



Disinfectants and Disinfection Byproducts

Operational Evaluation Reports

**Seth Tourney, PE
DBP MRDL Rule Manager
EPA Region 8
Drinking Water Unit**

*The views expressed in this presentation
are those of the author(s) and do not
necessarily reflect the views or policies of
the U.S. Environmental Protection Agency.*



That's me





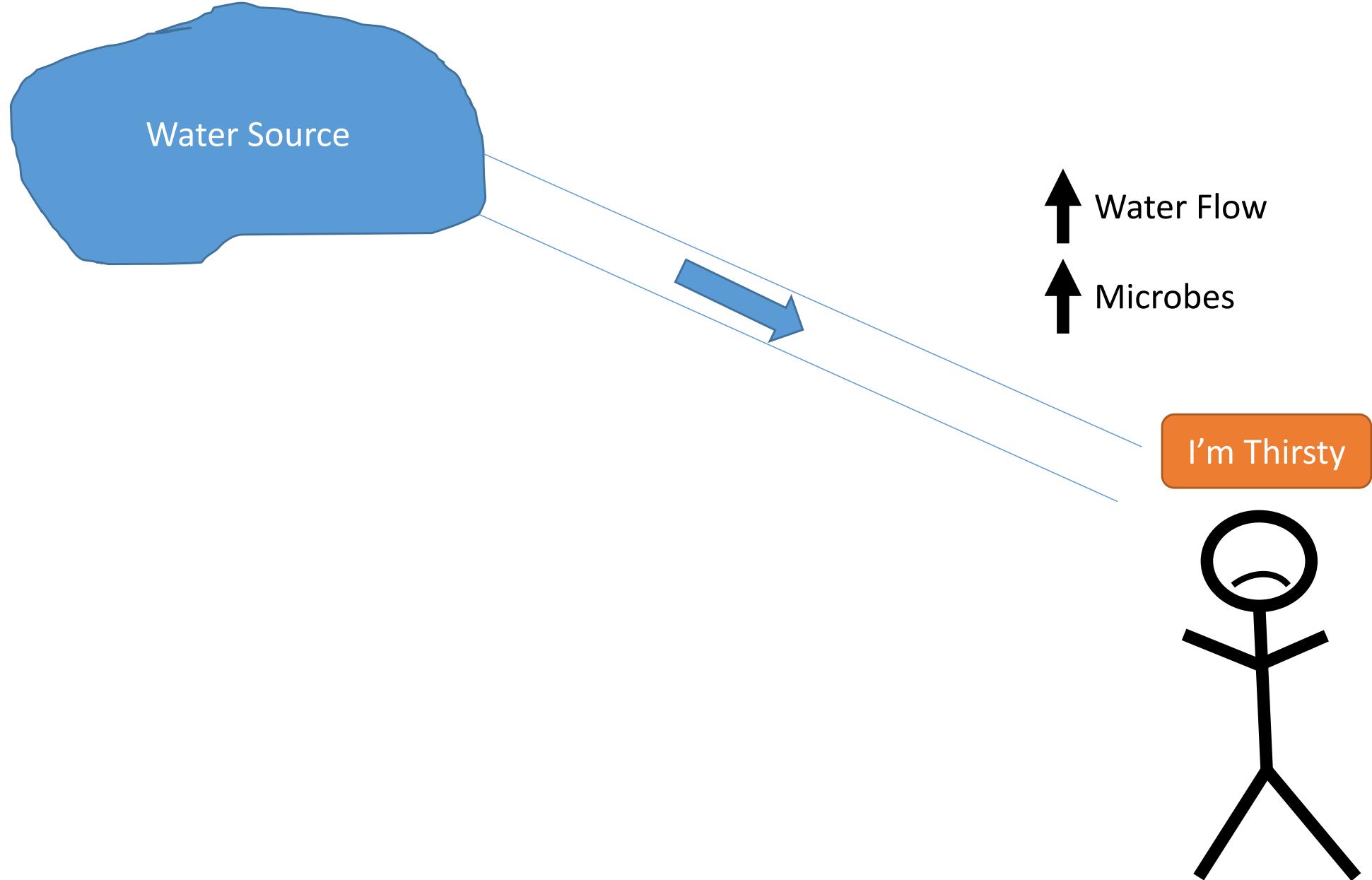
Who does this apply to?

**Community Water Systems (CWS) and
Non-Transient Non-Community Water
Systems (NTNCWS)**

**that add a chemical disinfectant.
Such as chlorine, ozone and chlorine dioxide.**

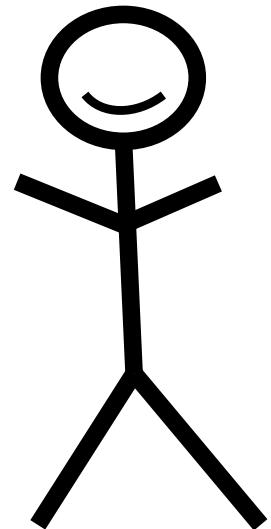
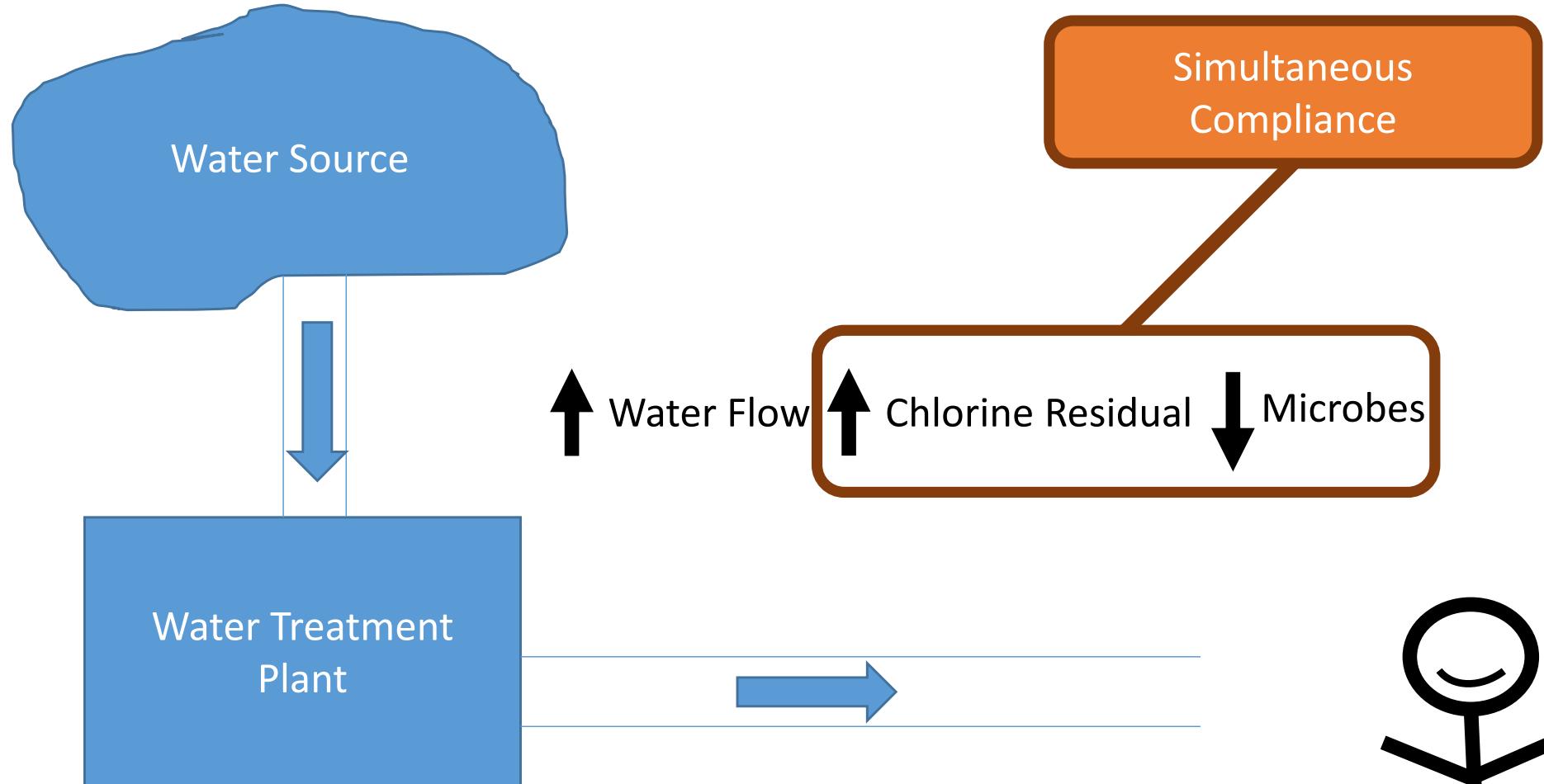


Simultaneous Compliance





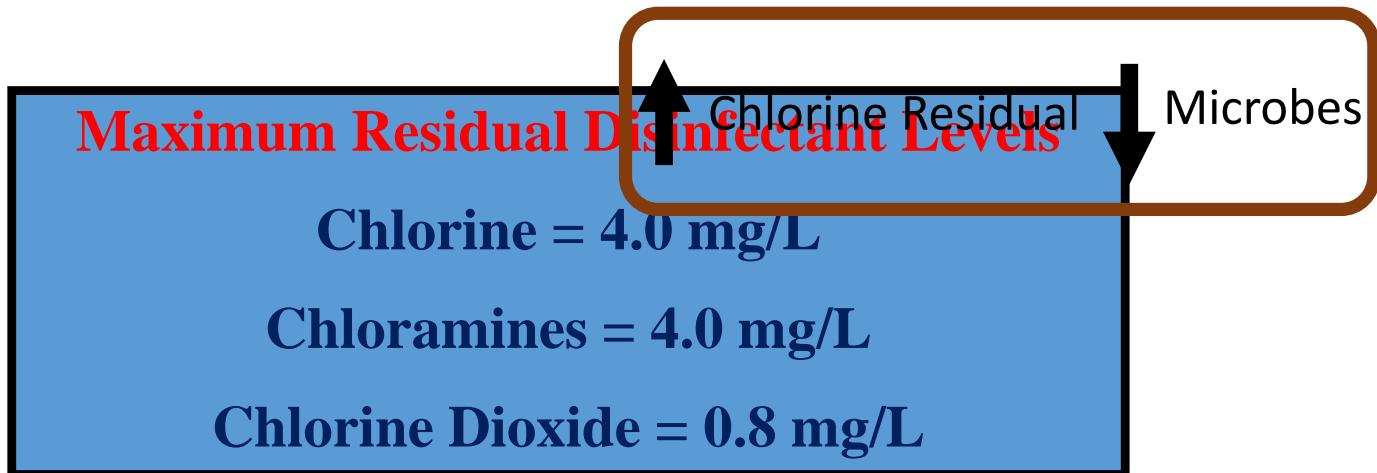
Simultaneous Compliance



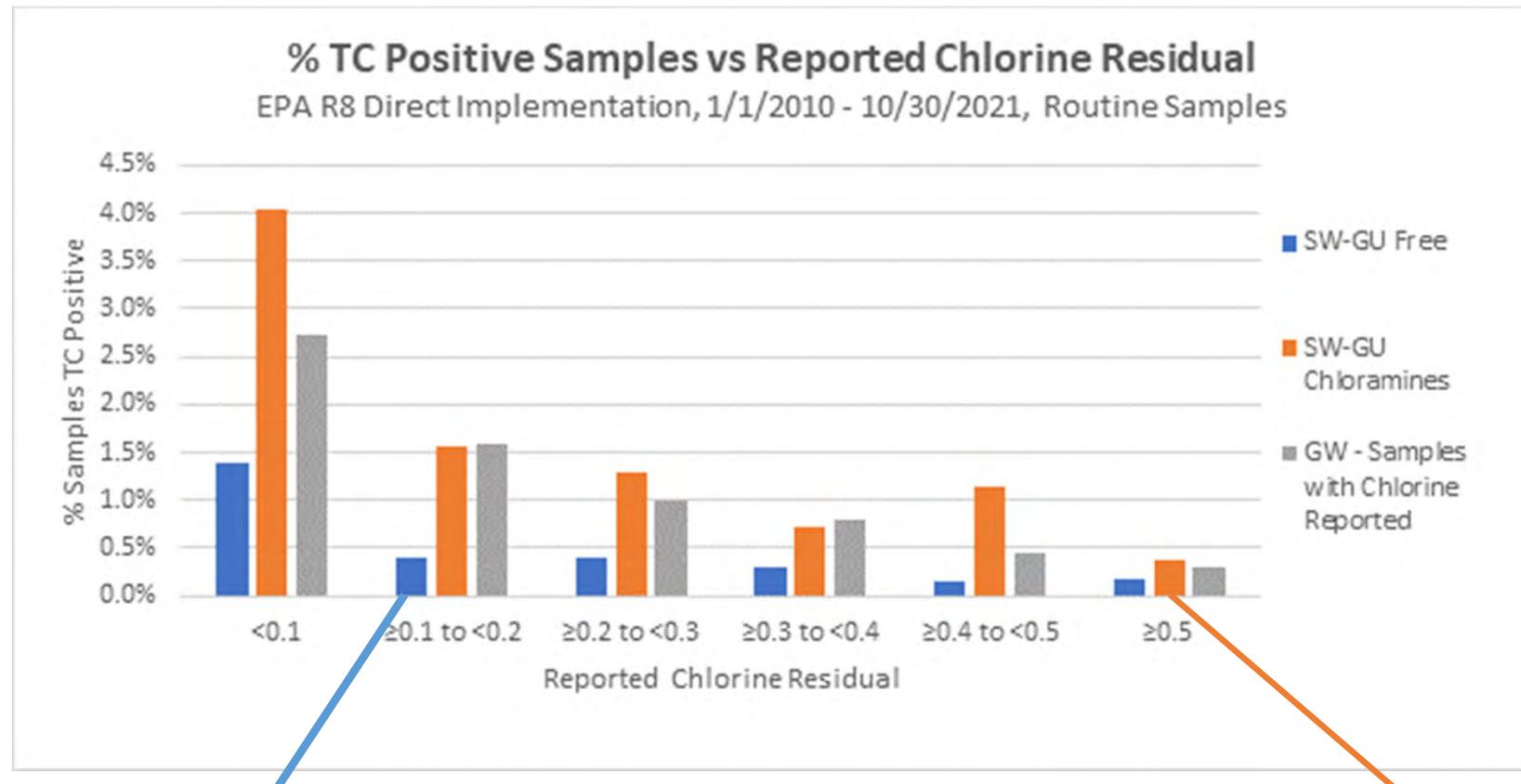


Maximum Residual Disinfectant Levels (MRDLs)

Can too much of a good thing, be a bad thing?



If that was too much, how much is too little?



Free Chlorine
EPA Recommends 0.2 mg/L

Chloramines
EPA Recommends 0.5 mg/L

- *All CWS, NTNCWS and surface water/GWUDI Transient systems that add or received water treated with chlorine must measure a chlorine residual* at same time and location as Total Coliform Samples.
- GW Transient or GW non-chlorinated systems do not have to report a residual.

Lab may ask:

How would I know if it is supposed to be there?

Dependent on the chain of custody provided by the operator.



Chlorine Residuals – What does EPA need?

North Dakota
Public Health Laboratory
Division of Microbiology
2635 E. Main Avenue
Bismarck, ND 58506-5520

rec 4/5/2018 entered 4/6/2018 jws
Ft Berthold

North Dakota Department of Health

BACTERIOLOGICAL WATER ANALYSIS

Request #: E18000630
Collector: Jonnie Osborne
PWSID#: FT BERTHOLD RURAL WATER

Submitter
FT BERTHOLD RURAL WATER
308 4 BEARS COMPLEX
NEW TOWN, ND 58763

Sample #: E18000630001
Date/Time Collected: 04/03/2018 09:18
Sample Type: Safe Drinking Water
Sampling Reason/Point: Routine / Site 1A Mandaree

Date/Time Received: 04/04/2018 14:48

Total Coliform, Colisure Result: Negative
E. Coli, Colisure Result: Negative

Date: 04/05/2018
Time: 15:24:13
Date: 04/05/2018
Time: 15:24:16

Chlorine Residual Result: 2.86

Comments: Chlorine Residual analysis is performed at the time of collection and is not performed by the Division of Microbiology.
Community Hall

Should indicate
Free or Total

Chlorine Residual Result:

2.80

Chlorine Residuals – How to get it?

Chain of Custody
or lab slip

ENERGY  Trust our People. Trust our Data.
www.energylab.com

Bacteriological Examination of Public Water Supplies
Wyoming

PWSID: 560009 WY
(List only one PWSID per form)

Collected By: MARK ANDERSON

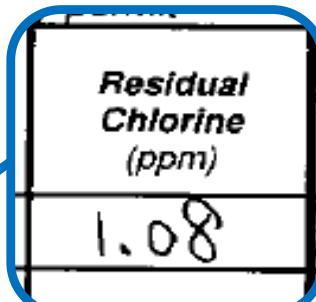
System Name: CENTRAL WYOMING REGIONAL WATER SYSTEM

Billings, MT 800.735.4489 • Casper, WY 888.235.0515
Gillette, WY 866.686.7175 • Helena, MT 877.472.0711

Contact Phone (Required): (307) 259-4950
(System operator must be accessible for immediate notifications)

Routine Sampling: Distribution System Samples
This section is for all routine monthly or quarterly samples as required by permit

EPA Required IDs*	Sample Type	Sample Location	Sample Date	Sample Time	Residual Chlorine (ppm)	ELI Lab ID Laboratory Use Only
DIST	DIST	R	METRO	4-2-18	1304	1.08 C18040028



Free or Total
Add an indicator such as F or T.

Analytical Report

1013 Chlorine, Residual (Field) 1.08 mg/L

ENERGY  Trust our People. Trust our Data.
www.energylab.com

LABORATORY ANALYTICAL REPORT
Prepared by Casper, WY Branch

Client: [REDACTED]
Project: [REDACTED]
Client Sample ID: [REDACTED]
PWS ID: [REDACTED] Facility ID: DIST Sample Point ID: DIST
Facility Name: [REDACTED]
Lab ID: [REDACTED]
Compliance Sample: YES Sample Type: RT

Report Date: 04/04/18
Collection Date: 04/02/18 13:04
Received Date: 04/02/18 14:19
Matrix: Drinking Water
Sampled By: [REDACTED]

Analyses	Result	Units	Safe/Unsafe	Qualifier	Method	Analysis Date / By
MICROBIOLOGICAL						
3100 Coliform, Total	Absent	per 100ml	SAFE		A9223 B	04/02/18 16:28 / dmf
3014 Coliform, E-Coli	Absent	per 100ml			A9223 B	04/02/18 16:28 / dmf
1013 Chlorine, Residual (Field)	1.08	mg/L				



Chlorine Residuals – Responsibility

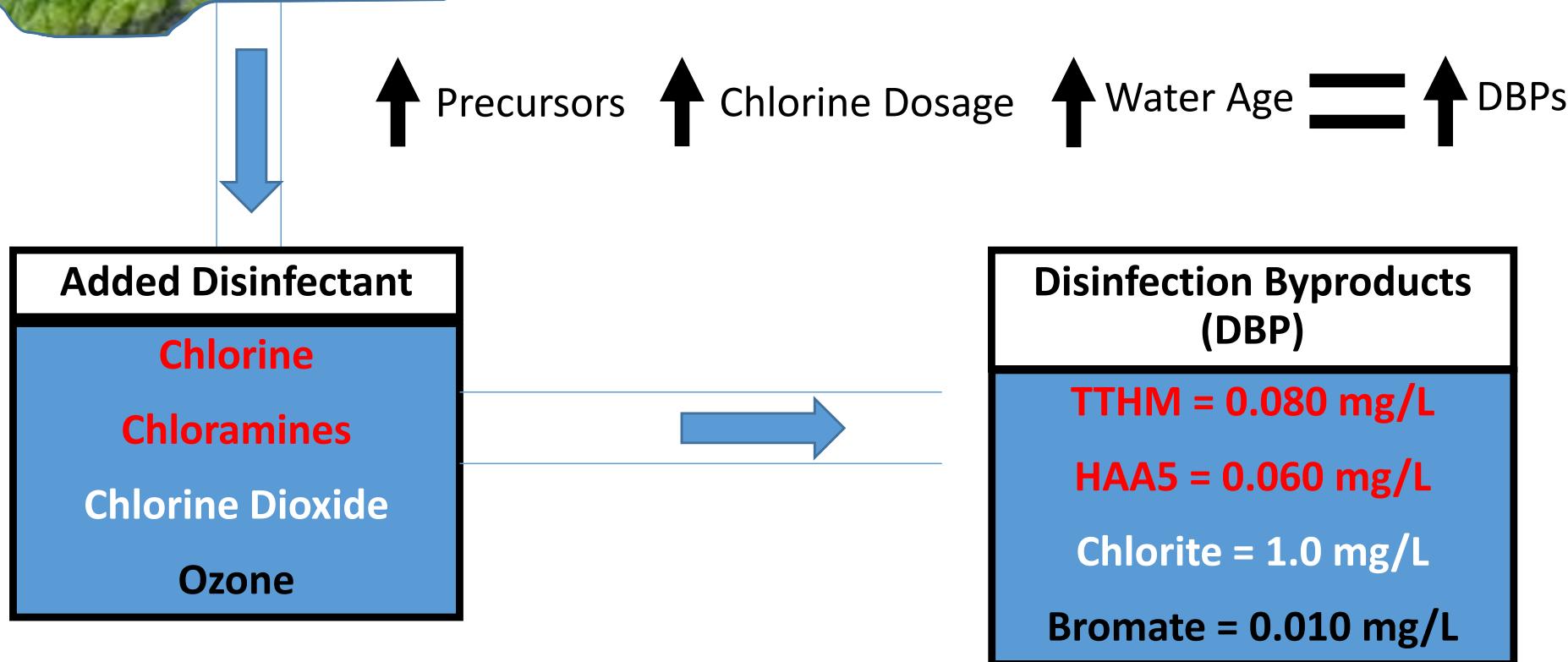
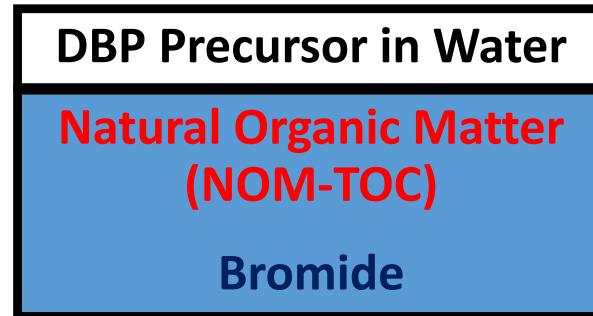
- **Water Systems** are responsible for measuring and reporting chlorine residual
 - Should indicate free or total
- Water Systems must show the chain of custody or lab slip to demonstrate same time and location of Total Coliform Sample
- **Labs can help their clients avoid extra work**

EPA issuing Violations

Since April 2022,
EPA Region 8 issuing
official violations (PN Required)



Disinfection Byproducts (DBPs)





Stage 1 Disinfection ByProducts

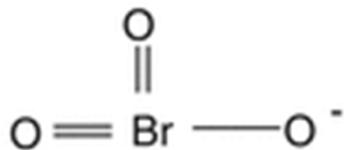
Periodic Table of the Elements

1	H	2	He	18
1	Hydrogen	1.01	4.00	
3	Li	Lithium	6.94	9.01
4	Be	Beryllium	9.01	
11	Na	Sodium	22.99	24.31
12	Mg	Magnesium		
19	K	Kalium	39.10	40.08
20	Ca	Calcium	40.08	44.96
21	Sc	Scandium	44.96	47.88
22	Ti	Titanium	50.94	51.99
23	V	Vanadium	51.99	54.94
24	Cr	Chromen	55.85	58.93
25	Mn	Manganese	54.94	58.69
26	Fe	Iron	55.85	58.69
27	Co	Cobalt	58.93	58.69
28	Ni	Nickel	58.69	63.55
29	Cu	Copper	63.55	63.55
30	Zn	Zinc	65.38	65.38
31	Ga	Gallium	69.72	72.63
32	Ge	Germanium	72.63	78.97
33	As	Arsenic	74.92	78.97
34	Se	Selenium	78.97	83.80
35	Br	Bromine	79.90	80.00
36	Kr	Krypton	83.80	83.80
37	Rb	Rubidium	85.47	87.62
38	Sr	Sterium	87.62	88.91
39	Y	Yttrium	88.91	91.22
40	Zr	Zirconium	91.22	91.91
41	Nb	Nobium	91.91	92.91
42	Mo	Molybdenum	95.95	95.95
43	Tc	Technetium	98.91	101.07
44	Ru	Ruthenium	102.91	102.91
45	Rh	Rhodium	106.42	107.87
46	Pd	Palladium	112.41	112.41
47	Ag	Silver	112.41	112.41
48	Cd	Cadmium	112.41	112.41
49	In	Indium	114.82	114.82
50	Sn	Tin	118.71	121.76
51	Sb	Antimony	121.76	121.76
52	Te	Tellurium	127.6	127.6
53	I	Iodine	131.29	131.29
54	Xe	Xenon	131.29	131.29
55	Cs	Cesium	132.91	137.33
56	Ba	Barium	137.33	178.49
57	La	Lanthanum	138.91	180.95
58	Ce	Cerium	140.12	183.85
59	Pr	Praseodymium	140.91	186.21
60	Nd	Neodymium	144.24	190.23
61	Pm	Promethium	144.91	192.22
62	Sm	Samarium	150.36	192.22
63	Eu	Europium	151.96	196.97
64	Gd	Gadolinium	157.25	196.97
65	Tb	Terbium	158.93	196.97
66	Dy	Dysprosium	162.50	196.97
67	Ho	Holmium	164.93	196.97
68	Er	Erbium	167.26	196.97
69	Tm	Thulium	168.93	196.97
70	Yb	Ytterbium	173.06	196.97
71	Lu	Lutetium	174.97	196.97
89	Ac	Actinium	227.03	232.04
90	Th	Thorium	232.04	231.04
91	Pa	Protactinium	231.04	238.03
92	U	Uranium	238.03	237.05
93	Np	Neptunium	237.05	244.06
94	Pu	Plutonium	244.06	243.06
95	Am	Americium	243.06	247.07
96	Cm	Curium	247.07	251.08
97	Bk	Berkelium	251.08	251.08
98	Cf	Californium	251.08	254.00
99	Es	Einsteinium	254.00	257.10
100	Fm	Fermium	257.10	258.10
101	Md	Mendelevium	258.10	258.10
102	No	Noelmevium	259.10	259.10
103	Lr	Lammevium	262.0	262.0

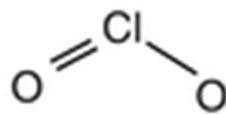
Halogens

17	F	Fluorine	19.00
35	Cl	Chlorine	35.45
35	Br	Bromine	79.90
53	I	Iodine	126.90

Bromate
(Ozone Systems)

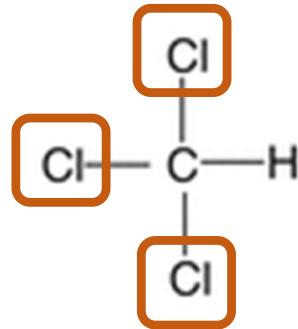


Chlorite
(Chlorine Dioxide)

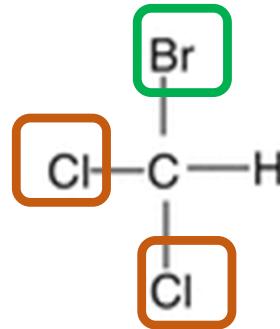


Total Trihalomethanes (TTHM)

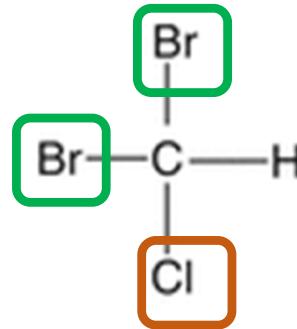
Chloroform



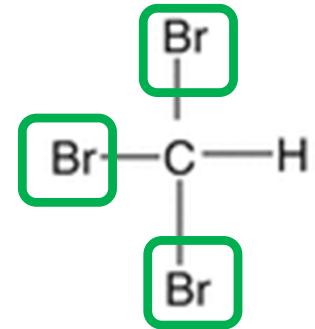
Bromodichloro-methane



Chlorodibromo methane



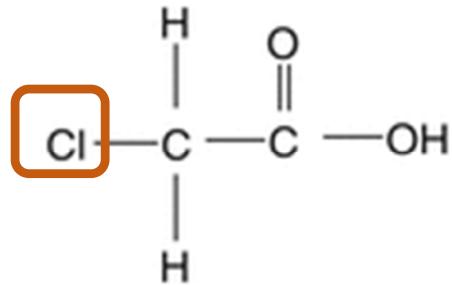
Bromoform



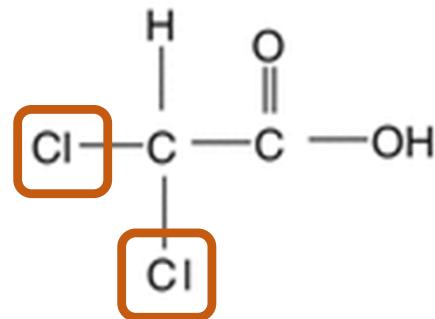
MCL = 0.080 mg/L based on LRAA

Five Haloacetic Acids (HAA5)

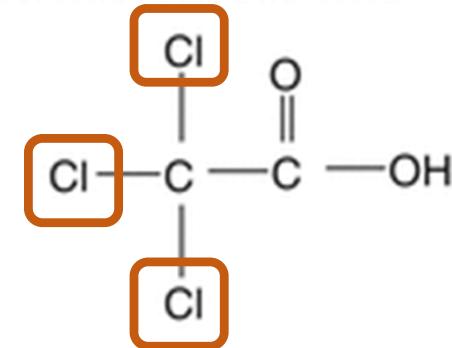
Chloroacetic acid



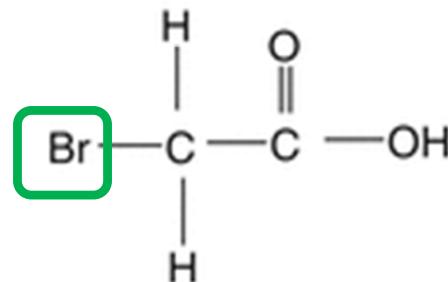
Dichloroacetic acid



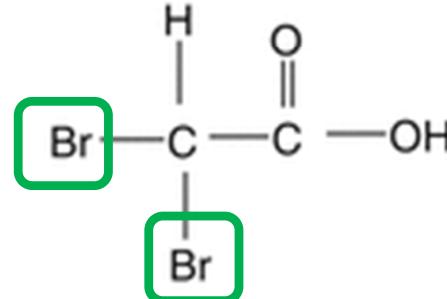
Trichloroacetic acid



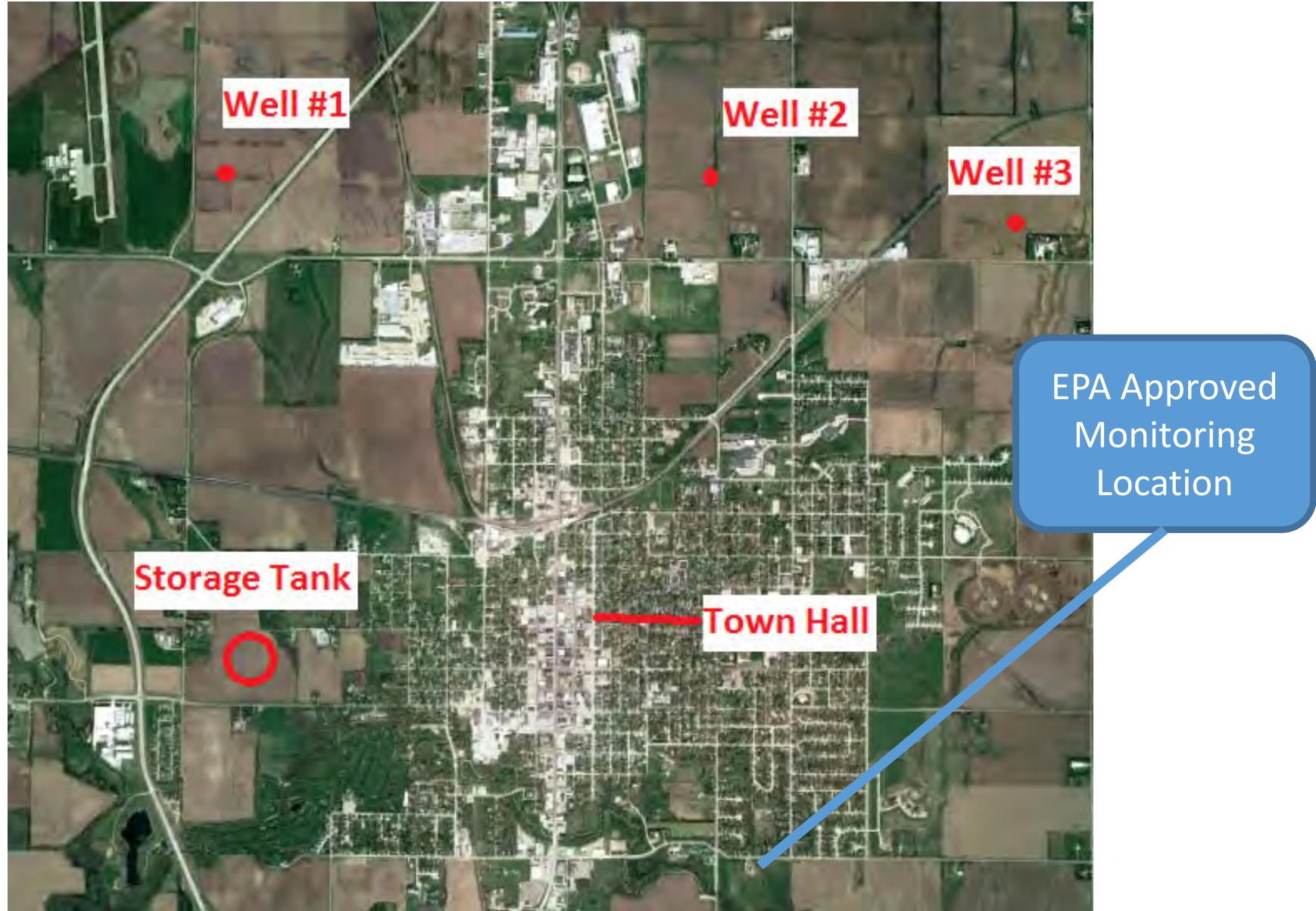
Bromoacetic acid



Dibromoacetic acid



MCL = 0.060 mg/L based on LRAA





DBPs – LRAA Reporting Form

US Environmental Protection Agency
 Drinking Water Section
 1595 Wynkoop Street
 Denver, CO 80202-1129
<https://www.epa.gov/region8-waterops>

Only for Systems on
 Quarterly Monitoring

Quarterly Stage 2 Disinfection Byproducts Rule (DBPR) Reporting Form for
Total Trihalomethanes (TTHMs) and Haloacetic Acids (HAA5s) - Automated Calculations

PWSID No:	WY5605000	SYSTEM NAME:	Nice Place		
DATE:	August 26, 2020	PREPARED BY:	Seth Tourney		
POPULATION SERVED:	495	TITLE:	DBP Rule Manager		
WATER SOURCE TYPE:	Groundwater	<input checked="" type="checkbox"/>	Surface Water	<input type="checkbox"/>	Both
Sample Point:	S2-SOPHOUSE	**Note: One form per sample location.			
Sample Point Description:	Town Shop			Peak Month	8
Samples Required to be collected:	<input checked="" type="checkbox"/>	TTHMs	<input checked="" type="checkbox"/>	HAA5s	Units of Measurement mg/L
Current Year:	2020				
Check One (Use X):	1st Quarter	2nd Quarter	<input checked="" type="checkbox"/>	3rd Quarter	4th Quarter
Report Due:	September 10, 2020				

Locational Running Annual Average (LRAA)

$$\frac{\text{QTR 1} + \text{QTR 2} + \text{QTR 3} + \text{QTR 4}}{4} = \text{LRAA}$$

Column E Data Results	
TTHMs	HAA5s
mg/L	mg/L
0.065	0.033
0.078	0.04
0.095	0.045
0.055	0.03
0.073	0.037

Operational Evaluation Level (OEL)						
Current Quarter	OEL Calculation		OEL Exceedance?		You must fillout an OPERATIONAL EVALUATION REPORT	
	TTHMs	HAA5s	TTHMs	HAA5s		
	mg/L	mg/L				
3rd Quarter	0.083	0.041	Yes	No	Report is Due on 11/30/2020	

For the Operational Evaluation Report (OER) form, go to www.epa.gov/region8-waterops. Then go to reporting forms.

QUESTIONS? Contact DBP RULE MANAGER: Seth Tourney - tourney.seth@epa.gov - (303) 312-6579



DBPs – LRAA Reporting Form

US Environmental Protection Agency
 Drinking Water Section
 1595 Wynkoop Street
 Denver, CO 80202-1129
<https://www.epa.gov/region8-waterops>

Only for Systems on
 Quarterly Monitoring

Quarterly Stage 2 Disinfection Byproducts Rule (DBPR) Reporting Form for
Total Trihalomethanes (TTHMs) and Haloacetic Acids (HAA5s) - Automated Calculations

PWSID No:	WY5605000	SYSTEM NAME:	Nice Place		
DATE:	August 26, 2020	PREPARED BY:	Seth Tourney		
POPULATION SERVED:	495	TITLE:	DBP Rule Manager		
WATER SOURCE TYPE:	Groundwater	X	Surface Water	Both	
Sample Point:	S2-SOPHOUSE		**Note: One form per sample location.		
Sample Point Description:	Town Shop		Peak Month	8	
Samples Required to be collected:	X	TTHMs	X	HAA5s	Units of Measurement mg/L
Current Year:	2020				
Check One (Use X):	1st Quarter	2nd Quarter	X	3rd Quarter	4th Quarter
Report Due:	September 10, 2020				

Locational Running Annual Average (LRAA)

$$\frac{0.065 + 0.078 + 0.095 + 0.055}{4} = 0.073 \text{ mg/L}$$

Column E Data Results	
TTHMs	HAA5s
mg/L	mg/L
0.065	0.033
0.078	0.04
0.095	0.045
0.055	0.03
0.073	0.037

Operational Evaluation Level (OEL)

Current Quarter	OEL Calculation		OEL Exceedance?		You must fillout an OPERATIONAL EVALUATION REPORT	
	TTHMs	HAA5s	TTHMs	HAA5s		
	mg/L	mg/L				
3rd Quarter	0.083	0.041	Yes	No	Report is Due on 11/30/2020	

For the Operational Evaluation Report (OER) form, go to www.epa.gov/region8-waterops. Then go to reporting forms.

QUESTIONS? Contact DBP RULE MANAGER: Seth Tourney - tourney.seth@epa.gov - (303) 312-6579

Operational Evaluation Level

$$\frac{2 * \text{Current Quarter} + \text{Previous Quarter} + 2\text{nd Previous Quarter}}{4} = \text{OEL}$$

Operational Evaluation Level (OEL)						
Current Quarter	OEL Calculation		OEL Exceedance?		You must fillout an OPERATIONAL EVALUATION REPORT	
	TTHMs	HAA5s	TTHMs	HAA5s		
	mg/L	mg/L				
3rd Quarter	0.083	0.041	Yes	No	Report is Due on 11/30/2020	

For the Operational Evaluation Report (OER) form, go to www.epa.gov/region8-waterops. Then go to reporting forms.

QUESTIONS? Contact DBP RULE MANAGER: Seth Tourney - tourney.seth@epa.gov - (303) 312-6579



DBPs – LRAA Reporting Form

Operational Evaluation Level (OEL)					You must fillout an OPERATIONAL EVALUATION REPORT	
	OEL Calculation		OEL Exceedance?			
	TTHMs	HAA5s	TTHMs	HAA5s		
Current Quarter	mg/L	mg/L				
3rd Quarter	0.083	0.041	Yes	No	Report is Due on 11/30/2020	

For the Operational Evaluation Report (OER) form, go to www.epa.gov/region8-waterops. Then go to reporting forms.

QUESTIONS? Contact DBP RULE MANAGER: Seth Tourney - tourney.seth@epa.gov - (303) 312-6579

Operational Evaluation Level

$$\frac{2 * 0.095 + 0.078 + 0.065}{4} = 0.083 \text{ mg/L}$$

If OEL is greater than the MCL,
Operational Evaluation Report Required



Operational Evaluation Report

What is an operational evaluation report?



An operational evaluation examines system treatment and operational practices that may contribute to TTHM and HAA5 formation

AND

What steps could be considered to minimize future exceedances



Operational Evaluation Report

<https://www.epa.gov/region8-waterops/stage-2-dbpr-operational-evaluation-report>

We've made some changes to [EPA.gov](#). If the information you are looking for is not here, you may be able to find it on the [EPA Web Archive](#) or the [January 19, 2017 Web Snapshot](#). [Close](#)



[Environmental Topics](#)

[Laws & Regulations](#)

[About EPA](#)

Search EPA.gov



Related Topics: [Region 8 Drinking Water Online](#)

[CONTACT US](#)

[SHARE](#)



Stage 2 DBPR Operational Evaluation Report

Stage 2 DBPR Operational Evaluation Report – The Stage 2 DBPR Operational Evaluation Report (OER) must be completed and sent to EPA Region 8 no later than 90 days after being notified of analytical results that indicate an operational evaluation level has been exceeded. The operational evaluation report forms below may be used for systems with surface water, ground water, or consecutive system sources.

You may need a PDF reader to view some of the files on this page. See EPA's [About PDF page](#) to learn more.

- [Stage 2 DBPR Operational Evaluation Report for Surface Water Systems \(PDF\)](#)
(9 pp, 531 K, 05/29/2020)
- [Stage 2 DBPR Operational Evaluation Report for Ground Water Systems \(PDF\)](#)
(8 pp, 537 K, 05/29/2020)
- [Stage 2 DBPR Operational Evaluation Report for Consecutive Water Systems \(PDF\)](#)
(9 pp, 555 K, 05/29/2020)

[Contact Us](#) to ask a question, provide feedback, or report a problem.



Operational Evaluation Report



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 8

1595 Wynkoop Street
DENVER, CO 80202-1129
Phone 800-227-8917
<http://www.epa.gov/region08>

Stage 2 Disinfectants and Disinfection Byproducts Rule (Stage 2 DBPR)

State of Wyoming and Region 8 Tribal Lands Operational Evaluation Report

For SURFACE WATER DRINKING WATER SYSTEMS

A. ADMINISTRATIVE

PWS No.	Prepared Date
PWS Name	Prepared By
Title	

Administrative
Contact Information

OPERATION EVALUATION LEVEL (OEL)

This report is submitted for the following monitoring period.

Check One:	<input type="checkbox"/> 1 st Quarter	<input type="checkbox"/> 2 nd Quarter	<input type="checkbox"/> 3 rd Quarter	<input type="checkbox"/> 4 th Quarter	Year	
Total Trihalomethanes Exceeded?	<input type="checkbox"/> Yes	<input type="checkbox"/> No	Level	<input type="checkbox"/> mg/L	<input type="checkbox"/> ug/L	
• If yes, what was the last sample collection date?						
• If yes, what was the amount of chloroform present in the sample result?		Level	<input type="checkbox"/> mg/L	<input type="checkbox"/> ug/L		
Haloacetic Acids (HAA5s) Exceeded?		<input type="checkbox"/> Yes	<input type="checkbox"/> No	Level	<input type="checkbox"/> mg/L	<input type="checkbox"/> ug/L
• If yes, what was the last sample collection date?						
• If yes, what was the amount of monobromoacetic acid present in the sample result?		Level	<input type="checkbox"/> mg/L	<input type="checkbox"/> ug/L		
• If yes, what was the amount of dibromoacetic acid present in the sample result?		Level	<input type="checkbox"/> mg/L	<input type="checkbox"/> ug/L		

What was your OEL
And Sample Result?

C. HISTORY

1. In the previous quarter, was the OEL exceeded?	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
• If yes, did your system submit an Operation Evaluation Report (OER)?		<input type="checkbox"/> Yes	<input type="checkbox"/> No
• If your system did submit an OER in the previous quarter, please skip to Section H.			



Operational Evaluation Report

HISTORY

1. In the previous quarter, was the OEL exceeded?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		
<ul style="list-style-type: none">If yes, did your system submit an Operation Evaluation Report (OER)?If your system did submit an OER in the previous quarter, please skip to Section H.			
2. In past years, do your TTHMs normally exceed 0.080 mg/L during the quarter indicated in Section B, reduce in the next quarter, and maintain the calculated locational running annual average (LRAA) value below 0.080 mg/L?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unsure		
<ul style="list-style-type: none">If yes, please provide the following information from the past year's applicable quarters to demonstrate that TTHMs reduce from the current quarter to the next quarter.			
Month 1	Year	TTHM Level	<input type="checkbox"/> mg/L <input type="checkbox"/> ug/L
Month 2	Year	TTHM Level	<input type="checkbox"/> mg/L <input type="checkbox"/> ug/L
<ul style="list-style-type: none">Month 1 is the month of the sample collection date (from Section B) for the previous year.Month 2 is the following quarter during the previous year.If your data demonstrates a normal reduction of TTHMs to remain in compliance, then you may proceed directly to section H.		<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unsure	
3. In past years, do your HAA5s normally exceed 0.060 mg/L during the quarter indicated in Section B, reduce in the next quarter, and maintain the calculated locational running annual average (LRAA) value below 0.060 mg/L?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unsure		
<ul style="list-style-type: none">If yes, please provide the following information from the past year's applicable quarters to demonstrate that HAA5s reduce from the current quarter to the next quarter.			
Month 1	Year	TTHM Level	<input type="checkbox"/> mg/L <input type="checkbox"/> ug/L
Month 2	Year	TTHM Level	<input type="checkbox"/> mg/L <input type="checkbox"/> ug/L
<ul style="list-style-type: none">Month 1 is the month of the sample collection date (from Section B) for the previous year.Month 2 is the following quarter during the previous year.If your data demonstrates a normal reduction of HAA5s to remain in compliance, then you may proceed directly to section H.			

History

Does this OEL exceedance occur every year during the peak month?



Operational Evaluation Report

D. SOURCE WATER

If this submittal is an update from prior reports, skip to Section H.

1. Have you changed the practices in getting your source water? e.g., changed intake rates or frequency, changed intake structure depth?	<input type="checkbox"/> Yes <input type="checkbox"/> No
2. Have you changed/added sources?	<input type="checkbox"/> Yes <input type="checkbox"/> No
3. Does your system have groundwater wells or sources as well? If yes, you may also want to fill out the OER for groundwater systems.	<input type="checkbox"/> Yes <input type="checkbox"/> No
4. Have you seen visual changes in source water quality? e.g., turbidity, color, algae blooms, etc.	<input type="checkbox"/> Yes <input type="checkbox"/> No
5. Have you seen changes in source water quality measurements? e.g., changes in turbidity, pH, temp, alkalinity, hardness, increased filter changes or number of backwash cycles required.	<input type="checkbox"/> Yes <input type="checkbox"/> No
6. Have you seen changes in the watershed that may impact the source water? e.g., drought conditions, heavy rain, animal feed lots, agricultural practices, wildfires, industrial practices, etc.	<input type="checkbox"/> Yes <input type="checkbox"/> No

Source Water

E. WATER TREATMENT

If this submittal is an update from prior reports, skip to Section H.

1. Have you changed the amount or type of disinfectant? e.g., chlorine to chloramines, changed disinfectant dosage, etc.	<input type="checkbox"/> Yes <input type="checkbox"/> No
2. Have you changed or added locations of disinfectant points along the treatment process?	<input type="checkbox"/> Yes <input type="checkbox"/> No
3. Other than disinfection, have you changed or made additions to any treatment processes?	<input type="checkbox"/> Yes <input type="checkbox"/> No
4. Have you made changes to any other chemical applications? e.g., change any chemicals (change coagulant type or filter aid), filter material, changes in application points, changing dosage of any chemical, etc.	<input type="checkbox"/> Yes <input type="checkbox"/> No

Water Treatment

F. DISTRIBUTION SYSTEM

If this submittal is an update from prior reports, skip to Section H.

1. Have you added additional service areas (industry or residential)? e.g., adding additional pipes or annexing additional areas of service which could change residence times	<input type="checkbox"/> Yes <input type="checkbox"/> No
2. Have you experienced significant increases or decreases in water demand? e.g., drought restrictions, industry opening/closing, population change	<input type="checkbox"/> Yes <input type="checkbox"/> No
• If yes, what is the primary suspected cause of water demand changes?	
3. Does your system have storage tanks in the distribution system? • If yes, how many water storage tanks does your system have?	<input type="checkbox"/> Yes <input type="checkbox"/> No
• Do any storage tank(s) fill and drain from one pipe into the storage tank?	<input type="checkbox"/> Yes <input type="checkbox"/> No
• Do any above ground metal storage tanks have condensation differences along the outer wall between upper and lower portions of the storage tank in the morning? <i>Note: This could indicate inadequate water turnover in the tank</i>	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A
	Date Inspected

Distribution System



Operational Evaluation Report

Operational Evaluation Report - Surface Water Drinking Water Systems

7. If you answered "YES" to any of the questions above (Sections D.1-D.6), please explain:

Do you have water temperature data during the month of the OEL exceedance?		<input type="checkbox"/> Yes <input type="checkbox"/> No
<ul style="list-style-type: none">• If yes, what was the water temperature nearest to the DBP sample collection date above?		Date Measured
<ul style="list-style-type: none">• If no, please measure the temperature in the source water.		Date Measured
9. Do you have raw water pH data during the month of the OEL exceedance?		<input type="checkbox"/> Yes <input type="checkbox"/> No
<ul style="list-style-type: none">• If yes, what was the pH value nearest to the DBP sample collection date above?		Date Measured
<ul style="list-style-type: none">• If no, please measure the pH in the source water.		Date Measured
10. Do you have raw water turbidity data during the month of the OEL exceedance?		<input type="checkbox"/> Yes <input type="checkbox"/> No
<ul style="list-style-type: none">• If yes, what was the maximum turbidity nearest to the DBP sample collection date above?		Date Measured
<ul style="list-style-type: none">• If no, please measure the turbidity in the source water.		Date Measured
11. Do you have raw water Alkalinity data during the month of the OEL exceedance?		<input type="checkbox"/> Yes <input type="checkbox"/> No
<ul style="list-style-type: none">• If yes, what was the alkalinity nearest to the DBP sample collection date above?		Date Measured
<ul style="list-style-type: none">• If no, please measure the alkalinity in the source water.		Date Measured
12. Do you have raw water Total Organic Carbon (TOC) data during the month of the OEL exceedance?		<input type="checkbox"/> Yes <input type="checkbox"/> No
<ul style="list-style-type: none">• If yes, what was the TOC value nearest to the DBP sample collection date above?		Date Measured
<ul style="list-style-type: none">• If no, please measure the TOC in the source water.		Date Measured

Example of water quality parameters



Operational Evaluation Report

E. CONTROL PLAN	
<input type="checkbox"/> If this submittal is an update from prior reports, skip to Section H.	
1. In terms of your source water management, do you plan to monitor or implement best management practices in your source water?	<input type="checkbox"/> Yes <input type="checkbox"/> No
• Does your system have a source water management plan?	<input type="checkbox"/> Yes <input type="checkbox"/> No
• Does your system implement any best management practices (BMPs) in your watershed?	<input type="checkbox"/> Yes <input type="checkbox"/> No
• Does your system monitor for any water quality parameters in the source water?	<input type="checkbox"/> Yes <input type="checkbox"/> No
2. In regarding your existing equipment and infrastructure, do you plan to make operational adjustments to improve the quality of your drinking water for DBP control?	<input type="checkbox"/> Yes <input type="checkbox"/> No
• If yes, are you planning to adjust your chemical feeds?	<input type="checkbox"/> Yes <input type="checkbox"/> No
• If yes, are you planning to change any chemical products?	<input type="checkbox"/> Yes <input type="checkbox"/> No
• If yes, are you planning to start up any existing process equipment not used during the sampling period indicated in Section A?	<input type="checkbox"/> Yes <input type="checkbox"/> No
• If yes, are you planning to adjust any existing powdered activated carbon (PAC) feed rates?	<input type="checkbox"/> Yes <input type="checkbox"/> No
• If yes, are you planning to adjust your chlorine dosage?	<input type="checkbox"/> Yes <input type="checkbox"/> No
• If yes, are you planning to adjust any existing aeration processes in your drinking water treatment plant?	<input type="checkbox"/> Yes <input type="checkbox"/> No

What's the plan?

F. CONTROL PLAN UPDATES	
Only fill out this section, if you filled out an operational evaluation report (OER) in the previous quarter, or the data provided from Sections C.2 and C.3 instructed you to complete this section.	
1. Does your plan only rely on natural decreasing water temperatures to bring your locational running annual average (LRAA) calculated value within compliance?	<input type="checkbox"/> Yes <input type="checkbox"/> No
2. Are you continuing with the exact same control plan in your previous report?	<input type="checkbox"/> Yes <input type="checkbox"/> No
• If yes, please provide an update on the status of accomplishing the items identified in the previous control plan:	
3. Are you planning to use other methods not identified in your previous report to lower your disinfection byproducts (DBPs) ?	<input type="checkbox"/> Yes <input type="checkbox"/> No
• If yes, are these new methods going to be implemented in the source watershed? <i>(If yes, go back to Section D Source Water above)</i>	<input type="checkbox"/> Yes <input type="checkbox"/> No
• If yes, are these new methods going to be implemented in the water treatment process? <i>(If yes, go back to fill out Section E Water Treatment above)</i>	<input type="checkbox"/> Yes <input type="checkbox"/> No
• If yes, are these new methods going to be implemented in the distribution system or the water storage tanks? <i>(If yes, go back to fill out Section F Distribution System above)</i>	<input type="checkbox"/> Yes <input type="checkbox"/> No
4. Please provide a short-written statement about the control plan updates and status that your system is planning or implementing to reduce disinfection byproducts (DBPs):	

If this is a continuation, what is the update and status?



Questions?

Seth Tourney, P.E.
DBP Rule Manager
1595 Wynkoop Street
Denver, CO 80202
(303) 312-6579
tourney.seth@epa.gov