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DMR MANUAL

For Completing the Discharge Monitoring Report for the State Pollutant Discharge Elimination System (SPDES)

2002

New York State Department of Environmental Conservation

DMR MANUAL

for

Completing the Discharge Monitoring Report

for the

State Pollutant Discharge Elimination System (SPDES)

New York State

Department of Environmental Conservation

Division of Water

Bureau of Water Compliance Programs

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1.0 INTRODUCTION

This manual has been developed for use by individuals responsible for completing and submitting the Discharge Monitoring Report (DMR) form (sample DMR form in Appendix J) required by the New York State Pollutant Discharge Elimination System (SPDES). It is intended to complement, but not supercede, either the SPDES Permit or applicable SPDES Regulations (Parts 750-1 and 750-2) which are the legal documents to which the permittee will be held responsible. If ever there is a conflict between this guidance and either the SPDES permit or the applicable regulations, the permit or regulations will supercede this guidance.

This DMR manual supercedes the guidance contained in the "General Instructions" printed on the back of each DMR form. Those instructions were intended for use by EPA in the national permit program.

Inquiries and questions regarding the Permit, the Discharge Monitoring Report or guidance contained in this manual should be directed to the appropriate NYSDEC Regional Office, Division of Water (see Appendix A for address). This information is also available on the NYSDEC website.

2.0 GENERAL GUIDANCE

This section contains general guidance for filling out and submitting a Discharge Monitoring Report form. Specific instructions can be found in Sections 3.0 - 6.0 of this manual. Sections are identified on the sample DMR in Appendix J.

2.1 Pre-Printed DMRs

The permittee, as required by their permit, shall report any wastewater or ambient monitoring results using the pre-printed DMR form. Permittees whose permit requires monthly or more frequent monitoring of their discharge will receive pre-printed DMRs on a monthly basis (usually mid-month of the monitoring period). Those who are required by their permit to sample and submit less frequently, such as quarterly, semi-annually, or annually, will receive DMRs during the last month of the monitoring period.

The pre-printed information contained on these forms are: Permittee Name/Address, Permit Number, Discharge Number, Monitoring Period, and Limit Information. If the pre-printed forms are not received by the permittee, or the permittee's designated representative, reprints can be requested from the Bureau of Water Compliance Programs, (see Appendix A or the NYSDEC website for the address). Should the pre-printed form(s) be unavailable to be submitted within the appropriate time period, blank DMR form(s) may be handwritten and submitted, on a temporary basis. Blank forms may be obtained from the appropriate Regional Office (see Appendix A for addresses). Permittees are responsible for submitting their DMR in a timely manner (within 28 days following the last day of the monitoring period, unless otherwise specified by the Department) regardless of whether or not a pre-printed DMR is received.

2.2 Attachments to DMRs

All correspondence and DMR attachments must contain the appropriate SPDES permit number, outfall and monitoring period information. The permit may contain additional reporting provisions with specific reporting requirements. These additional reports should not be attached to the DMR unless specifically required by the permit.

2.3 Sampling

The permittee should have a facility monitoring program that addresses both process control monitoring and permit compliance monitoring. Process control monitoring should be performed to optimize treatment system operations. Permit compliance monitoring is performed to verify compliance with permit limits, and must be reported on the DMR.

Permit compliance monitoring must meet conditions specified by SPDES Regulations which include, but are not limited to, the following:

1.) must be routine and representative of wastewater discharged.
2.) must be conducted using test procedures specified in 40 CFR Part 136[1] except when the permit specifies an alternative procedure; or the Department approves an alternative

[1]To obtain a copy of 40 CFR Part 136, please contact the GPO Order Desk, toll-free at 1-866-512-1800 or browse online at: http://www.access.gpo.gov/nara/cfr/waisidx_01/40cfrv19_01.html

test method.

3.) must be conducted by a laboratory certified by the NYS Health Department under the National Environmental Laboratory Approval Program (NELAP) for tests or sample analyses which require NELAP certificates of approval.[2]

4.) must periodically calibrate and perform maintenance on instrumentation.

2.4 Record Keeping and Data Retention

The permittee shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation and copies of all reports required by a SPDES permit, for a period of at least 5 years[3] from the date of the sample, measurement, report or application. Records of monitoring information shall include:

(i) the date, exact place, and time of sampling or measurements;
(ii) the individual(s) who performed the sampling or measurements;
(iii) the date(s) analyses were performed;
(iv) the individual(s) who performed the analyses;
(v) the analytical techniques or methods used; and
(vi) the results of such analyses.

When records are stored electronically, the records must be preserved in a manner that reasonably assures their integrity and are acceptable to the department. All records must be accessible to DEC/regulatory staff during business hours with reasonable notice.

2.5 Failure to Comply

Failure to submit a completed DMR is a violation of the SPDES permit, Article 17 of the New York State Environmental Conservation Law, and the Federal Clean Water Act. Should such violation(s) necessitate follow-up action by NYSDEC, such actions may lead to applicable penalties under the Law. Willful failure to comply could result in criminal sanctions including fines and imprisonment. Certified wastewater treatment plant operators found responsible for failure to comply could be subject to revocation or suspension of their certificate to operate, pursuant to 6NYCRR 650.10.

Failure to comply with the guidance, as outlined in this manual, for properly completing the DMR may necessitate the return of the submitted information (e.g. DMR, correspondence, etc.) to permittee for correction(s). This could put the permittee in jeopardy of failure to submit the completed DMR within the appropriate time period, which could also result in enforcement.

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[2] Certain specific operation tests are exempted from the requirements of this program, and therefore, do not have to be performed in an approved laboratory. These tests are pH (except monitoring at neutralization treatment processes), temperature (except monitoring of cooling treatment processes), residual chlorine, fluoride (for process control where fluoridation is practiced), settleable solids and dissolved oxygen.

[3] This requirement reflects proposed pending regulations.

3.0 COMPLETING HEADING INFORMATION

See Appendix J for a Sample DMR with specific areas of the form noted to align with the following sub-headings:

3.1 Permittee Name and Address

This is identifying information for the permittee and the facility. The permittee should verify that all information contained on the pre-printed DMR agrees with the SPDES permit. If you believe that the pre-printed DMR is in error, submit a request for a change to the Regional Water Office and attach a copy of the letter with an explanation to each copy of the submitted DMR. Do not alter, line out or highlight any pre-printed items that appear on the DMR.

3.2 Facility Location/Contact Person

This is location information for the facility and sometimes a contact person at the facility. The permittee should verify that all information contained on the pre-printed DMR agrees with the SPDES permit. If you believe that the pre-printed DMR is in error, attach a cover letter with an explanation to each copy of the submitted DMR. Do not alter, line out or highlight any pre-printed items that appear on the DMR.

3.3 Permit Number

Each facility has a unique number consisting of the prefix NY followed by 7 characters (alpha or numeric) which is used by the Department to identify SPDES permitted facilities.

3.4 Discharge Number (Outfall Number) and Designator

The Discharge Numbers are three character fields (alpha or numeric) identifying specific discharge points within the facility. These will correspond to specific sampling points detailed in the SPDES permit. These numbers will be followed by another character (alpha or numeric) which is used to further define specific aspects of the discharge. Different submission frequencies for parameters of the same outfall will be printed on separate DMRs, each with a unique outfall number designator. For example, all parameters requiring monthly monitoring for outfall 001 will appear as outfall 001M, all parameters for outfall 001 with quarterly requirements would print on 001Q, and those with annual requirements on 001A. The outfall designators may also be used in other ways unique to each permit.

3.5 Monitoring Period

Monitoring period (in YY MM DD format) for which the particular DMR is applicable, is from the first day of the period to the last day of the period. Monitoring frequency and cycle are spelled out in the permit and monitoring periods will correspond to those frequencies and cycles.

Example:

		YYMMDD to YYMMDD
Monthly	-	02 01 01 to 02 01 31, etc.
Quarterly	-	02 01 01 to 02 03 31, etc.
Semi-annual	-	02 01 01 to 02 06 30, etc.
Annual	-	02 01 01 to 02 12 31, etc.

3.6 Permit Information and No Discharge Reporting

This area contains information regarding classification of the permit (major/minor), DEC region, the effluent limits type (initial, interim or final) outfall description, and an area to report a “No Discharge” situation.

Should there be no discharge from a particular outfall during the entire monitoring period, the permittee shall check the pre-printed "No Discharge" box located in the upper right-hand corner of each DMR page. The permittee shall also sign, date and submit each page of the DMR and provide an explanation at the bottom for “No Discharge”.

In the event that the facility has permanently ceased discharges, and no longer requires a SPDES permit, notify the appropriate Regional Water Office (See Appendix A for addresses) so that action may be taken to delete the SPDES permit. As required by the ECL, the permittee must continue to submit the DMRs, and indicate “no discharge”, for each outfall until the permittee receives written notice from the Department that they are no longer required to submit DMRS.

4.0 COMPLETING PARAMETER INFORMATION

See Appendix J for a Sample DMR with specific areas of the form noted to align with the following sub-headings.

For the purposes of clarification the following will apply:

Permit Requirement :	A limit and/or monitoring requirement imposed by a SPDES Permit
Sample Measurement :	The value which is reported on the DMR for a parameter
observed/analytical value :	A single observed measurement or analyzed sample result

4.1 Parameter and Monitoring Location

All parameter and monitoring location requirements for each unique discharge number (outfall and designator) are printed on an individual page or multiple pages, as necessary. The parameters are sorted numerically by 5-digit parameter code number, and within that, by monitoring location.

The parameter data is located in the open box(es) along the left side column of the form designated as “Parameter”. The name of the parameter is printed on the first and possibly second line(s). The eight digit number printed on the next (second or third) line in the same box is for internal DEC use only. The description of the monitoring location is printed on the last (third or fourth) line in the same box. These parameters and monitoring locations will correspond with the permit requirements.

4.2 Sample Measurement/Permit Requirement

Unless otherwise specified in the permit or directed by the Regional Water Engineer, actual measured values of all analytical results obtained above the Method Detection Limit (MDL) for all monitored parameters shall be recorded and reported, as required by the permit

Sample Measurement:

The Sample Measurement box is located on the horizontal rows across the DMR form to the right of the Parameter section (box) above the shaded “Permit Requirement” row. Data must be entered in the open boxes labeled Sample Measurement.

- Data must be entered in blue or black ink.
- Do not enter data in boxes that contain a series of asterisks. Only numeric data may be entered, except as noted in Section 4.4. Data must be reported in the same units required by the SPDES permit and as pre-printed on the DMR.
- Do not enter the reporting units, commas or comments, etc. in the Sample Measurement boxes.
- Do not enter symbols or words such as "Trace", "None", "NA", "Not Applicable", etc., on the DMR, except as noted in Section 4.4.
- No more than 8 characters (including decimals) can be entered in each open Sample Measurement box.

Failure to report data as required by a SPDES permit is a violation of the permit. If you do not report certain data, leave that Sample Measurement box blank and attach a note of explanation (See Section 6.1 Comments and Explanation of any Violations).

Example: Permit Requirement: 25000 GPD Actual Flow is 15,000 GPD
In the Sample Measurement box enter 15000 (no comma and no units)

Permit Requirement:
Permit limits and the corresponding statistical bases are pre-printed in the shaded horizontal boxes labeled Permit Requirement. These are located to the right of the "Parameter" box on DMR form. For an explanation of statistical base frequencies and guidance for performing calculations see Section 4.4.

DMR/Permit Discrepancies:
If the pre-printed parameter information on the DMR does not match that required by the SPDES permit, report as required by the SPDES permit (See Section 1.0). Enter on a blank line of the DMR: the correct parameter description, Permit Requirements (include units, frequency of analysis and sample type), and the reported Sample Measurement information (include number of excursions, frequency of analysis and sample type). Should a blank line not be available use a blank DMR form. Attach an explanation of the discrepancy to each copy of the DMR report. Do not alter, line out or highlight any pre-printed items that appear on the DMR.

4.3 Data Reporting Conventions

In reporting data it is important to follow a number of conventions in order to properly report Sample Measurement information. The following rules for significant figures, rounding and precision apply to measured values, such as concentration and not to counted values, such as number of days or conversion factors. Data reporting examples which include these principals can be found in Appendix D.

Significant Figures:
Regardless of the measuring device there is always some uncertainty in a measurement. Significant figures include all the digits in a measurement that are known with certainty as well as the last digit which is an approximation.

> For any parameter, Sample Measurements shall be reported in the same number of significant digits as the limits or action level for that parameter as set forth in the permit. If the permit does not clarify the number of significant digits, Sample Measurements shall be reported in two significant digits, except in the cases of effluent TSS or BOD where single digit effluents are achieved. In these cases, single digits can be reported.

Rules for Significant Figures:
1.) All non-zero digits (1-9) are to be counted as significant.
2.) All zeros between non-zero digits are always significant. Both 4308 and 40.05 contain four significant digits.
3.) For numbers that do not contain decimal points, the trailing zeros may or may not be significant. The number 470,000 may have two to six significant digits.
4.) For numbers that do contain decimal points, the trailing zeros are significant. Both .360 and 4.00 have three significant digits.
5.) If a number is less than 1, zeros that follow the decimal point **and** are before a non-zero digit are not significant. Both 0.00253 and .0670 contain three significant digits.

Rounding:
Rounding may be necessary in order to report in the same number of significant figures as the permit limit. All calculations (i.e. averaging and multiplying) are performed prior to any rounding that is done.

Rules for Rounding:
1.) If the digit being dropped is 1, 2, 3, or 4, leave the preceding number as it is.
20.3 rounded to the nearest whole number, gives you 20.
2.) If the digit being dropped is 5, 6, 7, 8, or 9, increase the preceding digit by one.
26.5 and 26.9, rounded to the nearest whole number, gives you 27 in both cases.

Precision:

In addition to using the correct unit of measurement and applying the appropriate statistical base interval, Sample Measurements must be reported with the same degree of precision that was achieved in the analysis/measurement of the value. This means that numbers resulting from calculations cannot be more precise than the raw data used in the calculations.

Rules for Precision:

1.) For addition or subtraction, the answer can contain no more decimal places than the least precise measurement.
13.681 - 0.5 = 13.181 should be rounded off to the tenths place, with a correct answer of 13.2

2.) For multiplication or division, the least number of significant digits in any of the measurements determines the number of significant digits in the answer.
2.5 x 3.42 = 8.55 should be rounded off to two significant digits, with a correct answer of 8.6

3.) Numbers such as conversion factors or number of days, are counted numbers and are not considered when determining the number of significant digits or decimal places in the calculation.

4.) If both addition/subtraction and multiplication/division are used in a calculation, follow the rules for multiplication/division.

Example: Report the annual total mass loading for phosphorous. Permit Limit: 3125 lbs/yr
Monthly mass loadings:
250.2+ 101+ 135+ 180+ 159+ 225.9+ 258+ 237+ 202.5+ 210+ 246.3+ 236.4 = 2441.3 lbs/yr

Precision rule # 1 applies.
The number 3 (in the tenths place) in the result, is rounded down. Leave preceding number as is.
Enter 2441 in the Sample Measurement Box.

Example: Calculate the suspended solids mass loading.
Permit limit: 75 lbs/day, Q = .67 MGD, C = 10.5mg/L
8.34 lbs/MG = Unit conversion for weight of one gallon of water in pounds.
mg/L

Q x C x Unit Conversion = Mass Loading
0.67 x 10.5 x 8.34 = 58.6719 lbs/day

Precision rule # 2 applies.
The numbers 5 and 8 in the result, are the two significant digits.
The number 6 (in the tenths place) in the result, is rounded up. Increase the preceding digit by one.
Enter 59 in the Sample Measurement Box

Example: Calculate the 7-day average for ammonia
Permit Limit: 4.5 mg/L, sampled 4 times a week
C= 0.56, 0.93, 2.53, 6.92 mg/L

$$\frac{0.56 + 0.93 + 2.53 + 6.92}{4} = 2.735 \text{ mg/L}$$

Precision rules # 3 and # 4 apply (Note: The 4 in the denominator is a counted number).
The numbers 2 and 7 in the result, are the two significant digits.
The number 3 (in the hundredths place) in the result, is rounded down. Leave preceding number as is.
Enter 2.7 in the Sample Measurement Box

Example: Report the 30-day average total suspended solids. Permit Limit: 22 lbs/day
Weekly averages:

$$\frac{11.71 + 6.69 + 4.52 + 3.33}{4} = 6.5625 \text{ lbs/day}$$

Precision rules # 3 and # 4 apply (Note: The 4 in the denominator is a counted number).
The numbers 6, 5 and 6 in the result are the three significant digits.
The number 2 (in the thousandths place) in the result, is rounded down, leaving 6.56 as the result.
The permit limit of 22 lbs/day requires that the result be reported to 2 significant digits. Round 5 up.
Enter 6.6 in the Sample Measurement Box.

Statistical Base Intervals:

Daily
A daily time period is considered as a calendar day or any 24-hour period that reasonably represents the calendar day for purposes of sampling.

Seven (7) Day
A 7-day period is considered as 7 consecutive days generally beginning on Sunday and ending on Saturday. When used in average calculations, divide the monitoring period, typically a period of one calendar month (30 days), into 7-day periods. If part of a 7 day period falls partially in one month (monitoring period) then that portion shall be combined with the data for the remaining portion of that 7-day period at the beginning of the following monitoring period. This 7-day period (part in one month and the remainder in the next month) is used to calculate the 7-day average for the following monitoring period. This data carryover is used only for calculating 7-day averages.

Thirty (30) Day
A 30-day period is considered as 30 consecutive days or a calendar month generally beginning on the first day of the calendar month and ending on the last day of the month.

Quarterly, Semi-annually, Annual
Monitoring periods in excess of 30 days generally require one observed/analytical value per designated interval

Units of Measure:
Data must be reported in the units required by the SPDES permit and as pre-printed on the DMR. Consistent and appropriate units of measure must be used in all calculations/formulas. Conversion information can be found in Appendix C - Conversion Tables

Example:
a) Flow - The pre-printed required unit on the DMR is MGD (Million Gallons per Day). The measured average daily flow is 155,000 GPD (Gallons per Day). The flow data must be converted to MGD (155000/1000000) and then reported as 0.155

b) Zinc - The pre-printed required unit on the DMR is mg/L (Milligrams per Liter). The analytical data provided by the laboratory is 200 ug/L (Micrograms per Liter). The data must be converted to mg/L, (200/1000) and then reported as 0.2

4.4 How to Calculate and Report Data

This section contains general guidance on how to report observed/analytical value information and the calculations that may be required in order to report that information on the DMR. Check for specific requirements in your permit or call your NYSDEC Regional Office for clarification. Report all letter and symbols that are required to the left of the numeric value entered in the Sample Measurement box. Data reporting examples which include these principals can be found in Appendix D.

All calculations (i.e. averaging and multiplying) are performed prior to any rounding off that is done.

Annual Total:
The annual total is the total cumulative mass loading for an entire monitoring year.

Average/Arithmetic Mean:
The average or arithmetic mean is equal to the sum of the measurements divided by the number of measurements.

Example: Set of measurements: 2, 9, 8, 5, 6

$$\text{Arithmetic Mean} = \frac{2+9+8+5+6}{5} = \frac{30}{5} = 6$$

Daily Discharge
For pollutants expressed in units of mass loading (lbs/day or kg/day):
Calculate the total mass loading of the pollutant discharged over the day by using the formula for mass loading found on page 10.
For pollutants with limitations expressed in other units of measurement:
Calculate the average observed/analytical value of the pollutant over the day (except for pH).

Daily Average or Monthly Average
This is the average of daily discharges over a calendar month. Find by calculating the sum of all daily discharges measured during a calendar month divided by the number of daily discharges measured during that month.

Average Concentration:
Seven (7) Day Average Concentration (Quality):
Report in the Sample Measurement box under the maximum column.
Calculate the average of all daily discharges for each 7 days in the monitoring period. The Sample Measurement is the highest of the 7-day averages calculated during the monitoring period.

Thirty (30) Day Average Concentration (Quality):
Report in the Sample Measurement box under the average column.
Calculate the average of all daily discharges during the 30-day monitoring period. The Sample Measurement is the average of all samples measured during the 1 month (30-day) monitoring period. When the SPDES permit requires only 1 observed/analytical value per monitoring period and only one sample was taken, the 30-day and 7-day Sample Measurements are the same. See **Repeated Single Values**, page 16.

Mass Loading:
Mass loading is determined by multiplying the daily flow in million gallons per day (MGD), first by the concentration (mg/L), and then by the unit conversion 8.34 $\frac{\text{lbs/MG}}{\text{mg/L}}$

$$\text{Mass Loading (lbs/day)} = Q\ (\text{MGD}) \times C\ (\text{mg/L}) \times 8.34\ \frac{\text{lbs/MG}}{\text{mg/L}}$$

Q = Daily flow in MGD for each day observed/analytical values are taken.
C = Parameter concentration in mg/L
8.34 $\frac{\text{lbs/MG}}{\text{mg/L}}$ = unit conversion for weight of one gallon of water in pounds.

Seven (7) Day Average Mass Loading (Quantity):
Report in the Sample Measurement box under the maximum column.
Calculate the average of all observed/analytical values for each 7 days in the monitoring period. The Sample Measurement is the highest of the 7-day averages calculated during the monitoring period.

Thirty (30) Day Average Mass Loading (Quantity):
Report in the Sample Measurement box under the average column.
Calculate the average of all observed/analytical values during the 30-day monitoring period. The Sample Measurement is the average of all samples measured during the 1 month (30-day) monitoring period. When the SPDES permit requires only 1 observed/analytical value per monitoring period and only 1 sample was taken, the 30-day and 7-day Sample Measurements are the same. See **Repeated Single Values**, page 16.

Example: Calculate mass loading (lbs/day) as follows:

$$\text{Mass Loading} = \frac{[(Q_{1(MGD)} \times C_{1\,(mg/L)} \times \frac{8.34}{\frac{lbs/MG}{mg/L}}) + (Q_2 \times C_2 \times \frac{8.34}{\frac{lbs/MG}{mg/L}}) + \ldots + (Q_N \times C_N \times \frac{8.34}{\frac{lbs/MG}{mg/L}})]}{N}$$

$Q_1, Q_2, \ldots Q_N$ = Daily Flow in MGD for each day 1, 2, ... N, observed/analytical values are taken
$C_1, C_2, \ldots C_N$ = Parameter concentration(s) in appropriate units (mg/L) for days 1, 2, ... N
8.34 $\frac{lbs/MG}{mg/L}$ = Unit conversion for weight of one gallon of water in pounds.
N = Number of observed/analytical value days in the monitoring period

Moving/Rolling Average:
A rolling average is calculated by using data results from the current date and the respective designated interval prior to the current date.

Example: 12 month rolling average
Calculate the current monthly average and the previous 11 monthly averages and divide the total by 12.

$$\frac{MA_C + MA_1 + MA_2 + \ldots + MA_{11}}{12} = 12 \text{ MRA}$$

MA_C = Current monthly average
MA_1 = First prior month's monthly average
MA_2 = Second prior month's monthly average
MA_{11} = Eleventh prior month's monthly average

Estimated Value (Flow Only):
Use the letter E to indicate estimated value.

Example: Flow is estimated to be 150,000 GPD Permit Limit is 250000 GPD
Enter E150000 in the Sample Measurement box

Extra Sampling:
Permit compliance monitoring shall be scheduled to be routine and representative of the normal discharge and set prior to collection. The permittee may decide to sample and analyze more frequently than required by the permit. This extra sample collection must be incorporated into the facility's monitoring schedule prior to collection and obtained as outlined in Section 2.3 **Sampling**, page 2. The extra sample observed/analytical values must be used in calculations for reporting on the DMR.

Geometric Mean:
(Applicable to Fecal Coliform and Total Coliform, only)

The geometric mean is calculated by multiplying each of the N values together and taking the Nth root of the product.

$$\text{Geometric Mean} = \sqrt[N]{C_1 \text{ x } C_2 \text{ x } \ldots C_N}$$

N = Number of observed/analytical values during the monitoring period.
C_1, C_2,...C_N = Concentration observed/analytical values during the monitoring period.

Example: Wk 1 = 3.0/100 ml, Wk 2 = 36/100 ml, Wk 3 = 24/100ml, Wk 4 = 14/100ml, Permit Limit: 20

geo. mean = $\sqrt[4]{3.0x36x24x14}$ = 13.8/100ml

Precision rule # 2 applies (Note: Exponentials follow the same precision rules as multiplication/division).
The numbers 1 and 3 in the result, are the two significant figures.
The number 8 (in the tenths place) in the result, is rounded up. Increase the preceding digit by one.
Enter 14 in the Sample Measurement Box.

Or, calculate a geometric mean by taking the antilog of the log average.

$$\text{Geometric Mean} = \text{Log}^{-1} \frac{[\text{Log}C_1 + \text{Log}C_2 + \ldots + \text{Log}C_N]}{N}$$

N = Number of observed/analytical values during the monitoring period.
C_1, C_2, ...C_N = Concentration of observed/analytical value during the monitoring period.

Seven (7) Day Geometric Mean (7 DA GEO):
Report in the Sample Measurement box under the maximum column.
Calculate the geometric mean of all observed/analytical values for each 7 days in the monitoring period. The Sample Measurement is the highest of the 7-day geometric means calculated during the monitoring period. See **Too Numerous To Count (TNTC)**, page 16.

Thirty (30) Day Geometric Mean (30 DA GEO):
Report in the Sample Measurement box under the average column.
Calculate the geometric mean of all observed/analytical values during the 30 day monitoring period. The Sample Measurement is the geometric mean of all samples measured during the 1 month (30-day) monitoring period. If only one sample is taken during the monitoring period the Sample Measurement for the 7-day geometric mean will be the same for the 30-day geometric mean. See **Repeated Single Values** and **Too Numerous To Count (TNTC)**, page 16.

Instantaneous Maximum:
Report the Sample Measurement as the highest observed/analytical value during the monitoring period for a specified parameter regardless of the number of samples taken. Report the number of samples collected in the frequency of analysis box.

Instantaneous Minimum:
Report the Sample Measurement as the lowest observed/analytical value during the monitoring period for a specified parameter regardless of the number of samples taken. Report the number of samples collected in the frequency of analysis box.

Invalid Sample (Invalid Quality Control / Lab Accident):
There are a number of conditions when a sample or sample result is considered invalid. These include:

- if a sample is subject to a lab accident and a valid analysis cannot be performed,
- the quality control during sample analysis is not within analytical standards,
- sample preparation results in insufficient dilutions and the result is reported with a greater than symbol >. (Typically occurs with BOD and coliform analysis)

Regardless of the source of error all invalid samples shall be treated as follows:

For one observed/analytical value:
Leave the Sample Measurement box blank.
When sufficient time remains in the statistical base interval (Section 4.3), an additional sample can be collected and reported. When an additional sample is collected and results are not available in time to submit the DMR, submit the DMR on time leaving the Sample Measurement box blank, notify DEC of the situation and submit an amended DMR when the data becomes available.

For more than one observed/analytical value:
Invalid sample results are not to be used in performing calculations. Omit the invalid result from the calculation and report with either a greater than > symbol for maximum or average or the less than < symbol for minimum in the Sample Measurement box.

For all invalid samples:
The permittee shall provide an explanation as to why the sample was invalid and from which if any calculations it was omitted from in the "Comment and Explanation of any Violations" section of the DMR or by attaching an explanation to each copy of the DMR. Documentation from the lab and/or a written explanation from the operator must be retained with lab records for inspection.

Less than:
Use the symbol < to indicate Less Than.
To calculate a Sample Measurement (concentration, mass loading, etc) in which one or more of the reported observed/analytical values are preceded by the “less than” symbol, use the reported value in the calculation. At the end of the calculation add the less than symbol < to the left of the calculated value. The Sample Measurement is then reported as less than the calculated value. When the analytical laboratory performing analysis for the permittee completes the annual MDL study for NELAP certification, the permittee shall submit the results of the study with the next DMR. The submission shall list the parameter certified, method used, and the MDL achieved.

Example: Calculate daily average for ammonia (sample once/week).
Permit Limit: 0.9 mg/L The raw data in mg/L: 0.9, 1.0,< 0.1, 0.5

$$\text{Average concentration} = \frac{0.9 + 1.0 + 0.1 + 0.5}{4} = 0.625 \text{ mg/L}$$

Precision rules # 3 and # 4 apply (Note: The 4 in the denominator is a counted number).
The number 2 in the result, is rounded down. Leave the preceding digit as it is.
Enter < 0.6 in the Sample Measurement Box

Exception - "Less than Method Detection Limit" (MDL)
When the most sensitive approved analytical method for a parameter as described in the NYSDEC document entitled Analytical Detectability and Quantitation Guidelines For Selected Environmental Parameters[4] is used and the MDL was achieved, substitute zero for the "less than MDL value" in calculating a Sample Measurement. When the analytical laboratory performing analysis for the permittee completes the annual MDL study for NELAP certification, the permittee shall submit the results of the study with the next DMR. The submission shall list the parameter certified, method used, and the MDL achieved.

Example: Calculate the average Zinc Concentration.
The most sensitive analytical method listed in the DEC Analytical Guidelines for zinc is GFAA (digestion followed by graphite furnace atomic absorption).

Zinc data: 0.06 mg/L, 0.10 mg/L, 0.02 mg/L, < 0.05 ug/L (where 0.05 ug/L = MDL by GFAA)
Permit Limit: .05mg/L

In the calculation substitute 0 for < 0.05 ug/L.

Average Zinc Conc. = $\frac{0.06+0.10+0.02+0}{4}$ = 0.045 mg/L

Precision rules # 3 and # 4 apply.
After applying rounding rules, the number 5 (in the thousandths place) is rounded up.
Increase the preceding digit by one. Enter 0.05 in the Sample Measurement Box

Maximum/Daily Maximum:
For one observed/analytical value per day:
The maximum or daily maximum Sample Measurement is the highest observed/analytical value during the monitoring period for a specified parameter.

For more than one observed/analytical value per day:
Calculate the daily discharge for each day in the reporting period. Report the Sample Measurement as the highest of the daily discharges calculated.

For pH do not average - report the highest value in the reporting period.

Median:
The median value of a set of measurements is the observed/analytical value that falls in the middle when the values are arranged in order from the lowest to the highest. If there are an even number of values, the median is the arithmetic average of the 2 values which have an equal number of values greater and less than both of them. Should there be only 1 value, that value is the median.

Example:
a. Six Values: 22, 43, 63, 87, 102, 127
The median is the average of 63 and 87, or 75.
b. Five Values: 29, 44, 67, 82, 105
The median is 67.
c. One Value: 20
The median is 20

[4]To obtain a copy of this document, please contact the Bureau of Watershed Assessment & Research at 625 Broadway, Albany NY 12233-3502 or by phone at: (518) 402-8179

Minimum/Daily Minimum:
For one observed/analytical value per day:
The minimum, or daily minimum Sample Measurement is the lowest observed/analytical value observed during the monitoring period for a specified parameter.

For more than one observed/analytical value per day:
Calculate the daily discharge for each day in the monitoring period. Report the Sample Measurement as the lowest of the daily discharges calculated .

For pH do not average - report the lowest value in the reporting period.

Monthly Average Minimum (Percent Removal):
Report the Sample Measurement as the average influent concentration for the month minus the average effluent concentration of the month all divided by the average influent concentration, all multiplied by 100. This is limited as a minimum and is reported in the minimum concentration column of the DMR. (See **Percent (%) Removal**, page 16)

Net Value Limits:
When an analytical value is reported as a concentration, and the limit is a mass loading limit, convert the concentration to mass loading, using the average flow for the day the sample was taken, before doing the calculation for the net value limit.

When either the intake or effluent observed/analytical value is reported as “less than”, substitute the reported value without the less than symbol or negative sign in the calculation unless otherwise directed by the Department.

To report a singular negative net observed/analytical value, report by entering a “0" in the Sample Measurement box. When negative observed/analytical values are involved in a calculation substitute zero “0" for the negative net observed/analytical value.

Example:		Net value	Net calculation (Enter 0 for negative values), lbs/day
Intake (lbs/day)	Effluent (lbs/day)	Effluent-Intake (lbs/day)	
1630	1751	121	121
2335	1635	-700	0
1460	1693	233	233
Avg. net value = [121 + 0 + 233] ÷ 3 = 118 lbs/day Enter 118 in the Sample Measurement box.			

No Discharge of a Single Parameter:
If there is no discharge of a certain parameter during the entire monitoring period, the permittee shall enter "NODI 9" anywhere on the line in the appropriate Sample Measurement reporting box(es) area. This communicates that there was no discharge of that specific parameter. The permittee shall provide an explanation of the "NODI 9" notation in the "Comment and Explanation of any Violations" section of the DMR or by attaching an explanation to each copy of the DMR.

Percent (%) Removal:
Percent removal is reported in the "quality or concentration" minimum column. Calculate the % removal for a given monitoring period as follows:

$$\%\text{Removal} = \left(\frac{[C_{\text{Influent}} - C_{\text{Effluent}}]}{C_{\text{Influent}}} \right) X\ (100)$$

$C_{Influent}$ = Average influent concentration for a given monitoring period

$C_{Effluent}$ = Average effluent concentration for a given monitoring period

Repeated Single Values:
If only one sample is analyzed during a monitoring period, the daily minimum/daily average/daily maximum or 30-day average/7-day average, respectively are the same for reporting purposes. In this particular situation do not leave any of the Sample Measurement boxes blank. Enter the same value in each Sample Measurement box.

Example: Sampling is required once per month for pH. The observed/analytical value is 7.3 units. Enter 7.3 in the Minimum and Maximum Sample Measurement Boxes.

Split Samples:
The permittee may decide for various reasons, to split a sample. This split sample must be incorporated into the facility's monitoring schedule prior to collection and must be obtained as outlined in Section 2.3 **Sampling**. Split sample observed/analytical values are to be averaged and must be used in calculations for reporting on the DMR. In addition, split samples must:

1.) be split on the collection site (not in the lab).
2.) be considered a representative sample and consistent with the facility's monitoring program.
3.) be independent of any selection process for analysis.

Too Numerous to Count (TNTC):
(Applicable to Fecal Coliform and Total Coliform, only).

For one observed/analytical value per monitoring period:
Report the observed/analytical value by entering the letter T in the Sample Measurement box and attach an explanation to the DMR.

For more than one observed/analytical value per monitoring period:
Use all numeric values in the calculation. At the end of the calculation, add the greater than symbol > to the left of the calculated value and attach an explanation to the DMR.

When determining the highest of the 7-day/30-day Averages to report, any value with a greater than symbol (>) will be considered the highest and must be reported.

Example: Calculate the 7-day and 30-day Geometric Means.
Observed/analytical values: Wk 1 = 3.0/100 ml, Wk 2 = 36/100 ml, Wk 3 =T, Wk 4=14/100 ml

7-day geometric mean for Wk 3 = T Enter T in the Sample Measurement box

30-day geometric mean = $\sqrt[3]{3.0 \times 36 \times 14}$ = 11.47/100 ml

Precision rule # 2 applies (Note: Exponentials follow the same precision rules as multiplication/division).
After applying rounding rules, round 4 down. Leave preceding number as is.
Enter > 11 in the Sample Measurement Box .

4.5 Action Levels and Sludge Reporting

Action Levels:
Action Levels are thresholds for parameters that have been reported present in the discharge, but at levels that currently do not require water quality or technology based limits. Action levels are assigned a separate outfall designator (usually "V") for each monitoring frequency. These frequencies are specified in the permit similar to the way effluent limits are (monthly, quarterly, semi-annually and/or annually). Should action levels be exceeded, see the SPDES Permit for necessary action to be taken by the permittee.

Sludge Reporting:
Some permittees meet Federal and State criteria that requires them to report sludge sampling information on the DMR forms (see 40 CFR 501.13, Tables 1-4, 503.18, and 503.32). The DMR forms will have preprinted fields for the sludge parameters for which sampling is required. The permittee must fill out these sections, even though the word "optional" is printed on the DMR form. The word "optional" is necessary for DEC purposes, as there are no numerical limits for the sludge parameters at this time. See Appendix C for information on converting sludge gallons to metric tons.

4.6 Number of Excursions (No. Ex.)
The unshaded areas in this column are where the number of excursions (if any) for each parameter are to be reported.

The value reported in the No. Ex column on the pre-printed DMR shall be the number of days that daily discharge values observed during a specified monitoring period are either lower than the minimum quality (concentration) and/or higher than the maximum quality(concentration) or maximum quantity (mass loading) permit requirements. Number of excursions are not reported for Sample Measurements reported in either of the two "Average" columns.

7-day Averages used to determine the Sample Measurement which exceed the permit limit or contain a greater than symbol (>) should be reported in the Number of Excursions column, as representative of the number of days the sample represents (i.e. 7, 14, 21, 28). Sample Measurements of the 30-day average, daily average, or 12-month rolling average which exceed the permit limit should not be reported in the "No. Ex." column. However, any Sample Measurement which exceeds a 30-day average, daily average, or 12-month rolling average Permit Requirement must be explained and reported on a Report of Non-Compliance Event form (see Appendix B for form, Section 2.5 for instructions) and attached to each copy of the submitted DMR.

Example: The Plainville municipal wastewater treatment facility is required to monitor effluent BOD once per week. During the first and second weeks of the month, there was a plant upset and the effluent BOD concentrations and mass loadings exceeded the 7-day average Permit Requirement. The 30-day average BOD concentrations and mass loadings also exceeded the 30-day average Permit Requirement. The correct number of excursions to be reported in the "No.Ex." box for effluent BOD is

When the SPDES Permit requires continuous monitoring of a parameter, all excursions shall be reported on an attachment, to include the duration, magnitude, and cause of the excursion. The total number of days in which an excursion occurred should be reported in the "No. Ex." column. In the case of continuously monitored pH, each excursion exceeding a 1 hour duration should be footnoted or underlined for emphasis on the attachment. The total number of days that an excursion exceeding 1 hour occurred should be entered in the "No. Ex" column. If pH is monitored more than once per day, the total number of days which had one or more excursions shall be reported in the "No.Ex." column.

Example: An industrial facility adds chemicals to control pH. They measure pH six times per day. During the first three days of the month, the chemical feed equipment malfunctioned. During the first two days of the malfunction, two pH measurements on the first day and three on the second day exceeded the maximum Permit Requirement. On the third day, one measurement exceeded the maximum Permit Requirement, and one measurement was less than the minimum Permit Requirement. The number of excursions that must be reported for the month, is three (3 days).

4.7 Frequency of Analysis

Information in the shaded area of this column reflects the permit requirement for the frequency with which samples are to be taken. Enter the actual frequency of analysis used during the monitoring period in the blank area above the requirement. Appendix E contains the appropriate abbreviations to be used in this space. These abbreviations do not match the information in the shaded area but are in a numerical format for ease of data entry. The left-hand column contains the abbreviation most likely found in the shaded area of the DMR and the next column contains the abbreviation the permittee is required to enter. A written explanation must be attached to each submitted copy of the DMR if the actual frequency of analysis is different than the permit specification.

4.8 Sample Type

Information in the shaded area of this column reflects the permit requirement for the type of sample to be taken. Enter the actual sample type used during the monitoring period in the unshaded area above the requirement. The left column in Appendix F contains the abbreviation most likely found in the shaded area of the DMR and the right column contains the appropriate PCS codes to be entered by the permittee in the unshaded area. A written explanation must be attached to each submitted copy of the DMR if the actual sample type is different than the permit requirement.

5.0 COMPLETING SIGNATURE INFORMATION

See Appendix J for a Sample DMR with specific areas of the form noted to align with the following sub-headings:

5.1 Name/Title Principal Executive Officer or Auth. Agent

The name and title of the person who is authorized to sign the DMR. See Appendix G for clarification of who may sign the DMR.

5.2 Signature and Certification

All DMRs shall be signed (use only black or blue ink) by the person who is authorized to sign the DMR. Each page of the DMR must have an original legible signature. If the principal executive officer authorizes another person to sign the DMRs an authorization form must be signed by the principal executive officer and submitted to the Bureau of Water Compliance Programs (see Appendix A for address). Authorization forms must be submitted and approved prior to DMR submission. See Appendix G for Authorization Form.

The signature box is to the right of the pre-printed certification statement. By signing the DMR, the principal executive officer or his/her authorized agent are acknowledging their agreement with the certification statement which certifies, under penalty of law, that to the best of their knowledge, the data on the DMR was properly collected and evaluated and is true, accurate, and complete. False information entered on the DMR by a permittee, or the permittee's designated representative, may be punishable as a Class A misdemeanor pursuant to Section 210.45 of the State Penal Law. Falsification of a DMR by a certified wastewater treatment plant operator could result in revocation or suspension of the operator's certification pursuant to 6NYCRR 650.10.

Disclaimers and Unsigned DMRs:
The permittee shall not use disclaimers on the DMR. SPDES regulations requires that the DMR be sworn to, "In respect to all statements of fact herein." The DMR form requires certification that, "... the submitted information is true, accurate, and complete." The use of a disclaimer(s) clearly contravenes these requirements. Therefore, any DMR submitted with a disclaimer will not be accepted by NYSDEC and will immediately be returned to the permittee. DMRs which lack a signature are not acceptable and will also be immediately returned to the permittee. No portion of a returned DMR will be accepted by DEC and this could result in penalties for late filing or failure to file.

5.3 Telephone

Telephone number of person signing DMR.

5.4 Date

Date of signature.

6.0 COMPLETING COMMENT INFORMATION

See Appendix J for a Sample DMR with specific areas of the form noted to align with the following sub-heading:

6.1 Comments and Explanation of any Violations

This area may contain pre-printed permit-related clarifying information from the Agency or may be used by the Permittee to communicate to the Agency. Any specific comments regarding a specific discharge number may be printed in this area. If necessary, additional specific comments may be made on a separate sheet (with SPDES permit number, outfall and monitoring period dates referenced) and attached to the DMR.

The permittee is required to report all instances of non-compliance with permit effluent limitations or monitoring requirements. These reports must be attached to each submitted copy of a Discharge Monitoring Report until such non-compliance ceases. These non-compliance reports shall contain each of the following:

- a description of the non-compliance and its cause;
- the period of the non-compliance, including exact dates and times,
- if the non-compliance has not been corrected, the anticipated time it is expected to continue; and
- steps taken or planned to reduce, eliminate, and prevent the non-compliance and its recurrence.

The Report of Non-Compliance Event form (Appendix B) or an equivalent written explanation containing the information requested above shall be used to report all instances of non-compliance.

7.0 SUBMISSION INFORMATION

7.1 Preprinted (paper) Discharge Monitoring Reports (DMRs)

Copies:
Copies of the completed DMR shall be returned to the following offices no later than the 28th of the month following the end of each reporting period (unless otherwise specified in the SPDES permit or a consent order).

The original (top sheet) completed DMR shall be submitted to the Bureau of Water Compliance Programs (see Appendix A for address).
The first copy (second sheet) of the completed DMR shall be submitted to the NYSDEC Regional Office specified in the SPDES permit (see Appendix A for Regional Water Office addresses).

The second copy (third sheet) of the completed DMR shall be submitted to the local County Health Department, if required by the SPDES permit.

The third copy (fourth sheet) shall be retained by the facility for their records. The monitoring information required by the SPDES permit (or a consent order, if appropriate) shall be summarized, signed and retained as required by regulations, for subsequent inspection by the New York State Department of Environmental Conservation (NYSDEC) or its designated agent.

Additional copies of the completed DMR, not otherwise mentioned above, but required by the SPDES permit, must be provided by the permittee and submitted as required.

Attachments to DMRs. Please remember, all correspondence and DMR attachments must contain the appropriate SPDES permit number, outfall and monitoring period information

7.2 Amended DMRs
To revise reported information previously submitted on a DMR, submit a revised copy of the affected pages conspicuously marked “Amendment” in the upper right corner and initial and date the amended areas. The permittees initialing of the amended DMR form shall be subject to the same certification requirements as the original DMR. Attach explanations for the amendments to the DMR.

7.3 Computer Generated DMRs
The DEC will accept computer generated DMRs as long as the permittee receives prior DEC approval. This means that a facility does not have to fill out the paper DMR, rather they can send their monitoring information on a form that they designed. In order to do this, the permittee must submit a formal letter to DEC, requesting permission to use their own form. Along with the letter, they must send in a completed copy of their pre-printed DMR as well as a copy of their computer generated DMR, which closely resembles the preprinted one. DEC will review the form and provide input back to the facility on acceptability. Facilities cannot submit computer generated DMRs until they have received DEC approval. It is the facilities’ responsibility to account for any changes in their computer generated DMR if the preprinted one changes at all. The preprinted DMR will still be sent to the facility, even if they are submitting their own computer generated form.

7.4 Alternative Methods
DEC is developing alternative options to file DMRs, including developing a web site that will allow the submission of DMRs via the Internet. For more information on these programs, please contact the Bureau of Water Compliance Programs at (518) 402-8154 or via email at: cshaugh@gw.dec.state.ny.us.

8.0 TIPS FOR SUCCESSFUL DMR REPORTING

1. Enter data legibly in blue or black ink. Make decimals look like decimals. Do not use commas.

2. Report all data as required by the SPDES permit on the pre-printed DMR.

3. For monthly pH reporting requirement, complete both the maximum and the minimum columns (same value should be entered in both boxes reflecting the one measurement).

4. Enter data in open boxes only (not shaded box(es) or boxes containing asterisks).

5. Do not alter, line out or highlight items appearing on the pre-printed DMR(s).

6. Do not enter units or other extraneous information (such descriptive words or symbols as Trace, Not Applicable, None, etc) in Sample Measurement value boxes.

7. Make sure the reporting units are the same as those that appear in the permit. Special attention should be given when reporting: Flow Data; Temperature; and Concentrations. Use consistent units in calculations.

8. Report values that are less than the detection limit by entering "< MDL" where MDL is the numeric value of the Method Detection Limit. Do not enter "Not Detectable", "Non-Detectable". "ND", "BDL", etc.

9. For no discharge during the entire monitoring period, check the No Discharge box (upper right-hand corner of DMR). Submit all pages marked "No Discharge" for all outfalls.

10. For no discharge of a single parameter during the monitoring period, enter "NODI 9". However, do not use "NODI 9" to report "less than (<)" values.

11. Date and sign all pages of the pre-printed DMR prior to submission.

12. For each instance of non-compliance with a permit requirement, provide a written report.

13. For modifications to permits, make requests in writing to the Regional Permit Administrator. Do not make requests on the DMR form.

14. Send proper copies and attachments to appropriate offices.

List of Appendices

Appendix A

NYS Department of Environmental Conservation Regional Offices

NYSDEC Region 1 Regional Water Engineer 50 Circle Road Stony Brook, NY 11790-2356	(631) 444-0405	Nassau, Suffolk
NYSDEC Region 2 Regional Water Engineer 1 Hunter's Point Plaza 47-40 21st Street Long Island City, NY 11101-5407	(718) 482-4933	Bronx, Kings, New York City, Queens, Richmond
NYSDEC Region 3 Regional Water Engineer 21 South Putt Corners Road New Paltz, NY 12561-1696	(845) 255-3000	Sullivan, Ulster
NYSDEC Region 3 Sub-Office Regional Water Engineer 100 Hillside Avenue, Suite 1W White Plains, NY 10603-2860	(914) 428-2505	Dutchess Orange, Putnam, Rockland, Westchester
NYSDEC Region 4 Regional Water Engineer 1130 North Westcott Rd. Schenectady, NY 12306-2014	(518) 357-2045	Albany, Columbia, Delaware, Greene, Montgomery, Otsego, Rensselaer, Schoharie, Schenectady
NYSDEC Region 5 Regional Water Engineer 1115 NYS Route 86 PO Box 296 Ray Brook, NY 12977-0296	(518) 897-1241	Clinton, Essex, Franklin, Hamilton
NYSDEC Region 5 Sub-Office Regional Water Engineer 232 Golf Course Road Warrensburg, NY 12885-0220	(518) 623-1212	Fulton, Saratoga, Warren, Washington
NYSDEC Region 6 Regional Water Engineer 317 Washington Street Watertown, NY 13601-3787	(315) 785-2513	Jefferson, Lewis, St. Lawrence
NYSDEC Region 6 Sub-Office Regional Water Engineer State Office Bldg. 207 Genesee Street Utica, NY 13501-2885	(315) 793-2554	Herkimer, Oneida
NYSDEC Region 7 Regional Water Engineer 615 Erie Boulevard West Syracuse, NY 13204-2400	(315) 426-7500	Broome, Cayuga, Chenango, Cortland, Madison, Onondaga, Oswego, Tioga, Tompkins
NYSDEC Region 8 Regional Water Engineer 6274 Avon-Lima Road Avon, NY 14414-9519	(585) 226-5450	Chemung, Genesee, Livingston, Monroe, Ontario, Orleans, Schuyler, Seneca, Steuben, Wayne, Yates
NYSDEC Region 9 Regional Water Engineer 270 Michigan Avenue Buffalo, NY 14203-2999	(716) 851-7070	Allegany, Cattaraugus, Chautauqua, Erie, Niagara, Wyoming
NYSDEC Central Office Bureau of Water Compliance SPDES Compliance Information Section 625 Broadway Albany, New York 12233-3506 (518) 402-8177		

Note: See list of current addresses on NYSDEC Website

Appendix B

SECTION 1

New York State Department of Environmental Conservation
Division of Water

Report of Noncompliance Event

To: DEC Water Contact _____ ***DEC Region:*** _____

Report Type: ___ *5 Day* ___ *Permit Violation* ___ *Order Violation* ___ *Anticipated Noncompliance* ___ *Bypass/Overflow* ___ *Other*

SECTION 2

SPDES #: NY-_____ **Facility:**_____

Date of noncompliance:___/___/___ **Location (Outfall, Treatment Unit, or Pump Station):**_____

Description of noncompliance(s) and cause(s):_____

_____

_____

_____

Has event ceased? (Yes) (No) **If so, when?** _____ **Was event due to plant upset?** (Yes) (No) **SPDES limits violated?** (Yes) (No)

Start date, time of event:___/___/___, ___:___ (AM) (PM) **End date, time of event:** ___/___/___, ___:___ (AM) (PM)

Date, time oral notification made to DEC? ___/___/___, ___:___ (AM) (PM) **DEC Official contacted:** _____

Immediate corrective actions:_____

_____

_____

_____

Preventive (long term) corrective actions:_____

_____

_____

_____

SECTION 3

Complete this section if event was a bypass:

Bypass amount: _____ Was prior DEC authorization received for this event? (Yes) (No)

DEC Official contacted: _____ Date of DEC approval: ___/___/___

Describe event in "Description of noncompliance and cause" area in Section 2. Detail the start and end dates and times in Section 2 also.

SECTION 4

Facility Representative: _____ **Title:**_____ **Date:** ___/___/___

Phone #: (_____) _____ - _____ **Fax #:** (_____) _____ - _____

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.

X _____

Signature of Principal Executive Officer or Authorized Agent

The Division of Water developed this standardized form to simplify the reporting of noncompliance events. The SPDES Permit General Conditions, require that certain discharges of untreated or partially treated sewage must be reported orally within either 2 hours or 24 hours and also in writing within five (5) days as required by the appropriate regulation. All other permit noncompliance shall be reported as attachments to the Discharge Monitoring Report (DMR). This form should be used for these events as well as to report noncompliance relating to consent orders, scheduled events and bypass events.

All necessary information can readily be reported to DEC on this form. Additional information required to describe the event can be attached. **Please make additional copies of this form and use as needed**. Instructions are provided below. For questions on form use please contact the appropriate office listed below for the county where your permitted facility is located.

Instructions to complete and submit Noncompliance Report

1. Provide facility information and all applicable event details in Sections 1 through 3. Dates should be completed in month/day/year format.

2. Provide your name, title, business phone number, and date report was completed in Section 4. Use additional sheets as needed to provide full detail of the event in Section 2.

3. For 5-day written reports, mail or fax the completed form to the appropriate DEC Regional Office listed below. Attach all other noncompliance reports to the DMR submittal (be sure to attach to each set of DMR copies) or mail separately if related to consent order/scheduled event noncompliance. After hours and weekend reporting of unusual discharge events or other noncompliance must be reported through the DEC Telephone Hotline, which is 1-800-457-7362.

DEC Regional Offices:

REGION 1	**REGION 2**	**REGION 3 ****
Regional Water Engineer 50 Circle Road Stony Brook, NY 11790-2356 Phone: 631-444-0405 Fax: 631-444-0424 **Counties:** Nassau Suffolk	Regional Water Engineer 1 Hunters Point Plaza 47-40 21st St. Long Island City, NY 11101-5407 Phone: 718-482-4933 Fax: 718-482-6516 **Counties:** Queens Bronx New York Richmond Kings	Regional Water Engineer 21 So. Putt Corners Rd New Paltz, NY 12561-1696 Phone: 845-256-3000 Fax: 845-255-3414 **REGION 3 Suboffice** 100 Hillside Avenue, Suite 1W White Plains, NY 10603-2860 Phone: 914-428-2505 Fax: 914-428-0323 **Counties:** Rockland Dutchess Sullivan Orange Ulster Putnam Westchester
REGION 4	**REGION 5 ****	**REGION 6 ****
Regional Water Engineer 1130 North Westcott Rd. Schenectady, NY 12306-2014 Phone: 518-357-2045 Fax: 518-357-2460 **Counties:** Montgomery Albany Otsego Rensselaer Columbia Delaware Schoharie Greene Schenectady	Regional Water Engineer 1115 Route 86, P.O. Box 296 Ray Brook N.Y. 12977-0296 Phone: 518-897-1241 Fax: 518-897-1245 **REGION 5 Suboffice** 232 Golf Course Road Warrensburg, NY 12885-0220 Phone: (518) 623-1212 Fax: 518-623-1311 **Counties:** Clinton Hamilton Franklin Essex Saratoga Warren Fulton Washington	Regional Water Engineer 317 Washington Street Watertown, NY 13601-3787 Phone: (315) 785-2513 Fax: 315-785-2422 **REGION 6 Suboffice** State Office Bldg. 207 Genesee Street Utica, NY 13501-2885 Phone: 315-793-2554 Fax: 315-793-2748 **Counties:** Lewis Jefferson Herkimer Oneida St. Lawrence
REGION 7	**REGION 8**	**REGION 9**
Regional Water Engineer 615 Erie Blvd West Syracuse, NY 13204-2400 Phone: 315-426-7500 Fax: **Counties:** Madison Cayuga Broome Onondaga Oswego Chenango Tioga Tompkins Cortland	Regional Water Engineer 6274 Avon-Lima Rd Avon, NY 14414-9519 Phone: 585-226-5450 Fax: 585-226-2830 **Counties:** Orleans Genessee Chemung Schuyler Seneca Livingston Steuben Ontario Monroe Wayne Yates	Regional Water Engineer 270 Michigan Avenue Buffalo, NY 14203-2999 Phone: 716-851-7070 Fax: 716-851-7009 **Counties:** Allegany Erie Cattaraugus Niagara Wyoming Chautauqua

Appendix C

Conversion Tables

1 Million Gallons Per Day (MGD) = 1,000,000 GPD To convert MGD to GPD multiply by 1,000,000

1 Gallons Per Day (GPD) = 0.000001 MGD To convert GPD to MGD divide by 1,000,000

1 gallon of water = 8.34 pounds

1 part per million (ppm) = 1 milligrams per Liter (mg/L)

1 part per billion (ppb) = 1 micrograms per liter (ug/L)

1 ppm = 1 mg/L = 1,000 ppb = 1,000 ug/L

1 ppb = 0.001 ppm = 0.001 mg/L

1 ppm = 1 gallon per 1,000,000 gallons (1gal/MG)

Temperature (EF) = [1.8 x TEMP(EC)]+ 32

Temperature (EC) = [TEMP(EF) - 32] x (5/9)

Converting Sludge Gallons to Metric Tons

$$\text{Dry Metric Tons} = \frac{\text{gallons hauled} \times 0.00417 \text{ tons/gal} \times \%\text{ total solids in decimal form}}{1.1 \text{ tons/metric ton}}$$

$$.00417 \text{ tons/gal} = \frac{8.34 \text{ lbs/gallon}}{2000 \text{ lbs/ton}} \qquad \text{Total Solids (in decimal form)} = \frac{\%\text{ Total Solids}}{100}$$

Example: Sludge hauled = 100,000 gals Total Solids = 5.0% or .05

$$\text{Dry Metric Tons} = \frac{100{,}000 \text{ gals} \times 0.0147 \text{ tons/gal} \times .05}{1.1 \text{ tons/metric ton}} = 18.9 \text{ metric tons}$$

Precision rule # 2 applies.
After applying rounding rules, the number 9 is rounded up. Increase the preceding digit by one.
Dry Metric Tons = 19

Appendix D

Data Reporting Examples

Precision:

Rules for Precision:
1.) For addition or subtraction, the answer can contain no more decimal places than the least precise measurement.
13.681 - 0.5 = 13.181 should be rounded off to the tenths place, with a correct answer of 13.2
2.) For multiplication or division, the least number of significant digits in any of the measurements determines the number of significant digits in the answer.
2.5 x 3.42 = 8.55 should be rounded off to two significant digits, with a correct answer of 8.6
3.) Numbers such as conversion factors or number of days, are counted numbers and are not considered when determining the number of significant digits or decimal places in the calculation.
4.) If both addition/subtraction and multiplication/division are used in a calculation, follow the rules for multiplication/division.

Addition:

3.5682	Rule # 1
2.164	
+7.**02**	
12.7522	Rounding –> 12.75

Subtraction:

3.**0486**	Rule # 1
- 0.76358	
2.28502	Rounding –> 2.2850

Multiplication:

1.6843	Rule # 2
x **2.6**	
4.37918	Rounding –> 4.4

Division:

38.2	Rule # 2
÷ 4.1458	
9.2141444	Rounding –> 9.21

Daily Discharge Computation:

Example One: How to calculate a daily discharge involving units of mass loading.
The 5-day BOD concentration is 18 mg/L. The flow on the day the sample was taken was .15 MGD

Step 1: Determine the daily discharge, by finding the total mass loading discharged over the day, using the following formula:

$$\text{Total Mass Loading (lbs/day)} = Q\ (\text{MGD}) \times C\ (\text{mg/L}) \times 8.34\ \frac{\text{lbs/MG}}{\text{mg/L}}$$

Q = Daily flow in MGD for day observed/analytical values are taken.
C = Parameter concentration in mg/L
8.34 lbs/MG / mg/L = unit conversion for weight of one gallon of water in pounds.

= 18 x .15 x 8.34 = 22.518 lbs/day

Step 2: Precision rule # 2 applies. The daily discharge is 23 lbs/day.

Example Two: How to calculate a daily discharge involving units other than mass loading.
The chlorine residual concentrations from grab samples collected throughout the day are:

Sample One:	1.8 mg/L	Sample Four:	2.0 mg/L
Sample Two:	1.9 mg/L	Sample Five:	1.1 mg/L
Sample Three:	1.6 mg/L	Sample Six:	1.5 mg/L

Step 1: Determine the daily discharge by taking the average of the 6 samples.

$$\frac{1.8+1.9+1.6+2.0+1.1+1.5}{6} = \frac{9.9}{6} = 1.65 \text{ mg/L}$$

Step 2: Precision rules # 3 and # 4 apply. The daily discharge is 1.7 mg/L.

Daily Average Computation:

Example Three: How to calculate a daily average at a facility which operates 4 days a week and discharges 4 days a week.

The measured 5-day BOD daily discharges are:

Week One: 12.4mg/L, 16.5mg/L, 11.1mg/L, 14.8mg/L;
Week Two: 15.2mg/L, 10.8mg/L, 10.1mg/L, 12.7mg/L;
Week Three: 11.6mg/L, 10.7mg/L, 13.3mg/L, 14.0mg/L;
Week Four: 14.5mg/L, 16.8mg/L, 17.2mg/L, 20.1mg/L;

Step 1: Determine the daily average. This is accomplished by adding all of the daily discharges and dividing by the number of daily discharges.

$$\frac{12.4+16.5+11.1+14.8+15.2+10.8+10.1+12.7+11.6+10.7+13.3+14.0+14.5+16.8+17.2+20.1}{16} = \frac{221.8}{16} = 13.8625 \text{ mg/L}$$

Step 2: Precision Rules # 3 and 4 apply (Note: The 16 in the denominator is a counted number)
Enter 13.8 in the Sample Measurement Box.

Concentration Computations:

Example Four: How to calculate and report a 30-day and 7-day average 5-day BOD concentration when the sampling frequency requires only one sample per monitoring period.

The measured 5-day BOD concentration of a 24-hour effluent composite is 31 mg/L.

Step 1: Enter 31 in the Sample Measurement Boxes under the "Quantity or Concentration" column. (Since only one sample was collected, the "Average" and "Maximum" Sample Measurements are identical).

Example Five: How to calculate and report a 30-day and 7-day average 5-day BOD concentration when the sampling frequency requires only one sample per week.

The measured 5-day BOD concentrations are:

Week One: 5-day BOD = 31 mg/L;
Week Two: 5-day BOD = 37 mg/L;
Week Three: 5-day BOD = 12 mg/L;
Week Four: 5-day BOD = 27 mg/L;

Step 1: Determine the maximum 7-day average 5-day BOD concentration to be reported. This occurs in Week Two, where 37 mg/L is the highest concentration. Enter 37 in the Sample Measurement Box under the "Maximum" column in the "Quantity or Concentration" section.

Step 2: Determine the 30-day average 5-day BOD concentration. This is calculated, by averaging the 4 concentrations:

$$\frac{31+37+12+27}{4} = \frac{107}{4} = 26.75 \text{ mg/L}$$

Step 3: Precision rules # 3 and # 4 apply.
Enter 27 in the Sample Measurement Box under the "Average" column in the "Quantity or Concentration" section.

Example Six: How to calculate and report a 30-day and 7-day average 5-day BOD concentration when more than one sample per week is collected.

The measured 5-day BOD concentrations are:

Week One:	Day One:	5-day BOD = 28 mg/L;
	Day Two:	5-day BOD = 30 mg/L;
Week Two:	Day One:	5-day BOD = 27 mg/L;
	Day Two:	5-day BOD = 25 mg/L;
Week Three:	Day One:	5-day BOD = 30 mg/L;
	Day Two:	5-day BOD = 29 mg/L;
Week One:	Day One:	5-day BOD = 28 mg/L;
	Day Two:	5-day BOD = 32 mg/L;

Step 1: Compute concentrations for each week:

Week One: Average Concentration = $\frac{28+30}{2} = \frac{58}{2}$ = 29 mg/L

Week Two: Average Concentration = $\frac{27+25}{2} = \frac{52}{2}$ = 26 mg/L

Week Three: Average Concentration = $\frac{30+29}{2} = \frac{59}{2}$ = 29.5 mg/L

Week Four: Average Concentration = $\frac{28+32}{2} = \frac{60}{2}$ = 30 mg/L

Step 2: Determine the maximum 7-day average 5-day BOD concentration to be reported. This occurs in Week Four, where 30 mg/L is the highest concentration. Enter 30 in the Sample Measurement Box under the "Maximum" column in the "Quantity or Concentration" section.

Step 3: Determine the 30-day average 5-day BOD concentration. This is calculated, by averaging the eight 5-day BOD concentrations:

$$\frac{28+30+27+25+30+29+28+32}{8} = \frac{229}{8} = 28.625 \text{ mg/L}$$

Step 4: Precision rules # 3 and # 4 apply.
Enter 29 in the Sample Measurement Box under the "Average" column in the "Quantity or Concentration" section.

Mass Loading Computations:

Example Seven: How to calculate and report a 30-day and 7-day average 5-day BOD mass loading when the sampling frequency requires only one sample per monitoring period.

The measured 5-day BOD concentration of a 24-hour effluent composite is 28 mg/L. The daily flow on the day the sample was collected was 120,000 gallons.

Step 1: Convert flow to Million Gallons: 120,000 gal/day = 0.12 MGD
Step 2: Compute mass loading in lbs/day:

Mass Loading (lbs/day) = Q (MGD) x C (mg/L) x 8.34 $\frac{\text{lbs/MG}}{\text{mg/L}}$

Q = Daily flow in MGD for each day observed/analytical values are taken.
C = Parameter concentration in mg/L
8.34 $\frac{\text{lbs/MG}}{\text{mg/L}}$ = unit conversion for weight of one gallon of water in pounds.

= 0.12 x 28 x 8.34 = 28.0224 lbs/day

Step 3: Precision rule # 2 applies.
Enter 28 in both of the Sample Measurement Boxes under the "Quantity or Loading" column. (Since only one sample was collected, the "Average" and "Maximum" Sample Measurement are identical).

Example Eight: How to calculate and report 30-day average and 7-day average 5-day BOD mass loadings when the sampling frequency requires only one sample per week:

The weekly 5-day BOD concentrations and daily flows on the days samples were collected were:

Week One:	5-day BOD = 25 mg/L;	daily flow = 0.13 MGD
Week Two:	5-day BOD = 30 mg/L;	daily flow = 0.14 MGD
Week Three:	5-day BOD = 35 mg/L;	daily flow = 0.12 MGD
Week Four:	5-day BOD = 27 mg/L;	daily flow = 0.15 MGD

Step 1: Compute Mass Loadings for each week:

$$\text{Mass Loading (lbs/day)} = Q \text{ (MGD)} \times C \text{ (mg/L)} \times 8.34 \frac{\text{lbs/MG}}{\text{mg/L}}$$

Q = Daily flow in MGD for each day observed/analytical values are taken.
C = Parameter concentration in mg/L
8.34 $\frac{\text{lbs/MG}}{\text{mg/L}}$ = unit conversion for weight of one gallon of water in pounds.

Week One (L_1):	Mass Loading = 25 x 0.13 x 8.34 = 27.105 lbs/day
Week Two (L_2):	Mass Loading = 30 x 0.14 x 8.34 = 35.028 lbs/day
Week Three (L_3):	Mass Loading = 35 x 0.12 x 8.34 = 35.028 lbs/day
Week Four (L_4):	Mass Loading = 27 x 0.15 x 8.34 = 33.777 lbs/day

Step 2: The highest of the 7-day averages should be reported . This occurs in both Weeks Two and Three, where 35.028 lbs/day is the highest mass loading. After applying precision rule # 3 and the rounding rules, enter 35 in Sample Measurement Box under the “Maximum” column in the “Quantity or Loading” section.

Step 3: Compute 30-day average (monthly average) mass loading =

$$MA = [(L_1 + L_2 + ... + L_N) / N)]$$

MA = Current Monthly Average
$L_1, L_2, ... L_N$ = Daily mass loading in lbs/day for each day 1, 2, ...N, observed/analytical values are taken
N = Number of observed/analytical value days in the monitoring period.

$$\frac{27.105+35.028+35.028+33.777}{4} = \frac{130.938}{4} = 32.7345 \text{ lbs/day}$$

Step 4: Precision rules # 3 and # 4 apply.
Enter 33 in the Sample Measurement Box under the “Average” column in the “Quantity or Loading” section.

Example Nine: How to calculate and report the 30-day average and 7-day average 5-day BOD mass loadings when more than one sample per week is collected:

The daily 5-day BOD concentrations and daily flows on the days that samples were collected were:

Week One:	Day One:	5-day BOD = 25 mg/L; daily flow = 0.13 MGD
	Day Two:	5-day BOD = 23 mg/L; daily flow = 0.12 MGD
Week Two:	Day One:	5-day BOD = 30 mg/L; daily flow = 0.14 MGD
	Day Two:	5-day BOD = 29 mg/L; daily flow = 0.15 MGD
Week Three:	Day One:	5-day BOD = 35 mg/L; daily flow = 0.12 MGD
	Day Two:	5-day BOD = 33 mg/L; daily flow = 0.13 MGD
Week Four	Day One:	5-day BOD = 27 mg/L; daily flow = 0.15 MGD
	Day Two:	5-day BOD = 29 mg/L; daily flow = 0.14 MGD

Step 1: Compute mass loadings for each day:

$$\text{Mass Loading (lbs/day)} = Q \text{ (MGD)} \times C \text{ (mg/L)} \times 8.34 \frac{\text{lbs/MG}}{\text{mg/L}}$$

Q = Daily flow in MGD for each day observed/analytical values are taken.
C = Parameter concentration in mg/L

8.34 $\frac{\text{lbs/MG}}{\text{mg/L}}$ = unit conversion for weight of one gallon of water in pounds.

Week One: Day One (L_1): Mass Loading = 25 x 0.13 x 8.34 = 27.105 lbs/day
Day Two (L_2): Mass Loading = 23 x 0.12 x 8.34 = 23.0184 lbs/day
Week Two: Day One (L_3): Mass Loading = 30 x 0.14 x 8.34 = 35.028 lbs/day
Day Two (L_4): Mass Loading = 29 x 0.15 x 8.34 = 36.279 lbs/day
Week Three: Day One (L_5): Mass Loading = 35 x 0.12 x 8.34 = 35.028 lbs/day
Day Two (L_6): Mass Loading = 33 x 0.13 x 8.34 = 35.7786 lbs/day
Week Four: Day One (L_7): Mass Loading = 27 x 0.15 x 8.34 = 33.777 lbs/day
Day Two (L_8): Mass Loading = 29 x 0.14 x 8.34 = 33.8604 lbs/day

Step 2: Compute average mass loadings for each week:

Week One: Average mass loading = $\frac{27.105 + 23.0184}{2} = \frac{50.1234}{2}$ = 25.0617 lbs/day

Week Two: Average mass loading = $\frac{35.028 + 36.279}{2} = \frac{71.307}{2}$ = 35.6535 lbs/day

Week Three: Average mass loading = $\frac{35.028 + 35.7786}{2} = \frac{70.8066}{2}$ = 35.4033 lbs/day

Week Four: Average mass loading = $\frac{33.777 + 33.8604}{2} = \frac{67.6374}{2}$ = 33.8187 lbs/day

Step 3: The highest of the 7-day averages should be reported. This applies in Week Two, where 35.6535 lbs/day is the highest mass loading. After applying precision and rounding rules, enter 36 in the Sample Measurement Box under the "Maximum" column in the "Quantity or Loading" section.

Step 4: Compute 30-day average (monthly average) mass loading =

$$MA = [(L_1 + L_2 + ... + L_N) / N)]$$

MA = Current Monthly Average
$L_1, L_2, ... L_N$ = Daily mass loading in lbs/day for each day 1, 2, ...N, observed/analytical values are taken
N = Number of observed/analytical value days in the monitoring period.

$$\frac{27.105+23.0184+35.028+36.279+35.028+35.7786+33.777+33.8604}{8} = \frac{259.8744}{8} = 32.4843 \text{ lbs/day}$$

Step 5: Precision rules # 3 and # 4 apply.
Enter 32 in the Sample Measurement Box under the "average" column in the "Quantity or Loading" section.

Example Ten: How to calculate and report the 30-day average nitrogen mass loadings when one sample per day is collected:

The different component parameters of nitrogen have the following concentrations:

Nitrate=0.5 mg/L Nitrite=0.06 mg/L Ammonia=20.25 mg/L TKN = 22.55 mg/L
Organic Nitrogen = Total Kjehldal Nitrogen (TKN) - Ammonia = 22.55mg/L - 20.25mg/L = 2.30 mg/L

Step 1: Sum the concentrations of the different component parameters of nitrogen.
Nitrate + Nitrite + Ammonia + Organic Nitrogen
0.5 mg/L + 0.06 mg/L + 20.25 mg/L + 2.30 mg/L = 23.11 mg/L
Apply precision rule #1. Nitrogen concentration = 23.1 mg/L.

Step 2: Compute the daily mass loading of nitrogen with a daily flow of 100MGD.

Mass Loading (lbs/day) = Q (MGD) x C (mg/L) x 8.34 $\frac{\text{lbs/MG}}{\text{mg/L}}$

Q = Daily flow in MGD for each day observed/analytical values are taken.
C = Parameter concentration in mg/L
8.34 $\frac{\text{lbs/MG}}{\text{mg/L}}$ = unit conversion for weight of one gallon of water in pounds.

Day One (L_1) : Mass Loading = 100 x 23.1 x 8.34 = 19265.4 lbs/day

Step 3: Compute mass loadings for each day of the month using the methods in Step 2.

Step 4: Compute the 30-day (or monthly) average Nitrogen mass loading, using the formula below:

$$MA = [(L_1 + L_2 + ... + L_N) / N)]$$

MA = Current Monthly Average
$L_1, L_2, ... L_N$ = Daily mass loading in lbs/day for each day 1, 2, ...N, observed/analytical values are taken
N = Number of observed/analytical value days in the monitoring period.

Step 5: Apply precision rules # 3 and # 4. Round number and enter in Sample Measurement Box.

Rolling Average Computation:

Example Eleven: How to calculate 12-month rolling average phosphorus mass loadings from collected sample data.

Step 1: Follow the steps 1 - 4, for calculating the 30-day average mass loadings as seen in the 30-day average 5-day BOD mass loadings above (Examples Seven - Nine).

Step 2: Calculate the 12-month rolling average by using the following equation:

$$\frac{MA_C + MA_1 + MA_2 + \ldots + MA_{11}}{12} = 12 \text{ MRA}$$

MA_C = Current monthly average
MA_1 = First prior month's monthly average
MA_2 = Second prior month's monthly average
MA_{11} = Eleventh prior month's monthly average

MA_1 = 2.7 mg/L	MA_7 = 3.0 mg/L
MA_2 = 3.2 mg/L	MA_8 = 3.6 mg/L
MA_3 = 6.0 mg/L	MA_9 = 2.7 mg/L
MA_4 = 6.0 mg/L	MA_{10} = 2.5 mg/L
MA_5 = 3.2 mg/L	MA_{11} = 1.9 mg/L
MA_6 = 2.9 mg/L	MA_{12} = 2.2 mg/L

$$\frac{2.7+3.2+6.0+6.0+3.2+2.9+3.0+3.6+2.7+2.5+1.9+2.2}{12} = \frac{39.9}{12} = 3.325 \text{ mg/L}$$

Step 3: Precision rules # 3 and # 4 apply. Enter 3.3 in the Sample Measurement Box.

Step 4: For the following month, use the current monthly average as well as the previous 11 months.
Current month = MA_{13} = 3.9 mg/L

$$\frac{3.2+6.0+6.0+3.2+2.9+3.0+3.6+2.7+2.5+1.9+2.2+3.9}{12} = \frac{41.1}{12} = 3.425 \text{ mg/L}$$

Step 5: Precision rules # 3 and # 4 apply. Enter 3.4 in the Sample Measurement Box.

Geometric Mean Example:

Example Twelve: How to calculate a 7-day and 30-day geometric mean when the sampling frequency requires only one sample per week.

The measured fecal coliform concentrations for each week are:

Week One:	4 MPN/100ml
Week Two:	6 MPN/100ml
Week Three:	1,100 MPN/100ml
Week Four:	80 MPN/100ml

Step 1: Determine the 7-day geometric mean. This occurs in Week Three, where 1,100 MPN/100ml is the highest concentration. Enter 1100 in the Sample Measurement Box under the "Maximum" column in the "Quality or Concentration" section.

Step 2: Determine the 30-day geometric mean.

Either using:

$$\text{Geometric Mean} = \sqrt[N]{C_1 x C_2 x ... x C_N}$$

N = Number of observed/analytical values during the monitoring period.
C_1, C_2, ...C_N = Concentration of observed/analytical value during the monitoring period.

$$\text{Geometric Mean} = \sqrt[4]{4 \times 6 \times 1100 \times 80} = \sqrt[4]{2112000} = 38 \text{ MPN/100ml}$$

or:

$$\text{Geometric Mean} = \text{Log}^{-1}\frac{[\text{Log}C_1 + \text{Log}C_2 + ... + \text{Log}C_N]}{N}$$

N = Number of observed/analytical values during the monitoring period.
C_1, C_2, ...C_N = Concentration of observed/analytical value during the monitoring period.

$$\text{Geometric mean} = 10^{\frac{[\text{Log}\,4 + \text{Log}\,6 + \text{Log}\,1100 + \text{Log}\,80]}{4}} = 38 \text{ MPN/100ml}$$

Enter 38 in the Sample Measurement Box under the "Average" column in the "Quality or Concentration" section.

Appendix E

Frequency of Analysis

If the permittee does sampling at a frequency which is not on the list, then he/she should use the following guidelines to determine how to report it: The denominator of the code denotes the sampling period in the permit. For instance, 07 stands for a week, 30 for a month, YR for a year. Choose the appropriate denominator and then insert the number of samples taken in that time as the numerator. The numerator and denominator may not exceed two places.

FREQUENCY OF ANALYSIS	
DESCRIPTION	PCS CODE
INSTNT	01/99
EVERY ½ HR	48/01
HOURLY	24/01
DAILY and/or ONCE/ DSCHDAY and/or DLY WHNDISCHARG	01/01
TWICE/ DAY	02/01
WEEKLY and/or ONCE/DSCHWK and/or WKLY WHN DISCHARG	01/07
TWICE/ WEEK	02/07
ONCE/ 8 DAYS	01/08
ONCE/ 2WEEKS	01/14
ONCE/ MONTH	01/30
ONCE/2 MONTHS	01/60
QTRLY and/or ONCE/ DSCHQTR	01/90
SEMI- ANNUAL	02/YR
ANNUAL	01/YR
THREE/ YEAR	03/YR
CONTINUOUS	99/99
ONCE/ DISCHG	01/DS
ONCE/ BATCH	01/BA
ALTERNTRUN	AL/RN
SEE PERMIT	02/99

Appendix F

Sample Type

The table contains the sample types most often used in New York State SPDES permits. If the exact description of the sample type used is not in the table, the permittee should simply follow the conventions for PCS codes that are in the table.

SAMPLE TYPE	
DESCRIPTION	PCS CODE
GRAB	GR
GRAB-4	G4
GRAB-6	G6
COMPOS	CP
COMP-4 (hour)	04
COMP-6	06
COMP-8	08
COMP24	24
BATCH	22
CALCULATED	CA
CHECK REQUIREMENTS	CR
ESTIMATED	ES
FLOW IND	FI
INSTANTANEOUS	IN
MEASURED	MS
METER	MT
RECORDER	RC
TOTALZ	TM
VISUAL	VI

Appendix G

Discharge Monitoring Report (DMR) Signature Authorization

Your SPDES permit may require you to periodically submit a Discharge Monitoring Report (DMR). The reports must be signed as follows:

1. for a corporation: by a responsible corporate officer. For the purposes of this section, a responsible corporate officer means:

   (i) a president, secretary, treasurer, or vice president of the corporation in charge of a principal business function, or any other person who performs similar policy or decision-making function for the corporation, or

   (ii) the manager of one or more manufacturing, production, or operating facilities employing more than 250 persons or having annual sales or expenditures exceeding $25 million (in second quarter 1980 dollars), if authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures, or

2. for a partnership or sole proprietorship: by a general partner or the proprietor, respectively; or

3. for a municipality, state, federal, or other public agency: by either a principal or executive officer or ranking elected official. A principal executive officer of a federal agency includes:

   (i) the chief executive officer of the agency, or

   (ii) a senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency; or

4. a duly authorized representative of the person described in items (1), (2), or (3). A person is a duly authorized representative only if

   (i) the authorization is made in writing by a person described in paragraph (1), (2), or (3);

   (ii) 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 well field, superintendent, position of equivalent responsibility, or an individual or position having overall responsibility for environmental matters for the company. (A duty authorized representative may thus be either a named individual or any individual occupying a named position);

   (iii) the written authorization is submitted to the Department.

Initial authorization or changes to authorization: If an authorization under paragraph (4) is no longer accurate because a different individual or position has responsibility for the overall operation of the facility, a new authorization satisfying the requirements of paragraph (4) must be submitted to the Department prior to, or together with, any reports to be signed by an authorized representative.

THE ATTACHED FORM MUST BE COMPLETED AND SUBMITTED TO THE DEPARTMENT. The person identified on the first line must be person described in paragraph (1), (2), or (3). The form may be used to designate an authorized representative as described in paragraph (4). The permittee must notify the department of any change in the information on the attached form during the life of the permit. We strongly recommend at least two people be identified to sign DMRs to cover such absences as vacations, illness, retirements, etc.

Discharge Monitoring Report (DMR) Signature Authorization Form

Permittee Name______________________________ SPDES NO.____________________

Facility Name______________________________ Date____________________

Name of person described in paragraph (1), (2) or (3):	Title:
Signature of person described in paragraph (1), (2), or (3):	Date:

THE PERMITTEE MUST NOTIFY THE DEPARTMENT OF ANY CHANGE IN THIS INFORMATION DURING THE LIFE OF THE PERMIT

Name and/or Title of person responsible for signing and submitting DMR's:	Phone: ( )		
Mailing Name:			
Mailing Address:	City:	State:	Zip Code:

Name and/or Title of person responsible for signing and submitting DMR's:	Phone: ( )		
Mailing Name:			
Mailing Address:	City:	State:	Zip Code:

Name and/or Title of person responsible for signing and submitting DMR's:	Phone: ( )		
Mailing Name:			
Mailing Address:	City:	State:	Zip Code:

Name and/or Title of person responsible for signing and submitting DMR's:	Phone: ( )		
Mailing Name:			
Mailing Address:	City:	State:	Zip Code:

Return To: SPDES Compliance Information Section
Bureau of Water Compliance Programs
New York State Department of Environmental Conservation
625 Broadway
Albany, NY 12233-3506

Appendix H

Glossary

Ambient Monitoring - The collection of information on the physical, chemical and/or biological characteristics of the receiving water in order to describe the current environmental condition.

Annually - Pertaining to an event that occurs one time per year.

Contact Person - Person within the permittee's organization that DEC can call to obtain more information about the DMR.

Cumulative - The accumulation of, or the addition of successive elements.

Daily Discharge - The discharge of a pollutant measured during a calendar day or any 24-hour period that reasonably represents the calendar day for purposes of sampling. For pollutants with limitations expressed in units of mass loading, the 'daily discharge' is calculated as the total mass loading of the pollutant discharged over the day. For pollutants with limitations expressed in other units of measurement, the 'daily discharge' is calculated as the average measurement of the pollutant over the day.

Discharge Monitoring Report (DMR) - A report submitted by a permittee to the department summarizing the parametric values of the effluent as sampled by the permittee over periods of time as specified in the SPDES permit.

EPA - United States Environmental Protection Agency

Flow Weighted Average - An average calculated to account for the effect of flow.

General Instructions - Instructions printed on the back of each DMR. These instructions are the guidelines set forth by EPA for use in their National permit program. The DMR Manual supercedes these instructions.

Least Precise Number - The observed/analytical value with the fewest significant figures used in a calculation.

Mass Loading - The weight of the pollutant/parameter measured in either lbs/day or kg/day.

Maximum Daily Discharge Limitation - The highest allowable daily discharge.

Method Detection Limit (MDL) - The level at which an analytical procedure is capable of determining with a 99 % probability that the substance is present. The precision at this level is +/- 100%. See the Analytical Detectability and Quantitation Guidelines For Selected Environmental Parameters for further information.

Moving Average - See Rolling Average

NELAP (National Environmental Laboratory Approval Program) - A program legislated under Section 502 of the Public Health Law and administered by the New York State

Department of Health which is responsible for the certification of laboratories performing environmental analyses on samples originating from New York State to ensure the accuracy and reliability of these analyses.

NELAP Certified Laboratory - An environmental laboratory certified under the National Environmental Laboratory Approval Program. All environmental laboratories analyzing samples from the State of New York must be NELAP certified if certification is offered for said analyses. A certified laboratory must be directed by an individual who is qualified through education and experience, performed satisfactorily in at least semi-annual proficiency testing and an annual on-site inspection. Certified laboratories are required to use state-approved analytical methods and adhere to a program of mandated quality assurance/quality control procedures.

Net Value - The net amount of pollutant discharged to the receiving water after deducting the contribution of the pollutant from untreated water taken from the same waterbody for process use.

No Discharge - Absence of the pollutant/parameter referenced to, discharged into waters of the State through an outlet or point source.

Notice of Deletion - An official notice sent to the permittee by the Department, notifying the permittee that the permit has been discontinued.

NYSDEC - New York State Department of Environmental Conservation

Observed/Analytical Values - A single analyzed sample or observed measurement.

Parameter - A characteristic required by the permit to be monitored and reported on a Discharge Monitoring Report.

Parts 750-1 and 750-2 - SPDES regulations which are the legal documents to which the permittee is held responsible for compliance.

Percent (%) Removal - The amount of a substance that is removed by whatever processes, from the influent to the effluent. Expressed as a percent.

Permit Compliance Monitoring - Monitoring and reporting which is required by a SPDES permit.

Permit Requirement - A limit and/or monitoring requirement imposed by a SPDES Permit.

Permittee - A person or entity to which a SPDES permit is issued.

Process Control Monitoring - Internal monitoring conducted to control process performance. Does not require use of an NELAP Certified Laboratory.

Quarterly - Pertaining to an event that occurs four times a year.

Regional Water Engineer - An employee of the Department, one for each of the Department's nine regions, designated to act on the Commissioner's behalf in carrying

out the provisions of Article 17 and rules and regulations adopted pursuant thereto, or the Regional Water Engineer's designated representative. When used in this manual, the Regional Water Engineer is the one designated for the DEC Region in which the permitted facility discharges.

Regional Water Office - The New York State Department of Environmental Conservation is divided into 9 Regions, each having their own Water Office. The appropriate Regional Water Office for a permittee is listed on the SPDES Permit. Each Regional Water Office is supervised by a Regional Water Engineer.

Report of Non-Compliance Event - The written explanation for each instance of non-compliance with SPDES permit requirements. A form or equivalent written explanation containing the information requested in Section 2.5 which is required to be submitted to NYSDEC. Attached as Appendix B.

Rolling Average - An average which is calculated for a moving time period rater than a specific calendar time period.

Sample Measurement - The value which is reported on the DMR for a parameter.

Semi-Annually - Pertaining to an event that happens two times per year.

SPDES - New York State Pollutant Discharge Elimination System

SPDES Permit - A permit to discharge to either the surface waters or ground waters of New York State.

Split Samples - A single sample that is divided into two containers and analyzed separately.

Statistical Base Interval - An interval of time used to calculate a Sample Measurement.

TNTC - Too Numerous To Count, used by laboratories in reporting Fecal and Total Coliform when insufficient dilutions are performed and therefore analysis cannot quantify the result.

Units of Measure - Units used to specify effluent quality, such as milligrams per liter, parts per billion, standard units, etc.

Appendix I

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