. VALUE	df	SIG
1	control	1.412				
2	6.25%	1.412	18.00	10.00	4.00	
3	12.5%	1.412	18.00	10.00	4.00	
4	25%	1.371	16.00	10.00	4.00	
5	50%	1.371	16.00	10.00	4.00	
6	100%	1.412	18.00	10.00	4.00	

Critical values use k = 5, are 1 tailed, and alpha = 0.05

Discharge: Berne WWTP
Location: Berne IN
Analyst: MMK AEP MMB

Test Date(s) : Oct. 25-Nov. 1, 2016
Weighing Date 11/3/16

Drying Temp (°C 100
Drying Time (h): 6

Conc :	Rep. No.	A Wgt. of boat (g)	B Dry wgt: foil and larvae (g)	B-A Total dry wgt of larvae (mg)	C No. of larvae	(B-A)/C Mean dry wgt of larvae (g)	Remarks
Control	A	1.28260	1.28550	2.90	10	0.290	
	B	1.27130	1.27440	3.10	10	0.310	
	C	1.27120	1.27380	2.60	10	0.260	
	D	1.26990	1.27220	2.30	10	0.230	
Conc : 6.25%	A	1.27170	1.27460	2.90	10	0.290	
	B	1.27520	1.27860	3.40	10	0.340	
	C	1.27750	1.28030	2.80	10	0.280	
	D	1.27630	1.27920	2.90	10	0.290	
Conc : 12.5%	A	1.27960	1.28365	4.05	10	0.405	
	B	1.28170	1.28460	2.90	10	0.290	
	C	1.27550	1.27820	2.70	10	0.270	
	D	1.27740	1.28090	3.50	10	0.350	
Conc : 25%	A	1.27170	1.27480	3.10	9	0.310	
	B	1.28360	1.28640	2.80	10	0.280	
	C	1.27580	1.27900	3.20	10	0.320	
	D	1.27190	1.27510	3.20	10	0.320	
Conc : 50%	A	1.27400	1.27720	3.20	9	0.320	
	B	1.27490	1.27800	3.10	10	0.310	
	C	1.27140	1.27470	3.30	10	0.330	
	D	1.27200	1.27480	2.80	10	0.280	
Conc : 100%	A	1.27320	1.27660	3.40	10	0.340	
	B	1.27640	1.27940	3.00	10	0.300	
	C	1.27660	1.27940	2.80	10	0.280	
	D	1.28080	1.28400	3.20	10	0.320	

Berne - 10/16
File: fhmgrow Transform: NO TRANSFORMATION

SUMMARY STATISTICS ON TRANSFORMED DATA TABLE 1 of 2

GRP	IDENTIFICATION	N	MIN	MAX	MEAN
1	Control	4	0.230	0.310	0.273
2	6.25%	4	0.280	0.340	0.300
3	12.5%	4	0.270	0.405	0.329
4	25%	4	0.280	0.320	0.308
5	50%	4	0.280	0.330	0.310
6	100%	4	0.280	0.340	0.310

Berne - 10/16
File: fhmgrow Transform: NO TRANSFORMATION

SUMMARY STATISTICS ON TRANSFORMED DATA TABLE 2 of 2

GRP	IDENTIFICATION	VARIANCE	SD	SEM
1	Control	0.001	0.035	0.017
2	6.25%	0.001	0.027	0.014
3	12.5%	0.004	0.061	0.031
4	25%	0.000	0.019	0.009
5	50%	0.000	0.022	0.011
6	100%	0.001	0.026	0.013

Berne - 10/16
File: fhmgrow Transform: NO TRANSFORMATION

Shapiro Wilks test for normality

D = 0.022

W = 0.983

Critical W (P = 0.05) (n = 24) = 0.916
Critical W (P = 0.01) (n = 24) = 0.884

Data PASS normality test at P=0.01 level. Continue analysis.

Berne - 10/16
File: fhmgrow Transform: NO TRANSFORMATION

Bartletts test for homogeneity of variance

Calculated B statistic = 5.49
Table Chi-square value = 15.09 (alpha = 0.01)
Table Chi-square value = 11.07 (alpha = 0.05)

Average df used in calculation ==> df (avg n - 1) = 3.00
Used for Chi-square table value ==> df (#groups-1) = 5

Data PASS homogeneity test at 0.01 level. Continue analysis.

NOTE: If groups have unequal replicate sizes the average replicate size is used to calculate the B statistic (see above).

Berne - 10/16
File: fhmgrow Transform: NO TRANSFORMATION

ANOVA TABLE

SOURCE	DF	SS	MS	F
Between	5	0.007	0.001	1.000
Within (Error)	18	0.022	0.001	
Total	23	0.028		

Critical F value = 2.77 (0.05,5,18)
Since F < Critical F FAIL TO REJECT Ho:All groups equal

Berne - 10/16
File: fhmgrow Transform: NO TRANSFORMATION

DUNNETTS TEST - TABLE 1 OF 2 Ho:Control<Treatment

GROUP	IDENTIFICATION	TRANSFORMED MEAN	MEAN CALCULATED IN ORIGINAL UNITS	T STAT	SIG
1	Control	0.273	0.273		
2	6.25%	0.300	0.300	-1.230	
3	12.5%	0.329	0.329	-2.516	
4	25%	0.308	0.308	-1.565	
5	50%	0.310	0.310	-1.677	
6	100%	0.310	0.310	-1.677	

Dunnett table value = 2.41 (1 Tailed Value, P=0.05, df=18,5)

Berne - 10/16
File: fhmgrow Transform: NO TRANSFORMATION

DUNNETTS TEST - TABLE 2 OF 2 Ho:Control<Treatment

GROUP	IDENTIFICATION	NUM OF REPS	Minimum Sig Diff (IN ORIG. UNITS)	% of CONTROL	DIFFERENCE FROM CONTROL
1	Control	4			
2	6.25%	4	0.054	19.8	-0.028
3	12.5%	4	0.054	19.8	-0.056
4	25%	4	0.054	19.8	-0.035
5	50%	4	0.054	19.8	-0.037
6	100%	4	0.054	19.8	-0.038

Discharger: Berne WWTP
Location: Berne, IN

Test Dates: 10/25 - 11/1, 2016
Analyst: AEP, MMK

Conc: Control	Day 1	2	3	4	5	6	7	Remarks
Temp.	25	25	25	25	25	25	25	
D.O. Initial	8.4	8.2	8.1	8.7	8.6	8.6	8.5	
Final	6.8	7.4	7.4	7.5	7.4	6.2	7.3	
pH Initial	7.8	7.7	7.7	7.8	7.8	7.7	7.9	
Final	7.8	7.7	7.9	7.8	7.8	7.7	7.8	
Alkalinity	60		50		50			
Hardness	90		90		100			
Conductivity	420		420		400			
Chlorine								

Conc: 6.25%	Day 1	2	3	4	5	6	7	Remarks
Temp.	25	25	25	25	25	25	25	
D.O. Initial	8.3	8.2	8.6	8.7	8.6	8.6	8.5	
Final	6.7	7.3	7.2	7.5	7.2	6.2	7.2	
pH Initial	7.8	7.7	7.6	7.7	7.7	7.7	7.9	
Final	7.8	7.7	7.8	7.8	7.8	7.6	7.8	
Alkalinity								
Hardness								
Conductivity	490		540		580			
Chlorine								

Conc: 12.5%	Day 1	2	3	4	5	6	7	Remarks
Temp.	25	25	25	25	25	25	25	
D.O. Initial	8.2	8.2	8.5	8.6	8.6	8.7	8.5	
Final	6.6	7.2	7.1	7.4	7.1	6.2	7.1	
pH Initial	7.7	7.7	7.6	7.7	7.7	7.7	7.8	
Final	7.8	7.7	7.8	7.8	7.8	7.6	7.7	
Alkalinity								
Hardness								
Conductivity	570		650		740			
Chlorine								

Discharger: Berne WWTP Test Dates: 10/25-11/1, 2016
Location: Berne, IN Analyst: AEP, MMK

Conc: 25%	Day 1	2	3	4	5	6	7	Remarks
Temp.	25	25	25	25	25	25	25	
D.O. Initial	8.1	8.3	8.4	8.5	8.7	8.8	8.4	
Final	6.5	7.1	7.0	7.4	7.1	6.1	7.1	
pH Initial	7.7	7.6	7.6	7.6	7.6	7.6	7.7	
Final	7.7	7.7	7.7	7.7	7.8	7.6	7.7	
Alkalinity								
Hardness								
Conductivity	770		840		980			
Chlorine								

Conc: 50%	Day 1	2	3	4	5	6	7	Remarks
Temp.	25	25	25	25	25	25	25	
D.O. Initial	8.0	8.4	8.4	8.5	8.9	9.0	8.4	
Final	6.4	7.1	6.9	7.3	6.9	6.4	7.2	
pH Initial	7.6	7.6	7.5	7.6	7.5	7.6	7.6	
Final	7.7	7.6	7.7	7.7	7.7	7.6	7.6	
Alkalinity								
Hardness								
Conductivity	1170		1250		1340			
Chlorine								

Conc: 100%	Day 1	2	3	4	5	6	7	Remarks
Temp.	25	25	25	25	25	25	25	
D.O. Initial	8.4	8.5	8.6	8.8	9.2	9.4	9.0	
Final	6.3	7.1	6.9	7.3	6.9	6.2	7.2	
pH Initial	7.5	7.5	7.4	7.5	7.4	7.5	7.5	
Final	7.7	7.7	7.6	7.6	7.6	7.7	7.6	
Alkalinity	80		70		70			
Hardness	300		360		470			
Conductivity	1920		1860		1940			
Chlorine	0		0		0			
Ammonia	0.5		0		0			