

Rhode Island Department of Environmental Management

***2020
Rhode Island Pollutant Discharge Elimination System (RIPDES)
Discharge Monitoring Report (DMR)
Instructions***

***Rhode Island Department of Environmental Management
RIPDES Program
235 Promenade Street
Providence, RI 02908***

Revised September 14, 2020

CHAPTER I: INTRODUCTION TO DMR FORM

DMRs should be reviewed carefully so that permittees ensure that the pre-printed/electronic DMRs are consistent with the sampling and reporting requirements listed in the final permit document and so that the permittees familiarize themselves with the reporting requirements. It is important to check the pre-printed/electronic information (i.e. discharge number, monitoring period, parameter, permit limits, sampling frequency, etc.) and, if there are any discrepancies between the DMRs and the RIPDES permit, contact the RIPDES Program at 222-4700. You are legally obligated to report the information required in your permit despite any errors or omissions on the DMRs. After reviewing the DMRs for completeness, be sure to read these instructions to be certain you understand your reporting obligations.

If the DMRs include multiple sets of monitoring requirements to cover different production schemes, monitoring frequencies, monitoring requirements (benchmark monitoring, Effluent Limit Guidelines monitoring, Impaired water monitoring etc.), or climatic considerations for the same discharge point (outfall/pipe), the permittee is required to submit all DMRs for that discharge point (outfall/number). **In some circumstances, this may mean a permittee is reporting the same data point on multiple DMRs.** To access the electronic DMR for review, please follow the instructions below.

1. DMR webform Search for Review and Data Entry:

- a. Sign into your Central Data Exchange (CDX) account OR
Create a CDX account (for more information, see Chapter II of this document or review additional guidance documents at www.dem.ri.gov/ripdesErule)
- b. Click on your role (hyperlinked) for the NDMR-RI: NetDMR program service,
- c. Click on “continue to NetDMR” (hyperlinked) to get to the NetDMR home Page.
- d. Select your permit from the drop-down menu OR
Request access to your permit (see additional guidance documents at www.dem.ri.gov/ripdesErule),
- e. Click “update”;
- f. Enter the Monitoring Period End Date Range (ex. - 01/01/2017 to 03/31/2017).
NOTE: NetDMR will only allow users to view DMRs for the current and past monitoring periods. Therefore, permittees are unable to view future DMRs through NetDMR.
- g. Scroll down and click “Search”

The screenshot displays the NetDMR search interface. At the top, there are tabs for "All DMRs & CORs", "DMRs Ready to Submit", "Permit ID", and "Users". The "All DMRs & Copies of Record (CORs)" tab is selected. Below the tabs, a search bar is present. The main search area includes several filter sections: "Permit ID" with a dropdown menu set to "NCXDMR001" and an "Update" button; "Facility" with a dropdown menu set to "All" and an "Update" button; "Permitted Feature" with a dropdown menu set to "All" and an "Update" button; "Discharge" with a dropdown menu set to "All"; "Monitoring Period End Date Range" with two date input fields set to "01/01/2017" and "03/31/2017" and a "(mm/dd/yyyy)" label; "Edited or Submitted By" with a dropdown menu set to "All"; "Status" with a list of status options including "Ready for Data Entry", "NetDMR Validation Errors", "NetDMR Validated", "Imported", "Signed & Submitted", "Submission Errors/Warnings", and "Completed", along with an "All" button and a note "(Hold down CTRL or Mac command key to select/deselect multiple)"; "Scheduled/Unscheduled" with a dropdown menu set to "All"; and "COR Confirmation #" with an empty input field. At the bottom of the search area, there are "Search" and "Clear All Fields" buttons.

- h. The result screen on the next page should show you forms that are available and “ready for data entry”. Please make sure the next step column is auto-populated to read “edit DMR” and click the “Go” button next to it.

Next Step(s)	Permit ID	Facility	Permitted Feature	Discharge #	Discharge Description	Monitoring Period End Date	Scheduled/Unscheduled	DMR Due Date	Status
Edit DMR <input type="button" value="Go"/>	NCXDMR001	FAC SITE	001	001-A	(no description)	03/31/17	Scheduled	04/24/17	Ready for Data Entry
Edit DMR <input type="button" value="Go"/>	NCXDMR001	FAC SITE	001	001-B	(no description)	03/31/17	Scheduled	04/15/17	Ready for Data Entry
Edit DMR <input type="button" value="Go"/>	NCXDMR001	FAC SITE	002	002-A	(no description)	03/31/17	Scheduled	04/24/17	Ready for Data Entry
Edit DMR <input type="button" value="Go"/>	NCXDMR001	FAC SITE	003	003-A	(no description)	03/31/17	Scheduled	04/05/17	Ready for Data Entry

- i. For further data entry instructions, please refer to the NetDMR User Guide section 4.2 available at www.dem.ri.gov/ripdesErule.

2. Description of the paper DMR and DMR webform:

Figure 1. Top Half of DMR Webform in NetDMR

View All | Clear Parameter Fields | Save & Continue | Save & Exit | Print Friendly View | Cancel/Back to Search Results

Edit DMR

Collapse Header

Permit
 Permit ID: R10100005 Major:
 Permittee: BRISTOL TOWN HALL Permittee Address: 10 COURT STREET
 BRISTOL, RI 02809-2208
 Facility: BRISTOL WPCF Facility Location: 2 PLANT AVENUE BRISTOL WWTF
 BRISTOL, RI 02809
 Permitted Feature: 001 - External Outfall Discharge: A - WASTEWATER

Report Dates & Status
 Monitoring Period: From 03/01/19 to 03/31/19 DMR Due Date: 04/15/19
 Status: **Ready for Data Entry**

Principal Executive Officer
 First Name: Last Name:
 Title: Telephone:

No Data Indicator (NODI)
 Form NODI:

Showing Parameters 1 - 10 of 17

Code	Name	NODI	Quantity or Loading			Quality or Concentration			# of Ex.	Freq. of Analysis	Smpl. Type
			Value 1	Value 2	Units	Value 1	Value 2	Value 3			
00310	BOD, 5-day, 20 deg. C	Smpl.	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	03/07	24
1 - Effluent Gross											
Season: 0	Req.		<= 948 Monthly Average	<= 1580 Daily Maximum	Pounds per Day	<= 30 Monthly Average	<= 45 Weekly Average	<= 50 Daily Maximum	Milligrams per Liter	Three Per Week	COMP24
NODI: <input type="text"/>	NODI	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>		
00310	BOD, 5-day, 20 deg. C	Smpl.	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	03/07	24
G - Raw Sewage Influent											

a. Permit ID Number

Verify that the correct RIPDES permit number appears on the DMR/webform. All correspondence regarding the facility, including DMRs and report submissions, must prominently display the permit number.

b. Major

Verify that the major status is correct for the permit ID. Please refer to 250 RICR-150-10-1.4(A)(55) for definition.

NOTE: all General Permits issued by RIPDES will be considered minor (box is unchecked) regardless of the facility activity.

c. Permittee Name/Address/Facility/Location

Verify that the correct corporate/municipal name and mailing address and correct facility name and location appears in the top of the DMR/webform.

d. Permitted Feature/Discharge Number (Outfall/Pipe)/Discharge Name/Monitoring Period

A separate DMR form is generated for each monitoring period and for each Discharge Number (Outfall/Pipe). The Monitoring Period is in the Report Dates & Status section of the webform and printed in the boxes below the permit and discharge boxes in the paper DMR. The Monitoring Period refers to the beginning and ending date range for when a sample must be collected. Verify that you are reporting data on the DMR for the correct Discharge (outfall/pipe) and the correct Monitoring Period. Additionally, verify that the data reported is for the correct discharge location for each subsequent monitoring period (ex. If 001 on your notice of intent (NOI) or application is described as "outfall by west dock", always report data for "outfall by west dock" on the 001 DMRs).

NOTE: Some multi-sector general permittees may be required to report the same data result from the lab on multiple DMRs or in multiple data fields. The RIDEM is working with the EPA to minimize this duplicative effort.

e. Principal Executive Officer

This is name, title, and phone number of the person who is responsible for signing the DMR. Please review 40 CFR 122.22 and 250-RICR- 150-10-1.12 for details on who can sign and submit reports.

f. Form NODI (webform only) or "No Discharge" check box (paper DMR only)

If there was no discharge for the entire monitoring specified on the paper DMR, the permittee can simply mark an "X" in the No Discharge box of the paper DMR, and sign and submit the report. If a permittee did not have a discharge, or had a discharge but does not have data to report for the monitoring period, the Form NODI field on the webform can be populated by selecting a No Data Indicator (NODI) code from the drop-down box. See Chapter I.i.4 "Missing or Unavailable data" in this guidance document for more information on selecting the appropriate NODI code.

g. Parameter Column

The boxes in the column at the far left of the DMR contain the name and computer identification code, discharge type and code (i.e., 1 - Effluent Gross), and Season for each pollutant parameter that must be reported. Seasonal parameters are only shown on the DMR/webform for the monitoring period stipulated in the permit. Parameters that must be reported less frequently than monthly (i.e., quarterly, semi-annually, etc.) will have their own DMR/webform and are due after the last month of the monitoring period. Sampling for these parameters may be performed any time during the monitoring period, unless otherwise specified in your permit. Verify that these parameters reflect your RIPDES permit requirements.

h. Permit Requirement Row

The permit requirement row is indicated by "Req." in a blue box for each parameter on the webform and lists the permit effluent limit for each parameter and the statistical basis on which the information must be reported (i.e., monthly average, daily maximum, etc.). If your permit does not specify a limit for the parameter, but monitoring and reporting is required, the DMR lists the words "Req Mon" followed by a narrative description of the statistical basis on which the information must be reported. The permit requirement row also lists the units (i.e., lb/d, mg/l, ug/l, etc.) in which the sample measurement values must be reported, the frequency of analysis, and sample type specified for each parameter. Verify that the information contained in the permit requirement row for each parameter reflects your RIPDES permit requirements once your new permit has been authorized and every time you report DMR data.

i. Sample Measurement Row

The sample measurement row is indicated by "Smpl." in a blue box for each parameter on the webform. The results of sample analyses conducted during the monitoring period must be reported wherever there are blank boxes in the sample measurement rows. Boxes containing asterisks, "*****", on paper DMRs do not require sample measurements to be reported. The monitoring frequencies specified in the RIPDES permit are minimum monitoring frequencies. Any additional monitoring conducted using 40 CFR Part 136 approved methods, even if it

is beyond the minimum frequency, must be reported in the sample measurement rows (if you are able to do so, i.e. – monthly average, etc.). Such increased frequencies of sampling shall be reported in the Frequency of Analysis block and in your cover letter for the paper DMR/webform. When reporting results on the webform, please verify that the pre-populated Units, Frequency of Analysis and Sample Type match the actuals measured. If the webform is incorrect, you must select the actual value from the drop-down menus and report the deviation from your permit requirements in your attached cover letter. If you need descriptions for each computer code, you can select the gray “list” button located at the top of each column header or under the pre-populated units field.

- (1) **Detection Limits:** The detection limit of the analytical method used to monitor a given pollutant must be equal to, or less than, the minimum detection limit (MDL) specified in the facility’s RIPDES permit. If an MDL is not specified in the facility’s RIPDES permit, then the detection limit of the analytical method used to monitor the pollutant must be equal to or less than the permit limit for that pollutant. For pollutants that have neither an MDL specified in the permit nor a permit limit, the detection limit of the analytical method used to monitor the pollutant must be equal to or less than the applicable water quality criterion for that pollutant from the Rhode Island Water Quality Regulations 250-RICR-150-05-1.26. In instances where an MDL is not specified in the permit and the detection limit for the pollutant cannot meet the above requirements (i.e., the detection limit is greater than both the permit limit and the applicable water quality criterion), the permittee shall use the 40 CFR Part 136 approved method that has the lowest detection limit for the given pollutant.
- (2) **Reporting “Less than Detect” for Concentration Data:** When calculating non-bacteria sample averages using multiple sample results for reporting on DMRs, results that are less than the MDL specified in your permit shall be replaced with zeroes and the average calculated. If the MDL on the lab report is higher than the MDL specified in your permit (i.e. – not sufficiently sensitive methods), the MDL on the lab report must be used as the data value in your calculations. If all sample results are below the MDL specified in your permit, the data shall be reported as zero. In no case shall non-numeric sampling results be reported on DMRs (i.e., “below detection” or “BDL”, “trace” or “TR”, “non-detect”, “ND”, “< #”, etc.). The calculated value shall be reported on the DMR and a detailed explanation of how the average was calculated, including all individual sample results that were less than MDL, shall be included in the DMR cover letter.

EXAMPLE: A facility is required to collect 5 monthly samples of final effluent and analyze the samples for Total Iron concentration. The facility is also required to report the monthly average **concentration** results on their DMR. The facility is not required to calculate **pollutant load**. The monthly average is the sum of all the sample results divided by the number of samples. The MDL specified in the permit for Total Iron is 20 µg/L.

The sample results are:

Sample 1: 2,000 µg/L

Sample 2: <30 µg/L

Sample 3: ND µg/L (lab MDL = 5 ug/L)

Sample 4: <20 µg/L

Sample 5: 300 µg/L

The Total Iron monthly average concentration is: $(2000+30+0+0+300)/5 = 466 \text{ ug/L}$

The facility should report a Total Iron monthly average concentration of 466 µg/L on the DMR.

If only one non-bacteria sample was collected for the monitoring period, and this sample was analyzed using 40 CFR Part 136 approved methods and the lab report stated the result was less than the MDL specified in the permit, then the permittee is required to report a zero value (0) in the DMR/webform and list the detection limit for the parameter(s) in your cover letter. If the MDL in the lab report is higher than the MDL specified in the permit (i.e. – not sufficiently sensitive methods), the MDL in the lab report must be reported as the data value on the DMR/webform.

Please see Chapter III.4 "Bacteria Reporting" section of this document for calculating/reporting "less than detect" bacteria data.

EXAMPLE: A facility is required to collect 1 monthly sample of final effluent and analyze the samples for Total Iron concentration. The facility is also required to report the monthly average **concentration** result on their DMR. The facility is not required to calculate **pollutant load**. The MDL specified in the permit for Total Iron is 20 µg/L.

The sample results are:
Sample 1: <20 µg/L

The facility should report a Total Iron monthly average concentration of 0.0 µg/L on the DMR.

(3) Reporting "Less than Detect" for Loading (or Quantity) Data: For the sole purpose of calculating pollutant loads (i.e. – lb/day), if the lab report states the result is "ND" or "non-detect", < #, "below detection" or "BDL", "trace" or "TR", etc., the permittee must use the detection limit in the loading calculation, not zero (0).

See Chapter III.1 "Mass Reporting" section of this document for more information.

(4) Missing or Unavailable Data: Do not leave a box or entire paper DMR/webform that requires measurement data empty or blank. If a measurement is required and a box is left empty it will result in a permit violation unless there is a valid reason for missing data. Regardless of the circumstance, one of the following "No Data Indicator" (NODI) codes, must be entered in place of the unavailable monitoring data on the paper DMR/webform and a detailed explanation of why the data is not available shall be included in the DMR cover letter:

<u>NODI Code</u>	<u>Description</u>
"NODI = 2"	- Operation Shutdown
"NODI = A"	- General Permit Exemption (i.e. – met benchmarks)
"NODI = 9"	- Conditional Monitoring - Not Required this Period
"NODI = C"	- No Discharge
"NODI = E"	- Failed to Sample/Required Analysis Not Conducted
"NODI = P"	- Laboratory Error or Invalid Test
"NODI = N"	- Not Constructed (only to be used if the facility/process from which the discharge occurs has not been constructed, so that there is no discharge)

NOTE: Permittees should never submit a DMR with NODI = C prior to the close of the monitoring period.

j. No. Ex. (Number of Exceedances) Column

If all samples are measured at, or below, the permit limit, enter "0" (zero) on the paper DMR/webform. Otherwise, enter the number of actual sample measurements that exceeded the permit requirements (maximum and/or minimum, 7-day average, etc.) for each parameter. The number should be the total of all exceedances measured during the reporting period, both of loading and concentration limits. If the laboratory reports values of less than the minimum detection level (< MDL) and that value exceeds the permit limit, this is considered an exceedance and should be included in the total number of exceedances.

k. Units

Verify that the units reported for each parameter match what is required on the paper DMR/webform. The permittee will need to convert the analytical lab result to reflect the appropriate units on the paper DMR. If the required units on the DMR webform does not reflect the actual units, the permittee must convert the result to the required units unless the conversion is not possible (i.e. – MPN/100ml can not be converted to CFU/100ml). The required units are specified in the permit requirement row. If a conversion is not possible, please report the actual units and explain the discrepancy in your cover letter.

I. Frequency of Analysis Column

Select the actual frequency from the drop-down menu in which samples were taken during the reporting period. The minimum frequency is specified in the permit requirement row. In instances where samples are taken at an increased frequency for a temporary, short-term basis, the sample frequency for the majority of the samples should be entered in this row and the temporary increased frequency should be reported on the DMR cover letter.

EXAMPLE: A facility normally samples 3/week and sampled 3/week for the first 3 weeks of the month. On the last week of the month the permittee sampled 5 times. The permittee should enter 3/week in the Frequency of Analysis box and in the cover letter indicate that samples were taken at an increased frequency of 5/week for the last week of the reporting period.

NOTE: Multi-sector General permittees who sampled more than twice per reporting period MUST report the minimum result and the maximum result on the DMR webform, and include the additional data point for each pollutant in a certified table in the DMR cover letter.

Similarly, if the permittee sampled less than the frequency specified in the permit (but still has some sampling data for the monitoring period), the sample frequency for the majority of the samples should be reported in the Frequency of Analysis box and a detailed explanation of the failure to sample at the required frequency should be reported on the DMR cover letter.

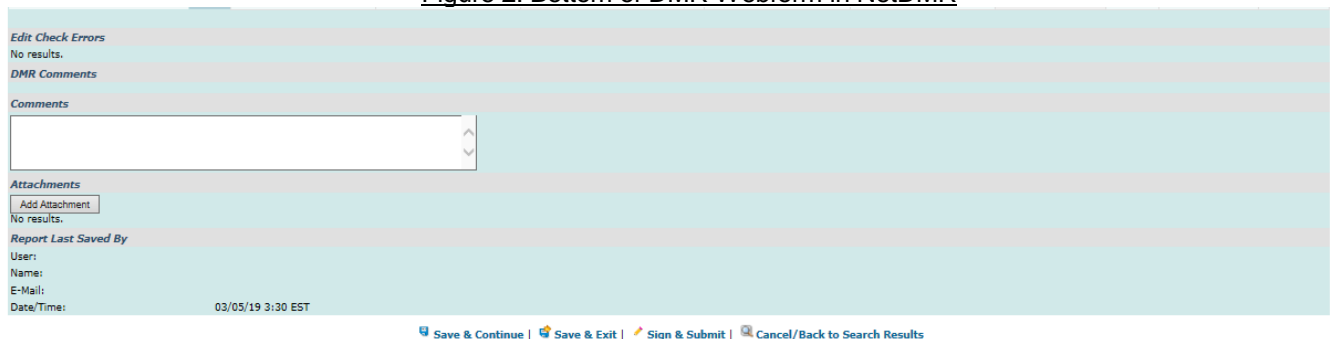
EXAMPLE: A facility normally samples 3/week and sampled 3/week for the first 3 weeks of the month. On the last week of the month the permittee missed a sample and only sample twice. The permittee should enter 3/week in the Frequency of Analysis box and in the cover letter indicate why the third sample was not taken during the last week of the month and what measure have been implemented to prevent missing samples in the future.

NOTE: Multi-sector General permittees who sampled less than twice per reporting period MUST report the result in the minimum field, and a NODI code in the maximum field on the DMR webform, and include an explanation in the comments section and DMR cover letter.

m. Sample Type Column

Enter the actual sample type analyzed during the reporting period. If the pre-populated DMR webform does not reflect the actual sample type, the permittee will need to select the actual sample type from the drop-down menu and report the deviation from your permit requirements in the DMR cover letter. The required sample type is specified in the permit requirement row.

Figure 2. Bottom of DMR Webform in NetDMR



n. DMR Comments/Comments Sections

Please note any printed comments or instructions that appear on the bottom of the paper DMR or in the DMR Comments section of the webform. The comments section should be populated when a NODI code is used. Further, the DMR cover letter should include any information populated in the Comments section.

o. Add Attachment Button (webform only)/Cover Letter

Utilize the "Add Attachment" button at the bottom of the electronic DMR webform to add the required attachments to your DMR submission. At a minimum, a cover letter is required for each DMR due date (i.e. - one cover letter for all DMRs due on the same day). The cover letter should include a written explanation of all permit violations, including, but not limited to, all permit effluent violations, violations of narrative requirements, violations of reporting requirements and compliance schedules, deviations from all required monitoring frequencies, sample types and units of measurement, as well as the basis for including NODI codes, zero (0) values or MDLs for individual parameters and discharge numbers (outfalls/pipes) or permitted features. For specific NetDMR Attachment requirements related to individually permitted Wastewater Treatment Facilities (WWTFs), please refer to the most updated WWTF O&M guidance entitled "NetDMR Attachment Requirements for WWTF's" at <http://www.dem.ri.gov/wwtf-om> or contact O&M at 401-222-4700.

p. Signature Row (paper DMR)/ Sign and Submit Button (webform)

If an electronic DMR webform is being submitted, the DMR shall be signed and submitted via the NetDMR signatory process by the authorized facility representative. The authorized representative should meet the requirements of 40 CFR 122.22 as cited in 250 RICR-150-10-1.12 and should already have an approved NetDMR Subscriber Agreement on file at the DEM. If NetDMR is being used to submit electronic DMRs, paper DMRs shall not be submitted to the DEM.

If a paper DMR is allowed by your permit and is being submitted, **AN ORIGINAL DMR FORM AND SIGNATURE IS REQUIRED** (do not send in copies of the signed DMRs). The DMRs shall be signed by the principal executive officer or his/her authorized agent in accordance with 250 RICR-150-10-1.12 of the RIPDES Regulations. If an authorized agent is signing the DMR, and not a principal executive officer, a written authorization must be submitted to the DEM in accordance with 40 CFR 122.22(b)(1) as cited in 250 RICR-150-10-1.12 of the RIPDES Regulations. The written authorization only needs to be submitted once and does not need to be submitted with each DMR. If a different person is to be authorized to sign DMRs, a new written authorization must be submitted for the new agent.

CHAPTER II: WHERE TO SUBMIT THE DMR AND RECORD KEEPING

Electronic DMRs can only be submitted through EPA's NetDMR program service by creating a CDX account, gaining access to the NetDMR program service for RI, and gaining access to the permit.

To begin, go to <https://cdxnodengn.epa.gov/oeca-netdmr-web/action/login> and create a CDX account. Once identity proofing is completed, you can access NetDMR by clicking on your role. Once in NetDMR, you will need to request signatory access to your permit and obtain DEM approval. For more information and guidance, please visit <http://www.dem.ri.gov/ripdesErule>. Permittees that have not completed NetDMR access are still required to submit timely DMRs as outlined in their permit.

In addition, permittees shall retain records of all DMRs and all monitoring, including all calibration and maintenance records, all original strip chart recordings from continuous monitoring instrumentation, and copies of all laboratory Certificates of Analysis, for a period of at least 5 years.

NOTE: If there are any violations of permit requirements, a DMR cover letter must be included with your submission which references each violation by date and explains the cause and corrective actions taken.

To review and verify the data reported in NetDMR, permittees can review their Copy of Records (CORs) in the NetDMR program service, or access their facility compliance information at EPA's Enforcement and Compliance History Online (ECHO) at <http://www.echo.epa.gov>

CHAPTER III: DMR CALCULATIONS

1. Mass Reporting (i.e., Quantity or Loading Columns)

a. Monthly Average

When calculating the pollutant load, use the following formula:

Loading (lbs/day) = Concentration (mg/l) x Flow (MGD) x 8.34 (a conversion factor).

Use each sample concentration and multiply it by the flow on the day that the sample was taken and by the conversion factor. The monthly average is calculated using each individual day's loading.

NOTE: For the sole purpose of calculating pollutant loads in lb/day, if the concentration value is less than the detection limit, use the detection limit in mg/l in the loading calculation shown above, not zero.

EXAMPLE: The TSS sample results and the flows on the sampling dates are: <5 mg/l (.91 MGD), 75 mg/l (1.01 MGD), 73 mg/l (.98 MGD), and 63 mg/l (1.21 MGD).

The individual loadings are:

5 mg/l x 0.91 MGD x 8.34 = 37.9 lbs/day
75 mg/l x 1.01 MGD x 8.34 = 631.8 lbs/day
73 mg/l x 0.98 MGD x 8.34 = 596.6 lbs/day
63 mg/l x 1.21 MGD x 8.34 = 635.8 lbs/day

The monthly average loading is therefore:

$$\frac{37.9 + 631.8 + 596.6 + 635.8}{4} = 475.5 \text{ lb./day}$$

b. Weekly Average

The rules and format that are used to calculate and report the weekly average concentration (see Chapter III.2.b below) also apply to the weekly average loading.

c. Daily Maximum

The Daily Maximum Loading is the highest pollutant load calculated during the reporting period using the following equation:

$$\text{Loading (lbs/day)} = \text{Sample Concentration (mg/l)} \times \text{Flow on the Sample Day (MGD)} \times 8.34$$

EXAMPLE: A facility has BOD and flow results for the month as follows:

<u>BOD (mg/l)</u>	<u>Flow (MGD)</u>	<u>Loading (lb/day)</u>
14	2.00	233.5
31	1.64	424.0
22	1.82	333.9
45	1.52	570.5
13	1.90	206.0
16	1.85	246.9
37	1.87	577.0
31	1.90	491.2

From the above information the daily maximum loading from the facility is 577.0 lb/day. Please note that the daily maximum loading does not necessarily occur on the same day as the daily maximum concentration.

2. Concentration Reporting (i.e., Quality or Concentration Columns)

a. Monthly Average

The monthly average is the sum of all the sample results divided by the number of samples.

EXAMPLE: A facility is required to take two BOD samples a week.

The sample results are:

- Week 1: 30 mg/l and 25 mg/l
- Week 2: 27 mg/l and 18 mg/l
- Week 3: 14 mg/l and 41 mg/l
- Week 4: 38 mg/l and 23 mg/l

The monthly average BOD concentration is:

$$\frac{30 + 25 + 27 + 18 + 14 + 41 + 38 + 23}{8} = 27.0 \text{ mg/l}$$

b. Weekly Average

The weekly average concentration is the average of the sample results from Sunday through Saturday, inclusive, of each week. The highest calculated weekly average should be recorded on the DMR.

EXAMPLE: Using the same facility data the weekly averages for the month would be:

Week One: $\frac{30 + 25}{2} = 27.5 \text{ mg/l}$ Week Two: $\frac{27 + 18}{2} = 22.5 \text{ mg/l}$
 Week Three: $\frac{14 + 41}{2} = 27.5 \text{ mg/l}$ Week Four: $\frac{38 + 23}{2} = 30.5 \text{ mg/l}$

Since Week Four had the highest average, 30.5 mg/l, that value is recorded on the DMR for Weekly Average.

NOTE: For those weeks that are split between two (2) months, calculate the weekly average using the daily values from the two (2) months. Include this weekly average value with the month that contains the greatest number of days for that week.

October						
S	M	T	W	T	F	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

November						
S	M	T	W	T	F	S
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30		

The results from October 29 (Sunday), 30, and 31 would be used with November 1, 2, 3, and 4 (Saturday) to calculate the weekly average. Since four (4) days of that week are in November and only three (3) days are in October, the weekly average value is considered part of November's results.

NOTE: If a permittee is required to report a weekly average but only samples once a week or less, the weekly average is the same as the daily maximum. Therefore, the same value should be entered in both the "Weekly Average" column and the "Daily Maximum" column of the DMR.

c. Daily Maximum

The daily maximum is the highest observed daily sample result for the reporting period.

NOTE: If the permit requires grab samples and multiple grab samples are taken in a given day, the daily value is the average of all grab samples taken in a given calendar day.

3. Percent Removal Reporting

Unless the permit specifies otherwise, the percent removal must be calculated using the monthly average concentrations for influent and effluent. The formula for calculating percent removal is:

$$\frac{\text{mo. avg. influent conc. (mg/l)} - \text{mo. avg. effluent conc. (mg/l)}}{\text{mo. avg. influent conc. (mg/l)}} \times 100 \%$$

EXAMPLE: A facility's monthly average influent TSS concentration is 270 mg/l and its monthly average effluent TSS concentration is 23 mg/l. The facility's TSS percent removal is:

$$\left(\frac{270 - 23}{270} \right) \times 100\% = 91.5\%$$

4. Bacteria Reporting (i.e., fecal coliform, total coliform, enterococci, etc.)

If the lab report states the result is "ND" or "non-detect", "< #", "below detection" or "BDL", "trace" or "TR", etc., then you are required to report the minimum detection limit (MDL) as the value in the DMR/webform and notify the DEM the sample result was below the detection limit for the parameter(s) in your cover letter. If any of the sample measurements are reported as "too numerous to count", or "TNTC", the permittee shall report a value of 24,000,000 as the value in the DMR/webform and shall use a value of 24,000,000 for this sample in the geometric mean calculations. It is the permittee's responsibility to ensure that a sufficient number of dilutions are used to allow the measurement of the actual bacteria concentration. If any of the bacteria concentrations are reported as TNTC, a detailed explanation of the TNTC result, including the dilutions used in the testing, must be submitted with the DMR cover letter.

NOTE: Reporting of TNTC bacteria results in the cover letter is in addition to the reporting requirements from Part II of the permit (i.e., In addition to reporting these results in the DMR cover letter, you must immediately report these results by calling DEM at (401) 222-4700 or (401) 222-3070 at night.). If the "Most Probable Number", or "MPN" method is used, the actual values from the MPN table must be used and they should not be rounded. If multiple bacteria samples are collected for the monitoring period, the "average" results shall be calculated using the geometric mean. If multiple bacteria samples are collected during a given reporting day the geometric mean of all sample taken on that day shall be reported as the daily value for that day.

a. Monthly and Weekly Geometric Means

The monthly and weekly geometric means shall be calculated using the following formula:

$$\text{Geometric mean} = (\text{all the individual results multiplied together})^{1/\text{total no. of samples}}$$

EXAMPLE: A facility is required to sample fecal coliform twice a week for eight (8) samples a month. The sample results for a month are:

Week One: 210 MPN and 50 MPN
 Week Two: 653 MPN and 332 MPN
 Week Three: 170 MPN and 400 MPN
 Week Four: 7 MPN and 200 MPN

The monthly geometric mean is:

$$(210 \times 50 \times 653 \times 332 \times 170 \times 400 \times 7 \times 200)^{1/8} = 146.9 \text{ MPN}$$

The weekly geometric means are:

$$\text{Week One} : (210 \times 50)^{1/2} = 102.5 \text{ MPN}$$

$$\text{Week Two} : (653 \times 332)^{1/2} = 465.6 \text{ MPN}$$

$$\text{Week Three : } (170 \times 400)^{1/2} = 260.8 \text{ MPN}$$

$$\text{Week Four : } (7 \times 200)^{1/2} = 37.4 \text{ MPN}$$

Since 465.6 MPN is the highest weekly geometric mean that figure should be recorded on the DMR.

NOTE: For the sole purpose of calculating geometric means all samples that are reported as <1 MPN using the IDEXX Method or <2 MPN using the MPN Method shall be treated as being equal to one (1) or two (2), respectively. If the minimum detection limit (MDL) is higher, please use the MDL value for calculating geometric means. Any non-compliance of MDLs must be reported in the cover letter attached to the DMR submission.

EXAMPLE: The daily fecal coliform results (using MPN Method) for a week long sampling period are:

100 MPN, <2 MPN, 60 MPN, 375 MPN, 120 MPN, <2 MPN, <2 MPN

The weekly geometric mean is:

$$(100 \times 2 \times 60 \times 375 \times 120 \times 2 \times 2)^{1/7} = 21.6 \text{ MPN}$$

EXAMPLE: The Fecal Coliform results for the month are:

310 MPN, <2 MPN, 150 MPN, 275 MPN

The monthly geometric mean is:

$$(310 \times 2 \times 150 \times 275)^{1/4} = 71.1 \text{ MPN}$$

b. Daily Geometric Means

If a permittee takes multiple bacteria samples over the course of a calendar day, the geometric mean of all of the samples taken for that day shall be calculated and the calculated value shall be the daily value used for determining compliance with the daily maximum limit.

NOTE: This only applies to the daily maximum limits. For the purposes of calculating monthly and weekly geometric means, all individual sample results for the given month or week shall be used.

EXAMPLE: A facility samples fecal coliform twice a day four times a month.

The sample results for a month are:

Day One: 110 MPN and 60 MPN

Day Two: 200 MPN and 150 MPN

Day Three: 270 MPN and 140 MPN

Day Four: 60 MPN and 100 MPN

The daily bacteria concentrations used for daily maximum reporting are:

$$\text{Day One : } (110 \times 60)^{1/2} = 81.2 \text{ MPN}$$

$$\text{Day Two : } (200 \times 150)^{1/2} = 173.2 \text{ MPN}$$

$$\text{Day Three : } (270 \times 140)^{1/2} = 194.4 \text{ MPN}$$

$$\text{Day Four : } (60 \times 100)^{1/2} = 77.5 \text{ MPN}$$

Since 194.4 MPN is the highest daily geometric mean that figure should be recorded on the DMR as the daily maximum value.

c. Split Sample Reporting

In cases where the sample measurements are reported as “too numerous to count”, or “TNTC”, for future samples the permittee may opt to analyze split samples at different dilutions to expand the detectable range and avoid using a value of 24,000,000 for the geometric mean calculations.

Example A: A facility samples for Enterococci coliform at 1x and 10x dilutions and the sample result are:

1x dilution: <1 MPN 10x dilution: 121 MPN

The <1 value is substituted with 1. The geomean of both samples is:

$$(1 \times 121)^{1/2} = 11 \text{ MPN}$$

The reported result for this sample is 11 MPN

Example B: A facility samples for Enterococci coliform at 1x and 10x dilutions and the sample result are:

1x dilution: 1 MPN 10x dilution: 16 MPN

The geomean of both samples is:

$$(1 \times 16)^{1/2} = 4 \text{ MPN}$$

The reported result for this sample is 4 MPN

Example C: A facility samples for Enterococci coliform at 1x and 10x dilutions and the sample result are:

1x dilution: >2,419.6 MPN 10x dilution: 5,000 MPN

Discard the greater than value for the 1x dilution and report the 10x dilution results.

The reported result for this sample is 5,000 MPN

Example D: A facility samples for Enterococci coliform at 1x and 10x dilutions and the sample result are:

1x dilution: >2,419.6 MPN 10x dilution: 900 MPN

Calculate geo mean using 24,000,000 and 900 unless you can prove the greater than value was invalid (i.e., it failed QA/QC)

The reported result for this sample is 146969 MPN

Example E: A facility samples for Enterococci coliform at 1x and 10x dilutions and the sample result are:

1x dilution: >2,419.6 MPN

10x dilution: <10 MPN

Calculate geo mean using 24,000,000 and 10 unless you can prove the greater than value was invalid (i.e., it failed QA/QC) The reported result for this sample is 15492 MPN

The following table summarizes the different result scenarios:

Scenario	Analysis Results		DMR Reported Result	Instructions
	1x Dilution Result	10x Dilution Result		
A	<1	121	11	Substitute (1x dilution) value with 1 and report geomean of both samples
B	1	16	4	Report geomean of both samples
C	>2,419.6	5,000	5,000	Discard (1x dilution) value and report (10x dilution) value
D	>2,419.6	900	146969	Calculate geo mean using 24,000,000 and 900 unless you can prove the greater than value was invalid (i.e., it failed QA/QC). Contact the laboratory for QA/QC and improve collection procedures.
E	>2,419.6	<10	15492	Calculate geo mean using 24,000,000 and 10 unless you can prove the greater than value was invalid (i.e., it failed QA/QC). Contact the laboratory for QA/QC and improve collection procedures.

5. Maximum and Minimum Value Reporting

If a permit includes maximum, average, and/or minimum reporting requirements (i.e., pH, Dissolved Oxygen, etc.) the permittee must report the highest individual sample result for the reporting period as the “maximum” value and the lowest individual sample result for the reporting period as the “minimum” value. The average is the mathematical average of all sample results. Any individual sample results greater than the maximum permit limit or less than the minimum permit limit shall be considered separate violations and must be reported as such in the number of exceedances column on the DMR/webform.

6. Grab Sample Reporting

If a permittee takes multiple grab samples over the course of a calendar day (i.e., Total Residual Chlorine) and the permit requires “monthly average”, “weekly average”, and “daily maximum” reporting, the average of all of the samples taken for a given day shall be calculated and the calculated value shall be the daily value used for determining compliance with the daily maximum limit.

EXAMPLE: A facility samples Total Residual Chlorine twice a day four times a month.

The sample results for a month are:
 Day One: 75 ug/l and 62 ug/l
 Day Two: 103 ug/l and 50 ug/l
 Day Three: 71 ug/l and 64 ug/l
 Day Four: 63 ug/l and 102 ug/l

The daily concentrations used for daily maximum reporting are:
 Day One: $\frac{75 + 62}{2} = 68.5$ ug/l Day Two: $\frac{103 + 50}{2} = 76.5$ ug/l

$$\text{Day Three: } \frac{71 + 64}{2} = 67.5 \text{ ug/l} \quad \text{Day Four: } \frac{63 + 102}{2} = 82.5 \text{ ug/l}$$

Since 82.5 ug/l is the highest daily average of the grab samples that figure should be recorded on the DMR as the daily maximum value. The “monthly average” and “weekly average” results shall be calculated as described above using the average of all grab samples taken during a given month or week.

NOTE: This method only applies if the permit requires “daily maximum” reporting. If the permit required “maximum” reporting, the highest individual grab sample result would be reported.

7. Flow Reporting

Unless specified otherwise in the permit, the monthly average flow is to be calculated by dividing the total flow discharged for a given month by the number of days in which there was a discharge during the month. If a given month had 30 days, but the facility only discharged wastewater on 25 days, the monthly average flow would be determined by dividing the total volume discharged during the month by 25 days. If the reporting period consists of more than one month (i.e., quarterly or annual reporting), the monthly average flow to be reported on the DMR is the highest monthly average flow for all of the months in the reporting period. The daily maximum flow is the highest daily flow observed during the reporting period.

8. Rounding Reporting Data

When reporting sample results on DMRs, the data shall be rounded to either the tenths decimal place (i.e., for a % removal limit of 85% report the data in the example from Part III.3 above as 91.5%) or, if the permit limit has more decimal places, to the number of decimal places included in the permit (i.e., for a monthly average copper limit of 5.78 ug/l analytical results of 6.0 ug/l and 5.5 ug/l would be reported as 5.75 ug/l).

CHAPTER IV: ANALYTICAL METHODS

Unless alternative methods are specifically identified in the permit, all sampling and testing procedures must be conducted in accordance with the sampling, preservation, and analysis procedures approved under 40 CFR Part 136. All sampling conducted using 40 CFR Part 136 approved methods must be reported either on the DMR (for pollutants listed on the DMR) or attached to the DMR as supplementary information (for any pollutants not included on the DMR) with the certification statement (see Chapter V) and appropriate signature (see 250 RICR-150-10-1.12). Any samples that do not meet the 40 CFR Part 136 procedures, including sample hold time, must not be reported on the DMR, and instead must be recorded in the DMR cover letter. Failure to meet the requirements of 40 CFR Part 136 is not a valid reason to fail to report effluent data. Failure to meet the permit’s minimum sample frequencies is a permit violation and shall be reported to the DEM in accordance with Part II of the permit and shall also be explained in the DMR cover letter. See Chapter I.i.9 “Missing or unavailable data” of this document for additional guidance.

CHAPTER V: REVISIONS, RESUBMISSIONS AND ADDITIONAL REPORTING

Revisions to NetDMR submissions should be made in the NetDMR program service. To revise a NetDMR submission, the permittee must have a CDX account and access to the permit. After searching for the DMR in NetDMR, select “Correct DMR” from the drop-down menu in the next steps column and click “Go”. Once the changes are completed, a new, revised cover letter must be attached to the webform with specific reference as to the nature of the revision (e.g. - parameter(s) revised, reason for revision, etc.). The revision will not be complete until the signatory has completed the signing process and receives confirmation and a new Copy of Record (COR).

Revisions to paper DMR submissions should be made in a certified table format and shall be signed with a wet ink signature and submitted to the DEM. The revision should clearly identify all essential data elements, including but not limited to the Permit ID, facility location, Outfall ID and name, parameter name, monitoring period, monitoring value (i.e. – monthly average, daily maximum, etc.), original value, updated value, etc. All revisions shall also include a cover letter explaining all permit violations, minimum detection limits if (0) values are reported, and the reason for the resubmission.

The certification statement included with the table should read as follows:

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.

This certification statement should be included with all sampling data that is not reported on a DMR webform or paper DMR.

CHAPTER VI: ADDITIONAL INFORMATION

Any questions regarding RIPDES permits and/or DMRs should be directed to the RIPDES Program Staff at 401-222-4700. Written inquiries should be sent to the following address: Rhode Island Department of Environmental Management, RIPDES Program, 235 Promenade Street, Providence, RI 02908.