NPDES SELF-MONITORING SYSTEM

USER GUIDE

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Office of Water Enforcement and Permits

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NPDES
Self-Monitoring System

User Guide

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INTRODUCTION

The major goal of the National Pollutant Discharge Elimination System (NPDES) program is to improve the nation's water quality by reducing or eliminating pollutants from waste streams discharging directly into our waterways. The major instrument used to achieve the goal is the NPDES permit which sets limits on the pollutants in direct discharge effluents. The permit then is a legally enforceable agreement between the regulatory agency (EPA/State) and the direct dischargers on the quality of effluent released into receiving waters. As with any agreement, in order to be successful both parties must abide by their commitments. Over and above this is the result that both permit issuer and permit holder become integral participants in the drive for clean water.

This booklet is designed to assist the NPDES permittee in developing, operating, and maintaining a self-monitoring system which will enable the permittee, at a minimum to comply with permit requirements.

The amount of time spent each day on monitoring, recording, and reporting will pay off in more efficient plant operation, and a higher quality effluent, and will ultimately result in achieving the goal of improved water quality.

NPDES Program Authority

The Federal Water Pollution Control Act of 1972, as amended by the Clean Water Act of 1977, gives the Environmental Protection Agency (EPA) the authority to regulate the discharge of pollutants to waters of the United States. The Act provides broadly defined authority to establish the National Pollutant Discharge Elimination System (NPDES) Permit Program, to define control technologies, to establish effluent limitations, to obtain information through reporting and compliance inspections, and to take

enforcement actions (both civil and criminal) when violations of the Act are found.

Legal Authority for NPDES Monitoring of Discharges

Dischargers of pollutants are issued permits under Section 402 of the Act that set specific limits and operating conditions to be met by the permittee. The Act authorizes inspections and monitoring to determine whether or not NPDES permit conditions are being met. It provides for two types of monitoring:

- Self-monitoring, where the facility must monitor itself; and
- Compliance monitoring, which may consist of checking and/or inspecting the self-monitoring program or monitoring conducted by the regulatory agency.

Inspection Authority

According to Section 308 of the Act, EPA may request and collect information by various means including the conduct of an inspection wherever there is an existing NPDES permit, or where a discharge exists or is likely to exist and no permit has been issued.

State Program Authority

Much of the compliance monitoring in the NPDES program takes place at the State level. The Clean Water Act provides for the transfer of Federal program authority to the States to conduct NPDES permit compliance monitoring. EPA Regional Administrators and some State water pollution control agencies have signed formal cooperative agreements that ensure timely, accurate monitoring of compliance with permit conditions.

Inspection of NPDES Permittee Facilities

Under the NPDES program the regulatory agency may conduct inspections of permittee facilities to verify that permit requirements are being met. Inspections may be limited and routine unless suspected violations of permit requirements are uncovered, at which point a more in-depth investigation may follow. Inspections are conducted by trained, qualified inspectors whose main responsibilities are to gather information that can be used to determine compliance with permit conditions, applicable regulations, and other requirements. Inspections conducted under the NPDES program extend to all things relating to compliance with the permit, including files, operating logs, and records; and treatment processes, controls, and facilities.

Meeting Permit Requirements

Introduction

The permits issued under the NPDES program impose precise and detailed pollution control requirements on direct dischargers. Permits are written so that they:

- Limit discharges of effluents based on national technology-based guidelines and, where necessary, on water quality standards;
- Require permittees to monitor their discharges and report results and any violations to the permitting agency; and
- Where necessary, impose compliance schedules that the permittee must adhere to in abating pollution and in complying with specified effluent limitations.

The permittee is responsible for understanding and meeting all permit requirements.

Self-Monitoring Responsibilities

The permit stipulates the self-monitoring requirements that are the responsibility of the discharger. Typically, this portion of the permit sets forth the frequency and type of sampling (grab and/or composite) requirements, as well as the flow monitoring, analytical, and data reporting requirements. The required information obtained by the permittee's self-monitoring program is reported to the permitting agency generally through the submission of a Discharge Monitoring Report (DMR). The DMR is submitted to the permitting agency on a specific schedule delineated in the permit. The validity, or quality, of the DMR data is the responsibility of the permittee and is a direct result of the adequacy and functioning of the permittee's self-monitoring program. For the program to function properly, it must be organized in a way that provides correct and reliable data and the appropriate responses required by the permit.

ORGANIZING A SELF-MONITORING PROGRAM

The overall objectives of a self-monitoring program are to collect, analyze, and report accurate data that is representative of the actual discharge(s) as required by the permit and to produce the data necessary to determine facility compliance with permit effluent limitations.

A properly organized and maintained program will aid in:

- Identifying problem areas that could result in noncompliance situations;
- Rapidly discovering and rectifying noncompliance episodes;
- Reporting noncompliance as required by the permit;
- Reporting accurate and timely self-monitoring data via the DMR;
- Reporting other permit required data; and
- Establishing a consistent, regular program of self-monitoring evaluation.

Elements of a Self-Monitoring System

A self-monitoring program can be viewed as an organized system of components, typically including sampling, flow measurement, laboratory and field analyses, recordkeeping, reporting, and data quality assurance. It consists of both technical and administrative activities, which are of equal importance to the smooth and proper operation of the program and to meeting permit requirements. There are certain generic elements common to developing and maintaining a successful self-monitoring program; these elements are:

- Reviewing permit requirements and setting program objectives;

- Establishing staff training;
- Developing a quality assurance (QA) plan; and
- Conducting periodic evaluations of the program.

Reviewing Permit Requirements and Setting Program Objectives

The specific elements of the self-monitoring program are stipulated in the permit. The general areas of concern in setting the program objectives are:

- Effluent limitations (qualitative and quantitative)--for example, average and maximum concentrations and average and maximum daily loads.

- Self-monitoring requirements--location, frequency, and type of sampling (grab or composite), flow monitoring, methods of analysis, and data reporting requirements (including noncompliance incidents).

The program objectives are set so that self-monitoring will yield accurate data on the quality of the effluent in accordance with the requirements in the permit. Therefore, an acceptable self-monitoring program will include:

- Frequency and type of effluent sampling at permit-specified locations;
- Flow measurements;
- Sample analysis to determine effluent quality;
- Accurate recordkeeping for all activities specified in the permit;
- Data reporting via the DMR in the manner specified in the permit; and
- Other reporting as required by the permit.

Staff Training

A capable and qualified staff is a basic requirement of a self-monitoring program. It is the responsibility of the permittee to ensure that the staff is properly trained and qualified to perform the activities and report the results in accordance with the permit requirements. This holds true whether the facility uses its own staff or outside consultants.

When developing in-house or selecting outside training programs, the following instruction areas should be considered:

- Sampling (including proper preservation methods) and flow measurement procedures;
- Laboratory procedures, including proper sample handling, analysis, quality control, data manipulation, and recordkeeping and reporting procedures;
- Proper use of instruments and equipmment including appropriate calibration procedures and schedules;
- Preventive maintenance practices;
- Equipment trouble-shooting; and
- Safety procedures, including handling emergencies.

Various relevant training alternatives are sponsored by regulatory agencies, industry associations, professional societies, and colleges and universities. If required by the regulatory agency, proper certification and/or license must be obtained.

Taking into consideration the technical and procedural training aspects discussed above, the overall facility training program should be organized so that it includes the following elements:

- Orienting new staff;
- Training new supervisors;
- Training new technicians;
- Continued training and updating of existing staff; and
- Cross-training staff members to provide backup.

Developing a Quality Assurance (QA) Plan

The establishment of an effective QA plan is essential to the proper functioning of an NPDES self-monitoring program. The overall objective of the QA plan is to ensure the production and reporting of accurate data to the regulatory agency. It also provides data that facility management can use to assess the performance of the facility.

The QA plan must consider and integrate all elements of the self-monitoring program, both administrative and technical. In general the QA plan should cover the following elements:

- Sample collection
  - Proper sampling procedures and equipment used
  - Sample type, frequency, method, and location in accordance with permit requirements
  - Sample preservation procedures currently accepted by regulatory agency
  - Sampling activity records
  - Control checks (duplicate samples, split samples, spike samples, and sample preservative blanks) performed during the actual sample collection to determine the accuracy of the sample collection system
  - Proper procedure and schedule used for calibration and maintenance of automatic samplers

- Flow measurement
  - Functioning of primary and secondary measurement devices
  - Procedures and schedule for calibrating secondary devices
  - Regular maintenance and inspection of primary device
  - Documentation of flow measurements and associated activities
  - Evaluation of accuracy and precision of flow measurement devices

- Laboratory operations
  - Proper sample handling procedures
  - Sample analysis procedures currently accepted by regulatory agency
  - Proper procedures and schedule used for calibration and maintenance of instruments and ancillary equipment
  - Accuracy and precision of analyses monitored
  - Proper staff training
  - All above activities accurately documented

- Recordkeeping and reporting
  - Recordkeeping and reporting in accordance with permit requirements
  - Recordkeeping system organized to facilitate retrieval
  - Recordkeeping system organized to produce accurate and complete reports (especially DMRs) when required

Periodic Evaluation of Self-Monitoring Program

Integral to the efficient continued functioning of the self-monitoring program is the establishment of procedures and a regular schedule of program evalution. The following elements should be included:

- Confirm that sampling and flow measurement equipment is being maintained properly;

- Verify that analyses are being performed properly and equipment is in good working order;

- Verify that currently approved analytical methods are being used;

- Verify that proper quality control procedures are being employed; and

- Verify that recordkeeping and reporting systems are being maintained properly.

The checklists that appear at the end of this booklet can be used in conducting self-evaluation and periodic checks on the various components of the self-monitoring program.

Discharge Monitoring Reports (DMRs)

The DMR is a routine compliance report that gives a summary of the quality and/or quantity of the permittee's discharge. The DMR is submitted to the regulatory agency in accordance with a schedule which is stipulated in the permit, usually monthly or quarterly. It provides data on facility flow, sample collection, and analytical results. It is extremely important that the data reported on the DMR be accurate and timely because the reported data will be compared with permit effluent limitations to determine facility compliance.

How to Use the Discharge Monitoring Report Form

A Discharge Monitoring Report Form (Figure 1) is used for the routine reporting of effluent compliance data. This form generally is completed each month for each permitted discharge having specific effluent limitations and/or monitoring requirements.

Although the permit may limit pollutants on a 30-consecutive day average and a 7-consecutive day average, to simplify reporting procedures, it is acceptable to report the 30 day average as the average for the calendar month. Likewise, the 7-consecutive day average may be reported as the average for each calendar week ending during the month.

Detailed instructions for completing the form and performing relevant calculations follow the sample form.

PERMIT Facility NAME/ADDRESS (Include 4/Location if different)

NAME

ADDRESS

FACILITY

LOCATION

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)

DISCHARGE MONITORING REPORT (DMR)

Form Approv.
OMB No. 2040-0004
Expires 2-29-84

(2-16) PERMIT NUMBER

(17-19) DISCHARGE NUMBER

MONITORING PERIOD

	YEAR	MO	DAY		YEAR	MO	DAY
FROM	(20-21)	(22-23)	(24-25)	TO	(26-27)	(28-29)	(30-31)

NOTE: Read instructions before completing this form.

PARAMETER (32-37)		(3 Card Only) QUANTITY OR LOADING (46-53) AVERAGE	(54-61) MAXIMUM	UNITS	(4 Card Only) QUALITY OR CONCENTRATION (38-45) MINIMUM	(46-53) AVERAGE	(54-61) MAXIMUM	UNITS	NO. EX (62-63)	FREQUENCY OF ANALYSIS (64-68)	SAMPLE TYPE (69-70)
	SAMPLE MEASUREMENT										
	PERMIT REQUIREMENT										
	SAMPLE MEASUREMENT										
	PERMIT REQUIREMENT										
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	SAMPLE MEASUREMENT										
	PERMIT REQUIREMENT										

NAME/TITLE PRINCIPAL EXECUTIVE OFFICER

TYPED OR PRINTED

I CERTIFY UNDER PENALTY OF LAW THAT I HAVE PERSONALLY EXAMINED AND AM FAMILIAR WITH THE INFORMATION SUBMITTED HEREIN AND BASED ON MY INQUIRY OF THOSE INDIVIDUALS IMMEDIATELY RESPONSIBLE FOR OBTAINING THE INFORMATION, I BELIEVE THE SUBMITTED INFORMATION IS TRUE, ACCURATE AND COMPLETE. I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION, INCLUDING THE POSSIBILITY OF FINE AND IMPRISONMENT. SEE 18 USC § 1001 AND 33 USC § 1319 *(Penalties under these statutes may include fines up to $10,000 and/or maximum imprisonment of between 6 months and 5 years.)*

SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT

TELEPHONE: AREA CODE | NUMBER

DATE: YEAR | MO | DAY

COMMENT AND EXPLANATION OF ANY VIOLATIONS *(Reference all attachments here)*

Figure 1 Discharge Monitoring Report Form

GENERAL INSTRUCTIONS

1. If form has been partially completed by preprinting, disregard instructions directed at entry of that information already preprinted.
2. Enter "PERMITTEE NAME/MAILING ADDRESS (and facility name/location, if different)," "PERMIT NUMBER," and "DISCHARGE NUMBER" where indicated. (A separate form is required for each discharge.)
3. Enter dates beginning and ending "MONITORING PERIOD" covered by form where indicated.
4. Enter each "PARAMETER" as specified in monitoring requirements of permit.
5. Enter "SAMPLE MEASUREMENT" data for each parameter under "QUANTITY" and "QUALITY" in units specified in permit. "AVERAGE" is normally arithmetic average (geometric average for bacterial parameters) of all sample measurements for each parameter obtained during "MONITORING PERIOD." "MAXIMUM" and "MINIMUM" are normally extreme high and low measurements obtained during "MONITORING PERIOD." (NOTE to municipals with secondary treatment requirement, enter 30-day average of sample measurements under "AVERAGE" and enter maximum 7-day average of sample measurements obtained during monitoring period under "MAXIMUM".
6. Enter "PERMIT REQUIREMENT" for each parameter under "QUANTITY" and "QUALITY" as specified in permit.
7. Under "NO. EX" enter number of sample measurements during monitoring period that exceed maximum (and/or minimum or 7-day average as appropriate) permit requirement for each parameter. If none, enter "0".
8. Enter "FREQUENCY OF ANALYSIS" both as "SAMPLE MEASUREMENT" (actual frequency of sampling and analysis used during monitoring period) and as "PERMIT REQUIREMENT" specified in permit. (e.g., Enter "CONT." for continuous monitoring, "1/7" for one day per week, "1/30" for one day per month, "1/90" for one day per quarter, etc.)
9. Enter "SAMPLE TYPE" both as "SAMPLE MEASUREMENT" (actual sample type used during monitoring period) and as "PERMIT REQUIREMENT." (e.g., Enter "GRAB" for individual sample, "24HC" for 24-hour composite, "N/A" for continuous monitoring, etc.)

FOLD HERE FIRST

10. WHERE VIOLATIONS OF PERMIT REQUIREMENTS ARE REPORTED, ATTACH A BRIEF EXPLANATION TO DESCRIBE CAUSE AND CORRECTIVE ACTIONS TAKEN. REFERENCE EACH VIOLATION BY DATE.
11. If "no discharge" occurs during monitoring period, enter "NO DISCHARGE" across form in place of data entry.
12. Enter "NAME/TITLE OF PRINCIPAL EXECUTIVE OFFICER" with "SIGNATURE OF PRINCIPAL EXECUTIVE OFEICER OR AUTHORIZED AGENT," "TELEPHONE NUMBER" and "DATE" at bottom of form.
13. Mail signed Report to Office(s) by date(s) specified in permit. Retain copy for your records.
14. More detailed instructions for use of this DISCHARGE MONITORING REPORT (DMR) form may be obtained from Office(s) specified in permit.

LEGAL NOTICE

s report is required by law (33 U.S.C. 1318; 40 C.F.R. 125.27). Failure to report or failure to report truthfully can result in civil penalties not xceed $10,000 per day of violation; or in criminal penalties not to exceed $25,000 per day of violation, or by imprisonment for not more than year, or by both.

FOLD HERE SECOND

PLACE STAMP HERE

FOLD HERE THIRD

STAPLE HERE

Discharge Monitoring Report
Instructions for Completion
(See Figure 1)

1. Permittee Name/Address - Record name and address of permittee. If different, the name and location of the treatment facility should also be recorded.

2. Permit Number - Record the State abbreviation and permit number, as it appears in the upper right hand corner of the permit.

3. Discharge Number - Record the number as stated in the permit for the actual discharge being reported. Usually, the effluent pipe from a treatment plant is designated as "001" (Use three digits).

4. Monitoring Period - Record the dates for the beginning and end of the monitoring period. Specify "YEAR, MO, DAY" (e.g. 84/04/29). Monitoring period is from the first day to the last day of the calendar month.

5. Parameter - Enter the parameters specified in the permit, one parameter per box. Include any applicable special conditions.

6. Sample Measurement - Enter sample measurement data for each parameter under "Quantity or Loading" or "Quality or Concentration" in accordance with permit limitations. Indicate units as specified in permit. "Average" is normally arithmetic average (geometric average for bacterial parameters) of all sample measurements for each parameter obtained during the monitoring period. "Maximum" and "Minimum" are normally extreme high and low measurements obtained during the monitoring period. (Municipals with secondary treatment requirement should enter 30-day average of sample measurements under "Average" and enter maximum 7-day average of sample measurements obtained during monitoring period under "Maximum." (See instruction "for example calculations.")

7. Permit Requirement - Enter requirement for each parameter as specified in the permit under "Quality or Loading" or "Quality or Concentration".

8. No. Ex. (Number of Exceptions). Enter the number of sample measurements as calculated values for the monitoring period that exceed (maximum and/or minimum, 7-day average, etc.) the permit requirements for each parameter. The number should be the total of all exceptions during the reporting period--includes loading and quality or concentration limits. If none, enter "0".

9. Frequency of Analysis - Enter frequency of analysis which is the actual frequency of sampling and analysis used during the monitoring period; the minimum is as specified in permit. Enter "CONT" for continuous monitoring, "01/07" for one day per week, "01/30" for one day per month, "01/90" for one day per quarter, etc.

10. Sample Type - Enter the sample type both as Sample Measurement (actual sample type used during monitoring period) and as Permit Requirement. Enter "GRAB" for individual sample, "24HC" for 24-hour composite, "N/A" for continuous monitoring.

11. Completion of Reported Values. After entering each parameter, and the permit conditions for each, the values must be computed. Listed below are sample calculations.

    a. Quality or Concentration. As an example, complete the concentration (mg/L) for BOD_5. Table 1, page 15, "Monthly Monitoring Data", lists five BOD_5 tests for the month reported. The values are 19, 6, 11, 7, and 10 mg/L. The average concentration of

Table 1

Monthly Monitoring Data (Sample)
(December 1982)

		Flow	BOD_5	TSS	pH	Cl_2
1st Week	Date					
Mon	12/1	.50			7.3	2.3/1.5
Tue	12/2	.32			7.7	1.8/1.6
Wed	12/3	.33	19	34	7.4	2.3/2.3
Thu	12/4	.33			7.6	2.0/2.0
Fri	12/5	.43			6.8	2.3/1.9
Sat	12/6	.34			7.2	1.7/1.6
Sun	12/7	.25			7.4	1.7/1.7
2nd Week						
Mon	12/8	.58			7.6	0.2/1.8
Tue	12/9	.47	6	3	7.4	1.7/1.8
Wed	12/10	.42			7.0	0.0/1.6
Thu	12/11	.37			6.6	2.0/2.1
Fri	12/12	.46			6.8	1.8/2.0
Sat	12/13	.32			7.0	1.9/1.9
Sun	12/14	.27			7.0	1.7/1.8
3rd Week						
Mon	12/15	.62			7.4	1.6/1.8
Tue	12/16	.61			7.5	2.1/2.0
Wed	12/17	.61			6.9	1.9/2.0
Thu	12/18	.60	11	15	7.3	1.6/1.8
Fri	12/19	.46			6.8	1.6/1.7
Sat	12/20	.36			7.2	1.6/1.9
Sun	12/21	.40			7.4	1.8/1.7
4th Week						
Mon	12/22	.52	7	6	6.8	0.0/0.0
Tue	12/23	.40	10		7.2	0.3/1.8
Wed	12/24	.38			6.9	1.9/2.1
Thu	12/25	.45			7.0	2.0/1.9
Fri	12/26	.42			7.1	1.8/2.3
Sat	12/27	.39			7.2	1.6/1.8
Sun	12/28	.42			7.0	1.7/1.9
5th Week						
Mon	12/29	.64			6.8	1.7/1.9
Tue	12/30	.45			7.2	2.0/1.8

10.6 mg/L was determined by adding these five values and dividing by the number of values.

The highest concentration (19 mg/L) and the monthly average concentration (10.6 mg/L) are entered on the monthly monitoring report as maximum and average concentration, respectively. The total number of exceptions (permit conditions exceeded) for average and maximum concentrations must be entered in the "No. Ex." boxes on the report for each parameter. In the sample illustration, there were no noncompliances of the permit conditions, thus, no exceptions. The "average" figure reported will correlate with the "average monthly" limit in the discharge permit and the "maximum" figure reported will correlate with the "maximum daily-maximum instantaneous concentration" limits in the discharge permit.

Use the above procedures for calculating and reporting concentrations (mg/L) for total suspended solids, phosphorus, ammonia, metals, etc.

b. Quantity or Loadings (lbs/day or kg/day). The "average monthly discharge" is the total of the daily loads (in pounds) as derived from each day's calculated measurement divided by the number of days during the month the measurements were made. In completing calculations for these averages, quantities or loadings are to be reported in lbs/day or kg/day using the following equations:

Quantity (lbs/dy) = Flow (MGD) x conc. (mg/L) x 8.34 (lbs/gal)
Quantity (kg/dy) = Flow (MGD) x conc. (mg/L) x 3.79 (kg/gal)

Table 2

5-Day Biochemical Oxygen Demand (BOD_5)
(Sample Calculation)

	Flow (MGD)	x	BOD_5 (mg/l)	x	8.34 (lbs/gal)	=	Quantity (lbs/dy)
1st Week Wed	.33		19		8.34		52.29
2nd Week Tue	.47		6		8.34		23.52
3rd Week Thu	.60		11		8.34		55.04 (highest)
4th Week Mon	.52		7		8.34		30.36
Tue	.40		10		8.34		33.36

Daily Average = $\frac{52.29 + 23.52 + 55.04 + 30.36 + 33.36}{5} = \frac{194.57}{5}$ = 38.9 lbs/dy

Maximum = 55.0 lbs/dy

BOD_5 Daily Average Loading (lbs/dy) = 38.9 lbs/dy
BOD_5 Maximum Daily Loading (lbs/dy) = 55.0 lbs/dy

Total Suspended Solids (TSS)
(Sample Calculation)

	Flow (MGD)	x	TSS (mg/l)	x	8.34 (lbs/gal)	=	Quantity (lbs/dy)
1st Week Wed	.33		34		8.34		93.57 (highest)
2nd Week Tue	.47		3		8.34		11.76
3rd Week Thu	.60		15		8.34		75.06
4th Week Mon	.52		6		8.34		26.02

Monthly Average = $\frac{93.57 + 11.76 + 75.06 + 26.02}{4} = \frac{206.41}{4}$ = 51.6 lbs/dy

Maximum = 93.57 lbs/dy

TSS Daily Average Loading (lbs/dy) = 51.6 lbs/dy
TSS Maximum Dialy Loading (lbs/dy) = 93.6 lbs/dy

Enter the average monthly loading for BOD_5 (38.9 lbs/dy in the Table 2 example) and the maximum daily loading (55.0 lbs/dy) on the DMR as "average" and "maximum", respectively. The total number of exceptions (permit conditions exceeded) for the average and maximum must be entered in the "No. Ex." box on the report. As with BOD_5, Total Suspended Solids averages are entered on the DMR. (Table 2, lower, illustrates TSS calculations.)

c. Flow. When flow is to be monitored the average monthly flow is the average of all the daily determinations of flow made during the monthly reporting period. The flow from the sample illustration (Table 1) was computed to be 0.44 MGD. The daily maximum flow is the highest daily flow observed during the monthly reporting period. This was 0.64 MGD which occurred on Monday of the 5th week in the sample illustration. The monthly average and daily maximum flow should be determined from available data. Daily flow and concentration are used in calculating loadings. Enter both these two values on the report form. The total number of exceptions (permit conditions exceeded) for average flow must be entered in the "NO. EX" box on the report.

d. pH (Standard Units, S.U.). The minimum and the maximum values for pH allowed in a discharge permit are usually listed toward the bottom of the "Effluent Limitations" page. Reported values should be extremes only, of all the test values determined during the reporting month. (Reference to the sample monitoring data [Table 1] indicates that the maximum pH is 7.7 S.U. and the

minimum is 6.6 S.U.) Enter these values on the monthly report along with the number of noncompliances (exceptions).

e. Total Chlorine Residual. The total chlorine residual concentrations (mg/L) reported are the maximum and minimum values only, of all the determinations made during the reporting month. (Reference to the sample monitoring data [Table 1] indicates indicates that the maximum total chlorine residual (Cl_2) is 2.3 mg/L and the minimum is 0.0 mg/L.) Enter these values on the monthly report after "Total Chlorine Residual," along with number of exceptions.

12. Complete the bottom of the monitoring report with the name and title of the principal executive officer, the date and the telephone number, along with the signature of the principal executive officer or authorized agent. Mail to the appropriate regulatory agency listed in the permit.

13. All limited parameters, as well as any parameters with monitoring requirements listed in the permit currently in effect must be reported.

14. All monitoring requirements of the permit are minimum requirements. The results of any additional monitoring of parameters at the location(s) designated in the permit, using approved analytical methods, must be included in the monthly monitoring report. Such increased frequency should also be indicated in the report.

15. If no discharge occurs during the month, a report must still be submitted, simply enter "No Discharge" across the face of the report for that reporting month.

16. Definitions:

a. Average monthly discharge limitation means the highest allowable average of "daily discharges" over a calendar month, calculated as the sum of all "daily discharges" measured during a calendar month divided by the number of "daily discharges" measured during that month.

b. Average weekly discharge limitation means the highest allowable average of "daily discharges" over a seven day period calculated as the sum of all "daily discharges" measured during that period divided by the number of "daily discharges" measured during that week.

c. Maximum daily discharge limitation means the highest allowable "daily discharge."

d. Minimum or Maximum Value. The lowest or highest value measured during the month.

e. Composite Sample. A combination of individual samples (aliquots) obtained at intervals over a time period. If any instantaneous flow varies by more than 15% from the average, the composite sample must be proportional to flow. Either the volume of each individual sample is proportional to the discharge flow rate or the sampling interval is proportional to

the flow rates over the time period used. For a continuous discharge, a minimum of 8 individual grab samples should be collected and combined to constitute a 24-hour composite sample. Composite sampling protocols delineated in the permit take precedence.

f. Grab Sample. An individual sample collected in less than 15 minutes.

17. Twenty-Four Hour Reporting

The permittee shall report any noncompliance which may endanger health or the environment. Any information shall be provided orally within 24 hours from the time the permittee becames aware of the circumstances. A written submission shall also be provided within 5 days of the time the permittee becomes aware of the circumstances. 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 reoccurrence of the noncompliance.

The following shall be included as information which must be reported within 24 hours under this paragraph.

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

b. Any upset which exceeds any effluent limitation in the permit.

c. Violation of a maximum daily discharge limitation for any of the pollutants listed by the Director in the permit to be reported within 24 hours.

The Director may waive the written report on a case-by-case basis if the oral report has been received within 24 hours.

Checklist for Self-Monitoring

A. Permit Verification

Yes No N/A	1. Name, mailing address, and telephone numbers on permit are correct.
Yes No N/A	2. Facility is correctly described in permit.
Yes No N/A	3. Notification has been given to EPA/State of new, different, increased discharges.
Yes No N/A	4. Number and location of discharge points are as described in the permit.
Yes No N/A	5. Name and location of receiving waters are correct.
Yes No N/A	6. All discharges are permitted.

B. Recordkeeping and Reporting

Yes No N/A	Records and Reports are Maintained as Required by Permit
Yes No N/A	1. All required information is available, complete, and current; and
Yes No N/A	2. Information is maintained for required period (3 years).
Yes No N/A	3. The data reported on the DMRs are consistent with analytical results.
	4. Sampling and Analysis Data are adequate and include:
Yes No N/A	a. Dates, times, location of sampling
Yes No N/A	b. Name(s) of individual(s) performing sampling
Yes No N/A	c. Analytical methods and techniques used
Yes No N/A	d. Results of analysis
Yes No N/A	e. Dates and times that analysis began
Yes No N/A	f. Name of personnel performing analysis
Yes No N/A	g. Instantaneous flow at grab sample stations
	h. 24-hour flow for composite samples
	5. Monitoring records are adequate and include
Yes No N/A	a. Flow, pH, D.O., etc. as required by permit
Yes No N/A	b. Monitoring strip charts
Yes No N/A	6. Laboratory equipment calibration and maintenance records are adequate.

C. Sampling Evaluation

Yes No N/A	1. Samples are taken at sites specified in permit.
Yes No N/A	2. Locations are adequate for representative samples.
Yes No N/A	3. Flow proportioned samples are obtained where required by permit.
Yes No N/A	4. Parameters and sampling frequency comply with permit.
Yes No N/A	5. Method of sample collection required by permit is being used. Required Method: ( ) Grab ( ) Manual composite ( ) ( ) Automatic composite
Yes No N/A Yes No N/A Yes No N/A	6. Sample collection procedures are adequate: a. Samples refrigerated during compositing b. Proper preservation techniques used c. Containers and sample holding times before analyses conform with 40 CFR 136.3
Yes No N/A	7 Monitoring and analyses are performed more often than required by permit. If so, results reported in self-monitoring report.

D. DMR Completion

Yes No N/A	1. All data that are collected are summarized on the DMR.
Yes No N/A	2. Monthly and weekly average loading values are calculated using daily loading information.
Yes No N/A	3. Bacteria data are summarized as a geometric mean where required by permit.
Yes No N/A	4. The maximum and minimum values of all data points are reported where required by permit.
Yes No N/A	5. The number of exceptions column (No. Ex.) is completed properly.

Preventing Common Problems from Occurring When Completing/Submitting NPDES Discharge Monitoring Report (DMR) and State (MMR and MRO) Forms

July 2008

Submitting National Pollutant Discharge Elimination System (NPDES) self-monitoring data to IDEM is an important part of complying with the NPDES permit. When the DMR data is submitted to the correct address, by the correct date, is legible, complete and signed, it can be quickly keyed by data entry operators into the EPA database, so that the NPDES permittee receives credit. When this happens, there are no late date violation codes and no missing data violation codes assigned to that data within the EPA database for that monitoring period and that permit. However, if there are limit exceedances, one of those kinds of violations will ultimately be assigned. The following information is provided in order to prevent unnecessary late, missing, and occasionally mistaken data violations from occurring within the EPA database, per permitted facility.

I. IN GENERAL

1. **Always read the facility permit to determine:**
   - parameters being tested,
   - limits for those parameters,
   - frequency for collecting samples (daily, weekly, monthly, quarterly, semiannually, annually, etc.)
   - types of samples (e.g. grab, 24-hour composite, etc.),
   - reporting units (mg/L MGD, etc.).

   The permit also lists pertinent information about:
   - the receiving stream,
   - outfall numbers/location,
   - seasonal limits,
   - compliance schedules, and
   - compliance and enforcement information.

   The NPDES permit provides definitions (e.g., monthly average, maximum weekly average, bypassing, etc.) which are vital to understanding and interpreting the permit and completing the DMR form.

   Remember, the NPDES permit is the legally binding document and therefore the permittee is bound by the requirements listed in the permit, regardless of whether or not the information is listed on (requested by) the DMR form.

   In addition to completing and submitting the DMR form each monitoring period, Indiana requires an accompanying state form to be completed and submitted. This state form (Monthly Monitoring Report – MMR, or Monthly Report of Operation - MRO) provides additional information about the facility, such as process control actions taken by sanitary dischargers.

2. **Submit forms to the correct address by the correct date:** Submit the original copy of the completed **DMR** and corresponding state form (MMR or MRO) together, along with any required supporting documents, to the following address, postmarked by the 28th of the month following the monitoring period end date on the DMR form:

   Indiana Department of Environmental Management
   Office of Water Quality
   Data & Information Services Section, Mail Code 65-42 DISS
   100 North Senate Avenue
   Indianapolis, IN 46204-2251

   Within a month of being received by IDEM, the DMR data will have been entered into the EPA database.

3. **Know who to contact when you have questions about the DMR or the State forms:** The name of the data manager for your DMR form is listed in the upper right-hand corner of the DMR form, along with their telephone number. If the DMR preparer believes that the DMR does not accurately reflect the permit, the preparer is responsible for notifying the IDEM data manager (by phone or separate correspondence) in order to get the DMR form corrected as soon as possible.

4. **Check the DMR/State forms for completeness and sign and date each DMR and state (MMR/MRO) form before submittal to IDEM:** Before submitting each DMR and MMR/MRO form, the person(s) signing them should review the document carefully for completeness, and then sign and date, in the appropriate blanks. The federal government requires the signature of the authorized agent ("cognizant official") printed and written on the DMR form, along with the date. Indiana requires that both the authorized agent and the certified operator sign and date the state form (MMR or MRO).

5. **Identify changed/revised data on the DMR or State forms** - If data was entered on the original DMR incorrectly and submitted, a corrected or revised DMR needs to be submitted. To do so, make a copy of the original DMR, check the "Revised" box near the address on the upper left-hand corner of the DMR, highlight the revisions, and send it to the address above. If an MMR or MRO form needs to be re-submitted due to changes/corrections, write the words "Corrected Copy" or "Revised Copy" across the top of the State form, highlight the changes, and submit to the address above. All changes/corrections should be initialed by the DMR preparer. The revised DMR/State form should be signed and dated and submitted to the IDEM address listed above, as soon as possible.

II. COMPLETING THE DMR FORM

Select the correct DMR form for each monitoring period - The person completing the DMR should first check the monitoring period at the top of the form to ensure that the correct DMR form is being used, since the end date at the top of the page is the one used to enter the data into the EPA database. If the DMR preparer notices that he/she does not have a DMR form for the current monitoring period per applicable outfall (Discharge Number), he/she should call the data manager listed at the upper right-hand corner of his/her DMR in order to get one as soon as possible.

Correctly indicate if there has been no discharge for the monitoring period. Regardless of whether the DMR is to be submitted monthly, quarterly, annually, etc., if there has been no effluent discharge for that monitoring period (for that facility's outfall) indicate this by checking the "No Discharge" box in the upper right-hand corner of the DMR form. This will mean that no effluent from the NPDES facility entered the receiving stream (or in some cases, groundwater) listed in the permit, from that outfall. The only other thing required for most "No Discharge" DMRs is the printed name, signature, phone number, and date at the bottom of the DMR, as well as the completed corresponding state form for submittal. The exception would be that if any influent and/or intermediate process information is required on the DMR then that information must be supplied on the DMR even though there is no effluent discharge. There is no need to fill in every blank on the DMR with the words "No Discharge" as long as the "No Discharge" box in the upper right corner has been checked or filled in.

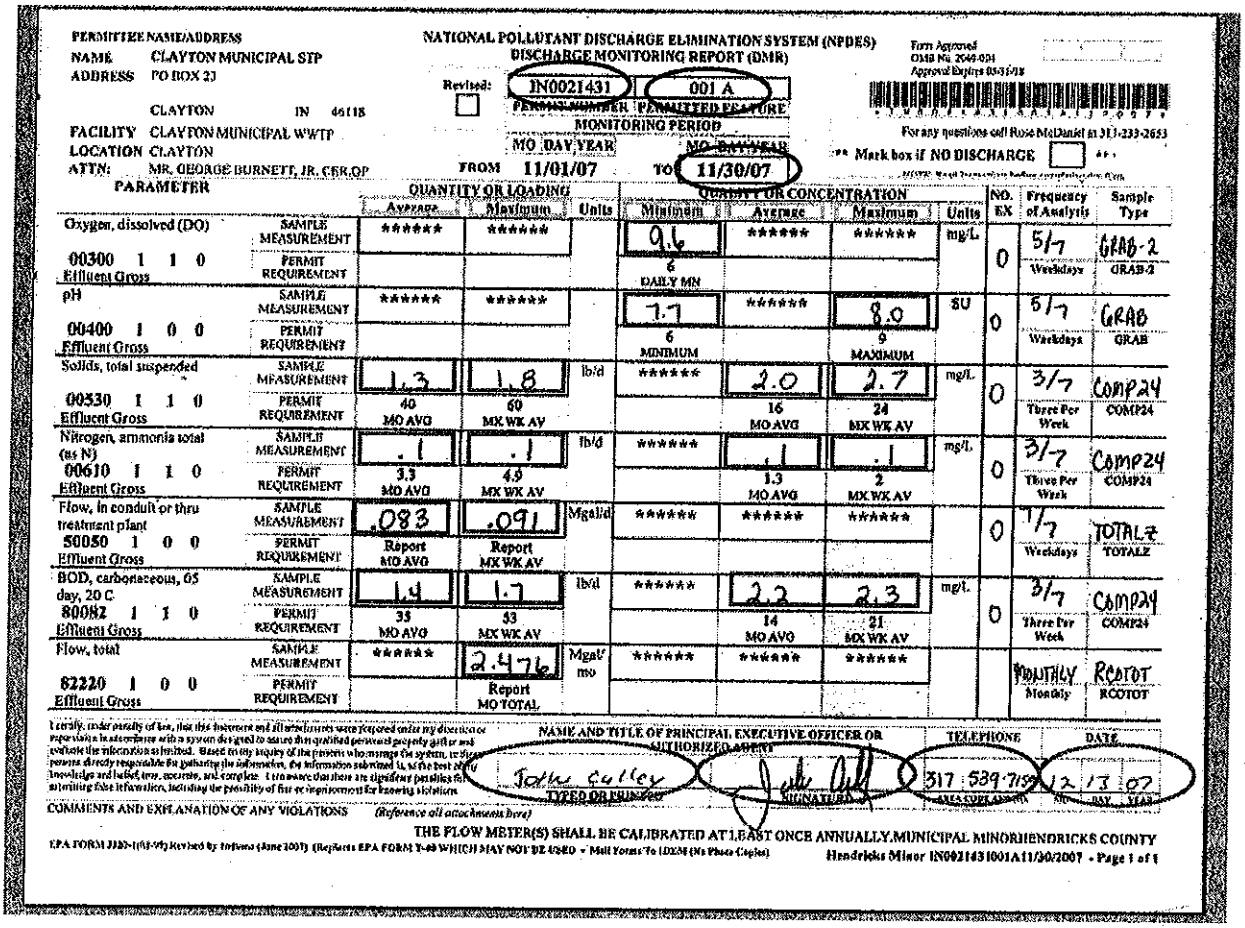
For DMRs where discharge occurred, fully complete the blanks for each parameter on the DMR form by carefully transferring the summary data from the state MRO or MMR form.

- The DMR form is printed by IDEM using the federal format. Each DMR page has up to seven parameters (e.g., pH, total suspended solids, flow, etc.) listed vertically, per each outfall. The corresponding State Form (MMR or MRO) will have the same parameters listed horizontally (and sometimes additional parameters), with summary data (average, minimum, maximum) for each parameter at the bottom of each parameter column.

- On the DMR form, each parameter row is split into a "white" row, followed by a "gray" row. The limit value for each parameter is listed in the gray row and should match the limits listed in the permit for that parameter, for that time period. (If they do not, please contact the data person whose name and telephone number are listed in the upper right-hand corner of the DMR.)

- The measurement value for the corresponding parameter for that time period should be entered/placed just above the limit value, in the "white" row. There are five main columns for data in each row; the first two for loading values and the last three for concentration. Any blanks in the white row that contain asterisks (******) indicate that they do not currently pertain to the NPDES permitted facility, and do not need to be filled in, although, again, the permittee is responsible for making sure that this is accurate.

In the following illustration, fields **circled in blue** should be confirmed before filling out the DMR, fields **outlined in green** indicate the main data column headers, fields **outlined in red** must be filled in if there is a discharge, fields **outlined in yellow** need to be completed if they apply, and fields circled in **red** must always be filled in.



PERMITTEE NAME/ADDRESS
NAME CLAYTON MUNICIPAL STP
ADDRESS PO BOX 23
CLAYTON IN 46118
FACILITY CLAYTON MUNICIPAL WWTP
LOCATION CLAYTON
ATTN: MR. GEORGE BURNETT, JR. CER,OP

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
DISCHARGE MONITORING REPORT (DMR)
Revised: ☐
IN0021431 | 001 A
PERMIT NUMBER | PERMITTED FEATURE
MONITORING PERIOD
MO DAY YEAR | MO DAY YEAR
FROM 11/01/07 TO 11/30/07

Form Approved OMB No. 2040-0004 Approval Expires 05-31-08
For any questions call Rose McDaniel at 317-233-2653
** Mark box if NO DISCHARGE ☐

PARAMETER		QUANTITY OR LOADING Average	Maximum	Units	QUALITY OR CONCENTRATION Minimum	Average	Maximum	Units	NO. EX	Frequency of Analysis	Sample Type
Oxygen, dissolved (DO)	SAMPLE MEASUREMENT	******	******		9.6	******	******	mg/L	0	5/7 Weekdays	GRAB-2
00300 1 1 0 Effluent Gross	PERMIT REQUIREMENT				6 DAILY MN						GRAB-2
pH	SAMPLE MEASUREMENT	******	******		7.7	******	8.0	SU	0	5/7 Weekdays	GRAB
00400 1 0 0 Effluent Gross	PERMIT REQUIREMENT				6 MINIMUM		9 MAXIMUM				GRAB
Solids, total suspended	SAMPLE MEASUREMENT	1.3	1.8	lb/d	******	2.0	2.7	mg/L	0	3/7 Three Per Week	COMP24
00530 1 1 0 Effluent Gross	PERMIT REQUIREMENT	40 MO AVG	60 MX WK AV			16 MO AVG	24 MX WK AV				COMP24
Nitrogen, ammonia total (as N)	SAMPLE MEASUREMENT	.1	.1	lb/d	******	.1	.1	mg/L	0	3/7 Three Per Week	COMP24
00610 1 1 0 Effluent Gross	PERMIT REQUIREMENT	3.3 MO AVG	4.9 MX WK AV			1.3 MO AVG	2 MX WK AV				COMP24
Flow, in conduit or thru treatment plant	SAMPLE MEASUREMENT	.083	.091	Mgal/d	******	******	******		0	7/7 Weekdays	TOTALZ
50050 1 0 0 Effluent Gross	PERMIT REQUIREMENT	Report MO AVG	Report MX WK AV								TOTALZ
BOD, carbonaceous, 05 day, 20 C	SAMPLE MEASUREMENT	1.4	1.7	lb/d	******	2.2	2.3	mg/L	0	3/7 Three Per Week	COMP24
80082 1 1 0 Effluent Gross	PERMIT REQUIREMENT	35 MO AVG	53 MX WK AV			14 MO AVG	21 MX WK AV				COMP24
Flow, total	SAMPLE MEASUREMENT	******	2.476	Mgal/mo	******	******	******			Monthly	RCOTOT
82220 1 0 0 Effluent Gross	PERMIT REQUIREMENT		Report MO TOTAL								RCOTOT

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 or imprisonment for knowing violations.

NAME AND TITLE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT: John Culley (TYPED OR PRINTED) | SIGNATURE | TELEPHONE: 317 539 7159 | DATE: 12 13 07

COMMENTS AND EXPLANATION OF ANY VIOLATIONS (Reference all attachments here)

THE FLOW METER(S) SHALL BE CALIBRATED AT LEAST ONCE ANNUALLY.MUNICIPAL MINORHENDRICKS COUNTY

EPA FORM 3320-1(8-98) Revised by Indiana (June 2001) (Replaces EPA FORM 3-60 WHICH MAY NOT BE USED - Mail Forms To IDEM (No Photo Copies)

Hendricks Minor IN0021431001A11/30/2007 - Page 1 of 1

Complete all DMR form blanks even for less frequent sampling rates (monthly, quarterly, semiannually and annually) As long as there has been discharge from a particular outfall, make certain that all blanks on the DMR form that are associated with a parameter, and are not filled in with asterisks (******), and have a header of "MINIMUM", "AVERAGE", or "MAXIMUM" have values filled in from the measurements taken during that month/reporting period. When a parameter is required to have two values, such as Minimum and Maximum, or Average and Maximum, but is only required to sample once per monitoring period (month, quarter, 6 months, etc.), all required blanks for that parameter must still be completed, even if the Minimum, Average and/or Maximum values are identical. (because only one sample was collected). If no data was collected for a parameter (e.g., sampling equipment failure) that has a DMR blank required to be completed, a note/letter should accompany the DMR form to explain the reason why there is no data for that parameter, and how the situation has been remedied. When a DMR is incomplete, the required data cannot be entered into the EPA database, and the database assigns a missing information violation, which can eventually lead to enforcement action being taken. Depending on the explanation for missing data, the data entry operator may (or may not) be able to assign a code to that parameter that will excuse the missing data in the EPA database for that monitoring period.

Explain conditionally missing data for individually missing parameters:
Even if the data only has to be reported for certain conditions (e.g., hydrostatic testing, storm water events, etc.) please indicate at the bottom of the DMR (or with an accompanying letter) what condition caused there to be no data reported (e.g., "no hydrostatic testing this month", "no storm water event this month") for an individual parameter. In this way, again, the data entry operator will know if he/she can immediately "excuse" the missing data (in the EPA database) by entering a specific code for that/those parameter/s for that month, so that no false violation codes will be assigned by the EPA database to your data. Also, try to specifically report or explain non-quantified data (and not report abbreviations), per each parameter, because abbreviations can be ambiguous and occasionally N/A is not true for that monitoring period. See examples in the following table:

If the parameter measurement is:	Don't Report:	Do Report:
below detection limit	BDL	"<___" (whatever the lab limit was)
not applicable this monitoring period	N/A	* (explain why-per parameter-at bottom of DMR)
not detected	ND	"<___" (whatever the lab limit was)
not done	ND	* (explain why-per parameter-at bottom of DMR)
not discharged	ND	* (explain why-per parameter-at bottom of DMR)
too numerous to count (e. coli)	TNTC	"63200"

Note: If no data is entered into the EPA database for a parameter that is required for that monitoring period, within a couple of months of the DMR due date, the EPA database assigns a missing data violation for that parameter/permit/month. IDEM data managers check the DMR data entry whenever possible, in order to excuse any missing data that has a valid reason for not being present. However, there is a lot of DMR data to check and the managers do not always catch all the missing data that need special codes. And once the missing data violation is assigned to a data measurement by the EPA database, it cannot always be removed, although it can receive a "resolved" status, once the IDEM data manager enters the correct codes in the database. So, it is best not to have missing data in the first place, if at all possible.

Use "less than" correctly to report data measurements:
For purposes of reporting on the DMR form, the use of the "less than" sign "<" should only be used to report measurements that are less than one of two specific thresholds: the laboratory detection limit threshold or the sampling equipment detection limit threshold for that parameter. It should not be used in order to round numbers (i.e., reporting <2 instead of reporting 1.6), nor to indicate "less than the limit" for that parameter (i.e., reporting <9 for pH instead of reporting 8.8).

1) "<" can be used for daily maximum or maximum weekly average on the DMR form when:
   The maximum measurement for that monitoring period is less than the threshold explained above.
2) "<" can be used when reporting the Average for a parameter on the DMR form if:
   All the measurement values averaged for that monitoring period were less than the above described threshold.

Due to the calculation function used to average numbers on the Excel version of the state forms, using "<" on the state forms will require additional explanation. See the state forms section toward the end of this document.

Use the correct reporting precision:
Be certain to report parameter measurements to the correct significant digit, according to the limits in the permit, keeping in mind the constraints of the measuring equipment and/or laboratory analysis.

Example 1: Dechlorination sampling, listed on DMR forms as "CHLORINE, TOTAL RESIDUAL (TRC) - 50060 1 - EFFLUENT GROSS VALUE", often has a permit limit value of 0.01 or 0.02 mg/L, but the limit value may be overridden by the limit of quantitation for that parameter (as per applicable footnote), which is 0.06 mg/L for Chlorine (TRC). So to enter "0" or even "0.0" would be incorrect for that parameter (except for GLI permits' TRC average, explained later), whereas, 0.05 or <0.06 would have acceptable reporting precision. However, do not report data that is less precise than the instrumentation detection limit (i.e., most residual chlorine measurements should not be reported as <0.01 mg/l because most instruments cannot read residual chlorine data reliably below 0.01mg/l.)

Example 2: If the Average Concentration limit for ammonia nitrogen is 1.1 mg/L and the facility's measurement (as per their lab or equipment) is less than 0.1 mg/L, the correct way to report this data is "<0.1", not "0", not <1.1 and not "<1".

Example 3: Nearly all flow values should have a minimum of three significant digits (i.e., 26,500 gallons per day should be reported as 0.0265 MGD, but not 0.02 or 0.026 million gallons per day).

* To convert gallons per day to million gallons per day (mpg), divide the number of gallons by 1,000,000:
26,500 gal /1,000,000 = 0.026 mgd

Check the units columns to ensure correct reporting:
There is a big difference between reporting gallons per day and millions of gallons per day. There is also a big difference between mg/L and ug/L and ng/L. Make certain that the data being supplied on the DMR/State form is in the correct units and that the units on the DMR form reflect the permit correctly. If they do not, please contact the person listed in the upper right hand corner of the DMR.

Calculate the Quality or Loading Values correctly:
Flow values and loading values are generally reported in one or both of the first two columns on the DMR form. Using information from the State form, loading values should be calculated each day a sample is collected by multiplying the concentration value for the parameter times the discharge flow (taken at the same time/day the parameter was collected) times 8.34 (lbs. per gallon of water).

* Parameter concentration X discharge flow X 8.34 lbs/gallon = loading value

In order to get average loading values the individual (daily or weekly) loading averages must be totaled and divided by the number of average loading values. Do not calculate the average monthly loading values by averaging all of a parameter's concentration measurements, then averaging all the flow values for that month then multiplying their product by 8.34. If using the Excel spreadsheet version of the MRO/MMR (see the web address below), these calculations are automatically being used. Please call the data manager listed in the upper right-hand corner of your DMR form if you have any questions regarding these calculations. Loading calculations are also explained in the EPA User Guide dated March 1985, which can be obtained from the IDEM website (where state forms are displayed), at:
http://www.in.gov/idem/5104.htm

Report the correct Maximum Values - Maximum Weekly Average versus Daily Maximum:
In many of the sanitary permits, parameters such as Flow, Total Suspended Solids (TSS), CBOD5, and Ammonia Nitrogen, are required to report Maximum Weekly Averages, rather than Daily Maximums. Reporting a Daily Maximum for a parameter (per reporting period) simply means to report the highest daily value that a parameter has for that monitoring period. However, Maximum Weekly Averages require that samples collected per calendar week are averaged and compared to the other weekly averages for that monitoring period (per parameter), so that the week with the highest average value for that parameter is reported on the DMR as the Maximum Weekly Average. Conveniently, the current Excel version of the MRO (particularly the Activated Sludge MRO) provides extra columns and automatically calculates the Weekly Average for flow, TSS, CBOD5, and Ammonia, so that each Weekly Average is displayed beside the corresponding column of daily values. And the highest weekly average (for both Loading and Concentration values) is designated at the bottom of that Weekly Average column, for easy transferal to the DMR form. Also, the current Excel versions of the State forms also employ the correct use of partial week calculations for calendar weeks with fewer than 5 days.

Report Flow accurately:
As mentioned above, flow values are generally recorded in one or both of the first two quality/loading columns. All NPDES permitted facilities should be equipped with at least an effluent flow meter, in order to provide accurate discharge flow data, although some facilities, as per their permit, are allowed to use pump rates or estimations. **If flow data cannot be reported as required by the permit (e.g., flow meter broken), an explanation must accompany the DMR form and the situation must be corrected as soon as possible.**

Most DMR forms currently have two flow parameters. The "FLOW, IN CONDUIT OR THRU TREATMENT PLANT" (#50050) should be completed with the average (daily) flow for the month (first column) and also may require the maximum (daily) average for a week or month (second column). The last flow parameter, "FLOW, TOTAL" (# 82220), should be completed with the sum total of the flow for the monitoring period the DMR represents (such as a month or a quarter), reported in million gallons, not gallons (e.g., 100,000 gallons = 0.1 million gallons). The "Flow, Total" parameter was added (except for pretreatment facilities, coal mines, and quarries) in July of 1998 for the purpose of more accurately calculating annual fees, and is always to be reported in millions of gallons per monitoring period (mg). Thus, if you report a total flow of "260,000" on the DMR (because you had 260,000 gallons for the month) but the DMR units are listed as "MGD", you just reported that you had 260,000,000,000 (260 billion) gallons of flow. **In order to receive correct annual flow fee bills, the "FLOW, TOTAL" (82220) parameter must be reported in millions of gallons.** The Flow, Total is also calculated on most of the Excel versions of the MROs/MMRs and can be easily transferred to the DMR form.

Use the Monthly Geometric Mean, not Arithmetic Average, when reporting E. coli in the average column of the DMR: Most sanitary permittees (municipal, semipublic and state-owned facilities) must already report E. coli measurements or will report E. coli on their DMRs when their permit is renewed. When E. coli is required to be reported, it should be reported as a monthly geometric mean (not a monthly arithmetic average) in the average column of the DMR. The Excel versions of the MRO forms available at the aforementioned website automatically provide geometric mean calculations for E. coli.

Please note that if a facility changes from chlorination to U.V. disinfection and this change does not cause a change to the flow of the plant and is not part of an overall replacement of the plant, a construction permit is not required. However, the Permits Section does need to be notified about the change, to modify the permit to remove chlorine sampling parameters/requirements (if applicable), and require E. coli reporting.

Complete the "No. Ex" – number of exceedances column:
Complete the number of exceedances column, near the right end of each parameter row. This should be a total of any monthly/daily/weekly/quarterly exceedances for both loading and concentration values of a parameter, depending on the frequency of sampling for that parameter.
For example: monthly average limits can only be exceeded 1/month, so there could be a total of 2 average monthly exceedances, if the monthly average concentration limit and the daily maximum (because only one sample was collected that month) was exceeded. However, if the maximum weekly average was exceeded every week in a month, there could be 4 or 5 exceedances for concentration values, alone (8-10 if all the loading calculations were exceeded each week as well). In this particular case, there could be as many as 12 exceedances.

Complete the Frequency of Analysis and Sample Type columns for each parameter sampled:
While this information is not currently keyed into the EPA database, EPA has indicated that they may begin to require the data entry of this information at a later date.

Signature, Date, Telephone Number: Complete the bottom of the DMR form by printing the name of the authorized official on the left side of the page and signing the name of the authorized official on the right side. Legibly print the date the form was completed and provide the current, working phone number of the authorized official, in case IDEM has questions about the DMR information. The forms sent to IDEM should contain original signatures and dates. In the case of revised/copies of the DMR forms, please initial changes, re-sign and date them. This is for legal purposes.

Report GLI Chlorine Measurements accurately (for GLI Permittees only)
Permittees whose facilities are located in the northern part of the state may have GLI (Great Lakes Initiative) reporting requirements for Chlorine that are different from the rest of the state. The permit footnote that corresponds to chlorine reporting will mention "GLI", if it is applicable and will also list any adjustments to the Daily Maximums, if they apply to the facility. In general, the GLI chlorine footnote states that a "0" is allowed to be used as the daily concentration value for chlorine if the actual daily chlorine measurement is < 0.06 mg/l. If it is true that the chlorine measurements for a facility are usually below 0.06 mg/l each day (thus a "0" value can be used for chlorine each of those days in order to calculate the monthly average), the final monthly average concentration for chlorine should be

below 0.01 mg/l. But it is important to remember that even though a daily value of "0" can be used to calculate the monthly average, the real chlorine measurements must be used to determine and report the Daily Maximum concentration (not 0).

Here is an example of a facility that always had Chlorine concentration values greater than the 0.01 mg/l Monthly Average concentration limit. The values that were less than 0.06 could be converted to a "0" for monthly averaging purposes:

Day	Measurement	< 0.06?	GLI value for daily chlorine measurement becomes: (when used to calculate Monthly Average)
Monday	0.05 mg/l	Yes	0
Tuesday	0.03 mg/l	Yes	0
Wednesday	0.04 mg/l	Yes	0
Thursday	0.06 mg/l	No	0.06
Friday	0.02 mg/l	Yes	0
Monday	0.05 mg/l	Yes	0
Tuesday	0.03 mg/l	Yes	0
Wednesday	0.04 mg/l	Yes	0
Thursday	0.03 mg/l	Yes	0
Friday	0.02 mg/l	Yes	0
Monday	0.05 mg/l	Yes	0
Tuesday	0.03 mg/l	Yes	0
Wednesday	0.04 mg/l	Yes	0
Thursday	0.05 mg/l	Yes	0
Friday	0.05 mg/l	Yes	0
Monday	0.06 mg/l	No	0.06
Tuesday	0.03 mg/l	Yes	0
Wednesday	0.04 mg/l	Yes	0
Thursday	0.03 mg/l	Yes	0
Friday	0.02 mg/l	Yes	0
Monday	0.05 mg/l	Yes	0
Tuesday	0.03 mg/l	Yes	0
Monthly Total			0.12

0.12/22 Days = 0.005 mg/l

Monthly Average Concentration	Daily Maximum Concentration
0.005	**0.06**

Averaging 20 zeros ("0") plus 0.12 mg/L will produce a very small number (0.005 mg/L) which can then be reported on the DMR form. But the highest actual chlorine measurement (0.06) needs to be written on the DMR when reporting Daily Maximum concentration. Thus, the two highlighted numbers above would be reported on the concentration side of the DMR form, and both are compliant with their concentration limits.

Likewise the "0" can be used to calculate Monthly Average Loading for each day that the Concentration Measurement value was <0.06 mg/L. That will usually allow the Monthly Average Loading values to be low, as well. Again, for each Daily Maximum loading value report the actual/real Daily Loading calculation value (not 0).

Note: The Daily Maximum value reported (whether Concentration or Loading) for chlorine on the DMR should never be "0". However, if all of the Daily measurements for chlorine are <0.06 mg/L, the Monthly Average reported on the DMR would be "0" (for both the Loading and Concentration Monthly Averages).

III. STATE FORMS – MONTHLY REPORT OF OPERATION (MRO) and MONTHLY MONITORING REPORT (MMR)

In Indiana, MRO forms must accompany the DMR forms for sanitary dischargers and MMR forms must accompany the DMR forms for the non-sanitary (industrial-type) dischargers. These state forms provide a better understanding of the daily operation of the permitted facility. Summary data on the MRO/MMR is used to complete the DMR form.

Choose the correct state form: There is one MMR form and several types of MRO forms available for specific Indiana NPDES facilities. The NPDES facility is responsible for choosing the correct type.

MMR (Monthly Monitoring Report) form 30530 for Industrial, Pretreatment, General, and Federal (non-sanitary) facilities

MRO (Monthly Report of Operation) types for Municipal, Semipublic, and State (sanitary) facilities:

- Activated Sludge Type Wastewater Treatment Plant
- Package Type Wastewater Treatment Plants (for <0.05 MGD flow)
- Waste Stabilization Lagoons (Regular or Controlled Discharger)
- Sequencing Batch Reactor Type Treatment Plants
- Trickling Filter or RBC Wastewater Treatment Plant
- Vertical Loop Reactor Wastewater Treatment Plant

An Excel version of each of these state forms can be obtained by going to http://www.in.gov/idem/5104.htm

Print, download, or request state forms:
These state forms (listed above) can either be printed (use the pdf choice) and hand-filled out or can be downloaded as an Excel spreadsheet and completed on computer. By using the Excel spreadsheet version, the summary data (averages, maximums, minimums, geometric means, totals, percent removals, etc.) is already calculated by the time all the daily/weekly data is entered on it. For those people who do not have access to a computer or the internet, paper copies of any of the forms can be obtained from IDEM by calling the Data Manager whose name and phone number is on the upper right hand corner of the DMR form. If a facility wishes to create its own state form the created state form must be submitted to IDEM to Don Daily and receive his approval before it can be used. Any changes made to it thereafter must also be submitted for approval. At this time IDEM expects that eventual electronic data submittal (for NPDES data) will be accomplished via the state form format.

Fully complete the state form:
Indiana rule requires that the state form (MRO or MMR) that accompanies the DMR form should be completely filled out. The **name of the facility**, the **NPDES number**, and the month/quarter (plus year) during which the data was collected must be on the form in order to credit the facility for MRO/MMR submittal for that **monitoring period**.

For sanitary (MRO) dischargers, a **raw/influent** sample should be collected/analyzed/reported every time a final sample is collected/analyzed. **Precipitation** should be listed, various types of **intermediate treatment** are noted, **bypassing**, other influent and **effluent measurements** are recorded, **sludge hauling**, tertiary treatment, various tank treatment, etc., as they apply. Average, maximum, and minimums are tallied at the bottom of the MRO/MMR columns.

Entering "Less Than" measurements on the Excel MMR/MRO:
If using the State Form as an Excel Spreadsheet, do not enter the "less than" sign ("<") for each daily parameter measurement that has one, in order for the "Average" calculation function to work. When transferring summary data from the MRO form to the DMR form the less than sign ("<") can be used on the DMR when the daily maximum and/or weekly maximum values exceed the threshold of measurement. It can even be used on the DMR for reporting averages, as long as none of the values for that month exceeded the threshold of measurement.

As long as the correct MRO form is used, every column and row that applies to the NPDES permitted facility should be completed on the MRO form for that day of the month. Likewise, every parameter that should be sampled for

non-sanitary dischargers, should be listed on the MMR form showing the date of sampling. Remember, any sampling conducted above and beyond the required permit sampling should also be displayed on the MRO. This is one of the reasons why dischargers who are only required to sample once per month, can have an average value that is different than their maximum value for parameters like Total Suspended Solids and Flow.

Provide correct signatures for the state form:
Indiana rule requires that the names of both the certified operator and the authorized agent be on the state forms. IDEM expects these names to be legibly printed and signed, and has provided additional spaces on the state form to also include information such as the telephone number, email address, certification number of the certified operator, the date of certification expiration, and the type/class of facility, etc.

Attach the state forms and any other information (i.e., a letter explaining a parameter exceedance) **to the back of the corresponding DMR form and submit** to the IDEM address listed on the first page, by the 28th of the month following the DMR Monitoring Period end date.

Please make and keep a copy of the DMR/State form and any other documents submitted, for your records.