

PRACTICE DMR

Fill out the following example
DMR for calculation practice

DISCHARGE MONITORING REPORT (DMR)

NAME _____

PERMIT NUMBER

DISCHARGE NUMBER

ADDRESS _____

MONITORING PERIOD

FROM	YEAR	MONTH	DAY	TO	YEAR	MONTH	DAY	NO DISCHARGE

PARAMETER	XXXXXXXXXXXX XXXXXXXXXXXX	QUANTITY OR LOADING			QUALITY OR CONCENTRATION			NO EX	FREQ	TYPE
		AVERAGE	MAXIMUM	UNITS	MINIMUM	AVERAGE	MAXIMUM			
Flow Rate 00056 Eff Gross	SAMPLE MEAS REQUIREMENT		****		****	****	****			
		30DA AVG	****	gpm	****	****	****		MONTHLY	INSTAN
BOD 5 day 20 deg C 00310 Eff Gross	SAMPLE MEAS REQUIREMENT		****		****					
		30DA AVG	****	lbs/d	****	30DA AVG	7DaAvg	mg/l	Monthly	Grab
Solids, Total Susp 00530 Eff Gross	SAMPLE MEAS REQUIREMENT		****		****					
		30DA AVG	****	lbs/d	****	30DA AVG	7DaAvg	mg/l	Monthly	Grab
BOD % Removal 81010 Eff Gross	SAMPLE MEAS REQUIREMENT	****	****			****	****			
		****	****		85%	****	****	%	Monthly	CALC
E Coli 31648 Eff Gross	SAMPLE MEAS REQUIREMENT	****	****		****					
		****	****		****	Mo AVG	WKLY AVG	#100ML	WEEKLY	GRAB
pH 00400 Eff Gross	SAMPLE MEAS REQUIREMENT	****	****			****				
		****	****		INST MIN	****	INST MAX		WEEKLY	INSTAN
	SAMPLE MEAS REQUIREMENT	****	****		****	****	****			
		****	****		****	****	****			

NAME/TITLE PRINCIPAL EXECUTIVE OFFICER _____ _____ _____ TYPED OR PRINTED	I HEREBY CERTIFY THAT THE INFORMATION CONTAINED HEREIN IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF. I HAVE READ THIS REPORT AND I AGREE WITH THE INFORMATION CONTAINED HEREIN. I HAVE READ THIS REPORT AND I AGREE WITH THE INFORMATION CONTAINED HEREIN. I HAVE READ THIS REPORT AND I AGREE WITH THE INFORMATION CONTAINED HEREIN.	TELEPHONE _____ _____ DATE _____
	SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT	

DATA FOR DMR COMPLETION

- Influent Flow = 75 gpm
- Effluent Flow = 0.082 mgd
- Influent BOD₅ = 212 mg/L
- Effluent BOD₅ = 16 mg/L
- Influent TSS = 180 mg/L
- Effluent TSS = 9 mg/L
- Total Coliform = 6, 14, 31, 12/100 colonies
- pH = 7.34, 7.28, 7.12, 7.46 SU

CALCULATION FOR FLOW

Flow (mgd) X 1,000,000 gallons = gallons/day

0.082 mgd X 1,000,000 gal. = 82,000 gpd

$$\frac{82,000 \text{ gpd}}{1440 \text{ minutes /day}} = 56.944 \text{ gpm}$$

Report 57 gallons per minute

CALCULATION FOR LOADING

Loading for BOD₅

Flow (gpm) X (Eff. Conc. mg/L) X (0.012)

57 gpm X 16 mg/L X (0.012) = 10.944

Report 10.9 lbs/day BOD₅

CALCULATION FOR LOADING

Loading for TSS

Flow (gpm) X (Eff. Conc. mg/L) X (0.012)

$$57 \text{ gpm} \times 9 \text{ mg/L} \times (0.012) = 6.156$$

Report 6.2 lbs/day TSS

CALCULATION FOR % REMOVAL

$$\frac{[\text{Influent Conc.}] - [\text{Effluent Conc.}]}{[\text{Influent Concentration}]} \times 100\%$$

$$\frac{(212 \text{ mg/L BOD}_5 \text{ Inf.}) - (16 \text{ mg/L BOD}_5 \text{ Eff.})}{(212 \text{ mg/L BOD}_5 \text{ Inf.})} \times 100\%$$

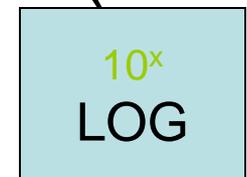
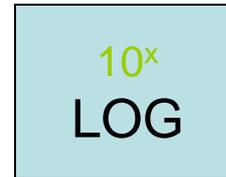
CALCULATION FOR % REMOVAL

$$\frac{196}{212} \times 100\% = 92.45\%$$

Report 92.5 % Removal of BOD₅

GEOMETRIC MEAN

- Take the log value of each sample (log button on the calculator)
- Add the log value of each sample together
- Divide by the number of samples
- Take the antilog of the number for the geometric mean for the coliform result (the 10^x button on the calculator).



GEOMETRIC MEAN

# of Colonies	Log
6	= 0.77815
14	= 1.14612
31	= 1.49136
12	<u>= 1.07918</u>
Total	=4.494822

GEOMETRIC MEAN

- Divide by 4 (number of samples) = 1.123706
- Take the Antilog (10^x) = 13.2955
- Geometric Mean = 13 colonies/100 mL
- Report the Geometric Mean as 13 colonies/100 mL

GEOMETRIC MEAN

Easiest way? Use Excel

- Enter numbers into a column
- At the next empty row type the command:
`=geomean`
- select the cells with the numbers in
parentheses: `=geomean(A1:A5)`
- Press enter!

Microsoft Excel - Book1

File Edit View Insert Format Tools Data

Font: Arial, Size: 10, Bold, Italic, Underline, Paragraph: Left, Center, Right, Indent, Decrease Indent, Increase Indent, Bulleted List, Numbered List, Decrease List Level, Increase List Level, Show/Hide Rows, Show/Hide Columns, Repeat

	A	B	C	D	E
1	<i>E. coli</i> (cfu/100 ml)				
2	10				
3	100				
4	300				
5	15				
6	4				
7	=geomean(A2:A6)				
8					
9					
10					

DISCHARGE MONITORING REPORT (DMR)

NAME _____

PERMIT NUMBER

DISCHARGE NUMBER

ADDRESS _____

MONITORING PERIOD

FROM YEAR MONTH DAY TO YEAR MONTH DAY NO DISCHARGE

PARAMETER	XXXXXX0000000000 XXXXXX0000000000	QUANTITY OR LOADING			QUALITY OR CONCENTRATION			NO EX	FREQ	TYPE	
		AVERAGE	MAXIMUM	UNITS	MINIMUM	AVERAGE	MAXIMUM				UNITS
Flow Rate 00056 Eff Gross	SAMPLE MEAS	57	****	gpm	****	****	****	0	1/30	INST	
	REQUIREMENT	30DA AVG	****	30m	****	****	****		MONTHLY	INSTAN	
BOD 5 day 20 deg C 00310 Eff Gross	SAMPLE MEAS	10.9	****	lbs/d	****	16	16 mg/L	0	1/30	GRAB	
	REQUIREMENT	30DA AVG	****	lbs/d	****	30DA AVG	7DaAvg mg/l		Monthly	Grab	
Solids, Total Susp 00530 Eff Gross	SAMPLE MEAS	6.2	****	lbs/d	****	9	9 mg/L	0	1/30	GRAB	
	REQUIREMENT	30DA AVG	****	lbs/d	****	30DA AVG	7DaAvg mg/l		Monthly	Grab	
BOD & Removal 81010 Eff Gross	SAMPLE MEAS	****	****		92.5	****	****	90	0	1/30	CTD
	REQUIREMENT	****	****		85%	****	****			Monthly	CALC
E Coli 31648 Eff Gross	SAMPLE MEAS	****	****		****	14	731 #/100ml	0			GRAB
	REQUIREMENT	****	****		****	Mo. AVG	WKLY AVG	#100ML		WEEKLY	GRAB
pH 00400 Eff Gross	SAMPLE MEAS	****	****		7.12	****	7.46	54	0		INST
	REQUIREMENT	****	****		INST MIN	****	INST MAX			WEEKLY	INSTAN
	SAMPLE MEAS	****	****		****	****	****				
	REQUIREMENT	****	****		****	****	****				

NAME/TITLE PRINCIPAL EXECUTIVE OFFICER	<small>STATE OF CALIFORNIA DEPARTMENT OF WATER RESOURCES DIVISION OF WATER QUALITY CONTROL</small>	TELEPHONE
	<small>STATE OF CALIFORNIA DEPARTMENT OF WATER RESOURCES DIVISION OF WATER QUALITY CONTROL</small>	
	<small>STATE OF CALIFORNIA DEPARTMENT OF WATER RESOURCES DIVISION OF WATER QUALITY CONTROL</small>	DATE
TYPED OR PRINTED	<small>SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT</small>	

COMPLETING THE DMRS

HINTS TO SAVE YOU GRIEF!!

- Call the Water Protection Bureau if you need help. **(406) 444-3080**
- Send a cover letter if you violate the limits.
- Use the comments section at the bottom of the DMR Form to explain problems