Monitoring Plan for Bromate & Bromide for Systems Using Ozone.

(The PWS will sample for these analytes according to the following monitoring plan, keep a copy of this plan in plant files and update this plan any time there is a change to the information below.)
Monitoring plan information for <u>bromate</u>:

1. Record the name and phone number of the laboratory performing the analysis.
   _____

2. Is the above laboratory certified for this analyte?_____

3. Record the approved EPA method to be used for analysis.
   _____

4. Attach any sampling instructions (type of bottle to be used, how to sample, sample preservation measures, how to ship and in what time frame, etc.) provided by the laboratory for this analyte.

5. Describe and show in a sketch where this analyte will be sampled for in your treatment train. The requirement is to sample at the entrance of the distribution system.
   _____
   _____
   Provide or attach a sketch:

6. How many samples is your system required to take? The requirement is one sample per month for each treatment plant using ozone.
   _____
   _____

7. When will the sample(s) be taken each month?
   Week_____Day_____Time of day _____

8. Describe how the operator will ensure that the sample was taken at normal operating conditions.
   _____
   _____

9. How will the running annual average be calculated for compliance? Attach any reporting

forms to perform this calculation.

Monitoring Plan for Bromate & Bromide for Systems Using Ozone. (Cont.)

Monitoring plan information for bromide:

1. Record the name and phone number of the laboratory performing the analysis.
   _____

2. Is the above party approved by EPA or the State to perform this analysis?_____

3. Record the approved EPA method to be used for analysis.
   _____

4. Attach any sampling instructions (type of bottle to be used, how to sample, sample preservation measures, how to ship and in what time frame, etc.) provided by the laboratory for this analyte.

10. Describe and show in a sketch where this analyte will be sampled for in your treatment train. The requirement is to sample at the source.
    _____
    _____
    Provide or attach a sketch:

11. How many samples is your system required to take?
    _____

12. When will the sample(s) be taken each month?
    Week_____Day_____Time of day _____

13. Describe how the operator will ensure that the sample was taken at normal operating conditions.
    _____
    _____

14. How will the running annual average be calculated for compliance? Attach any reporting forms to perform this calculation.
    _____
    _____

Monitoring Plan for TTHMs/HAA5s.

(The PWS will sample for these analytes according to the following monitoring plan, keep a copy of this plan in plant files and update this plan any time there is a change to the information below.)
Monitoring plan information for distribution system samples for TTHMs/HAA5s:

4. Record the name and phone number of the laboratory performing the analysis.
_____

5. Is the above laboratory certified for these analytes?_____

6. Record the approved EPA method to be used for analysis.
TTHM method_____HAA5 method_____

4. Attach any sampling instructions (type of bottle to be used, how to sample, sample preservation measures, how to ship and in what time frame, etc.) provided by the laboratory for these analytes.

5. How many samples is your system required to take each year or quarter (see attached Worksheet on How to Calculate the Number of Samples for TTHMs/HAA5s)?
Samples per year_____ or;
Samples per 1st quarter_____ 2nd quarter_____ 3rd quarter_____
4th quarter_____

6. If just one sample is taken per quarter or year the sample must be taken at maximum residence time and if only one sample per year is taken than that sample must be taken during the month of warmest water temperature. Otherwise, 25% of the samples must be taken at maximum residence time and the other 75% of the samples must be taken at average residence time. Describe how you determined whether a sample was representative of maximum or average residence and attach a sketch.
_____
_____

Monitoring Plan for TTHMs/HAA5s. (Cont)

TTHMs/HAA5s sample locations in the distribution system*	
Sample address or location description	Indicate whether the sample is a maximum, average residence time sample or other (describe).

*If seasonal sources are used provide a quarterly list of sampling locations if the use of those seasonal sources changes the maximum and average residence time.

15. When will the sample(s) be taken each year or quarter?
Yearly sample:
Month of warmest water temperature is _____. When during that month will the sample be taken Week_____Day_____Time of day _____
Quarterly sample:
1st quarter: Month_____Week_____Day_____Time of day _____
2nd quarter: Month_____Week_____Day_____Time of day _____
3rd quarter: Month_____Week_____Day_____Time of day _____
4th quarter: Month_____Week_____Day_____Time of day _____

16. Describe how the operator will ensure that the sample was taken at normal operating conditions.
_____
_____

17. How will the running annual average be calculated for compliance? Attach any reporting forms to perform these calculations.
_____

Monitoring Plan for TTHMs/HAA5s. (Cont)

18. List and attach a sketch of all consecutive systems that use your water both directly and indirectly (consecutives to consecutives). Is your system a consecutive in whole or part?

_____

_____

Worksheet on How to Calculate the Number of Samples for TTHMs/HAA5s.

The number of samples is determined by whether your disinfected water is surface (SW) or ground water (GW), the population served and the number of "water treatment plants" (WTP) your system has.

1. How many samples are required per source and population type per quarter or year?_____
   Chose one: SW>10,000 = 4 samples per quarter per WTP, SW 500 to 9,999 = 1 sample per quarter per WTP, SW <500 = one sample per year per WTP, GW>10,000 = 1 sample per quarter per WTP, GW<10,000 = 1 sample per year per WTP.

2. For systems on yearly monitoring how many WTPs does your system have?_____(Chose all that apply and add them up:)
   Number of surface water treatment plants used all year_____, the number of surface water treatment plants used less than 12 months per year_____, the number of aquifers your ground water wells have been determined to reside in (if your wells have been determined by the Primacy Agency to be in the same aquifer than that counts as one WTP)_____. This concept applies if each WTP has a separate pipe leading into the distribution system. However, if all the WTPs are combined into a single pipe prior to entering the distribution system it is considered 1 WTP. For example, one year round SW plant and two aquifers each entering the distribution system in three different locations = 3 WTPs, as opposed to one year round SW plant and two aquifers combined into a single pipe prior to entering the distribution system = 1 WTP.

3. For systems on quarterly monitoring how many WTPs does your system have each quarter by applying the concept in question 2 to each quarter (the numbers will change each quarter only if seasonal SW or GW sources are used). The number of WTPs in the 1st quarter_____ 2nd quarter____ 3rd quarter_____ 4th quarter_____. For example, a SW system that uses a SW plant all year and supplements their SW with wells from June through September that were determined to be in the same aquifer, the number of WTPs in the 1st quarter is one, 2nd & 3rd quarters is two and in the 4th quarter it is back to one.

4. The total number of samples is the number in question 1 multiplied by the number in question 2 or the numbers for each quarter in question 3. Total number of samples per year is_____ (for example, a SW system serving 435 people with one SW plant and one aquifer entering the distribution system at two separate locations = 2 samples per year); or total number of samples per quarter is_____ (for example, a SW system serving 8,880 people with one SW plant and one aquifer entering the distribution system at two separate locations = 2 samples per quarter) or total number of samples per quarter is 1st quarter_____ 2nd quarter____ 3rd quarter_____ 4th quarter_____ (for example, a SW system serving 12,000 people that used a SW plant all year and supplements their SW with wells that have been determined to be in the same aquifer from June through September, the number of samples in the 1st quarter is 4 samples, 2nd & 3rd quarters is 8 samples and in the 4th quarter it is back to 4 samples.

5. Transfer the total number of samples in question 4 to question 5 on the form "Monitoring Plan for TTHMs/HAA5s." and also the first page of the "Quarterly Report to the Primacy

Agency for the Running Annual Average (RAA) for Total Trihalomethanes TTHMs) (1st of 2 pages)."

Monitoring Plan for Source Water Total Organic Carbon (TOC) for Reduced Monitoring for TTHMs/HAA5s.

(The PWS will sample for this analyte according to the following monitoring plan, keep a copy of this plan in plant files and update this plan any time there is a change to the information below.)

Monitoring plan information for source water TOC:

7. Record the name and phone number of the laboratory performing the analysis.
_____

8. Is the above party approved by EPA or the State to perform this analysis?_____

9. Record the approved EPA method to be used for analysis.
_____

4. Attach any sampling instructions (type of bottle to be used, how to sample, sample preservation measures, how to ship and in what time frame, etc.) provided by the laboratory for this analyte.

19. Describe and show in a sketch where this analyte will be sampled for in your treatment train. The requirement is to sample at the source prior to any treatment.
_____
_____
Provide or attach a sketch:

20. How many samples is your system required to take?
_____

21. When will the sample(s) be taken each month?
Week_____Day_____Time of day _____

22. Describe how the operator will ensure that the sample was taken at normal operating conditions.
_____
_____

23. How will the running annual average be calculated for compliance? Attach any reporting forms to perform this calculation.
_____
_____

Monitoring Plan for Chlorine/Chloramines.

(The PWS will sample for these analytes according to the following monitoring plan, keep a copy of this plan in plant files and update this plan any time there is a change to the information below.)
Monitoring plan information for distribution system samples for chlorine/chloramine :

10. Record the names of the operators who will be measuring the residuals.
_____

11. Are the parties approved by EPA or the State to perform the analysis?_____

12. Record the approved EPA method to be used for analysis. _____

13. If a colorimetric test kit is used has it been approved by the Primacy Agency?_____

5. Attach any sampling instructions for these analytes.

6. Where in the distribution system will the residual be measured?_____

Chlorine/chloramine sample locations in the distribution system*	
Sample address or location description	Indicate whether the sample is a routine, increased routine, repeat or other (describe)

*A general description of sample locations can be made for repeat samples.

7. How many samples is your system required to take each month?_____

8. When will the sample(s) be taken month?
Week_____Day_____Time of day _____
(Samples should be sampled at the same time, frequency and location as the total coliforms are sampled, attach the total coliform sampling plan.)

9. Describe how the operator will ensure that the sample(s) was taken at normal operating conditions.

_____

_____

10. How will the running annual average be calculated for compliance? Attach any reporting forms to perform these calculations.

_____

_____

11. List and attach a sketch of all consecutive systems that use your water both directly and indirectly (consecutives to consecutives). Is your system a consecutive in whole or part?

_____

_____

Monitoring Plan for Chlorite and Chlorine Dioxide for Systems for Using Chlorine Dioxide.

(The PWS will sample for these analytes according to the following monitoring plan, keep a copy of this plan in plant files and update this plan any time there is a change to the information below.)

Monitoring plan information for <u>daily chlorite</u>:

14. Record the names of the operators performing this analysis.
    _____

15. Is the above party approved by EPA or the State to perform this analysis?_____

16. Record the approved EPA method to be used for analysis.
    _____

4. Attach any sampling instructions for this analyte.

24. Describe and show in a sketch where this analyte will be sampled for in your treatment train. The requirement is to sample at the entrance to the distribution system.
    _____
    _____
    Provide or attach a sketch:

25. When will the daily sample be taken? _____

Monitoring plan information for <u>monthly or additional monitoring in the distribution system for chlorite:</u>

1. Record the name and phone number of the laboratory performing the analysis.
    _____

2. Is the above laboratory certified for this analyte?_____

3. Record the approved EPA method to be used for analysis.
    _____

4. Attach any sampling instructions (type of bottle to be used, how to sample, sample preservation measures, how to ship and in what time frame, etc.) provided by the laboratory for this analyte.

Monitoring Plan for Chlorite and Chlorine Dioxide for Systems for Using Chlorine Dioxide. (cont)

5. Describe and show in a sketch where this analyte will be sampled for in your distribution system.

   _____

   _____

   Provide or attach a sketch:

6. Describe the number of monthly distribution samples that occur on a routine basis and that may result by exceeding the daily chlorite levels.

   _____

   _____

7. When will these samples be taken?_____

Monitoring plan information for <u>entrance to the distribution system and distribution system sampling for chlorine dioxide:</u>

1. Record the names of the operators who will be measuring the residuals.

   _____

2. Are the parties approved by EPA or the State to perform the analysis?_____

3. Record the approved EPA method to be used for analysis. _____

4. If a colorimetric test kit is used has it been approved by the Primacy Agency for both daily and distribution system samples?_____

5. Attach any sampling instructions for these analytes.

7. Describe and show in a sketch where this analyte will be sampled for at the entrance to the distribution system and in the distribution system with and without a chlorine booster station (if applicable).

   _____

   _____

   Provide or attach a sketch.

12. When will the daily and distribution system sample(s) be taken?
    Time of day _____

Monitoring Plan for Chlorite and Chlorine Dioxide for Systems for Using Chlorine Dioxide. (cont)

13. Describe how the operator will ensure that the sample was taken at normal operating conditions for both chlorite and chlorine dioxide.

_____

_____

14. How will compliance be determined for both chlorite and chlorine dioxide? Attach any reporting forms to perform these calculations.

_____

_____

Monitoring Plan for Source Water Total Organic Carbon (TOC), Source Water Alkalinity and Finished Water TOC.

(The conventional PWS will sample for these analytes according to the following monitoring plan, keep a copy of this plan in plant files and update this plan any time there is a change to the information below.)

Monitoring plan information for source water TOC:

17. Record the name and phone number of the laboratory performing the analysis.

    _____

18. Is the above party approved by EPA or the State to perform this analysis?_____

19. Record the approved EPA method to be used for analysis.

    _____

4. Attach any sampling instructions (type of bottle to be used, how to sample, sample preservation measures, how to ship and in what time frame, etc.) provided by the laboratory for this analyte.

26. Describe and show in a sketch where this analyte will be sampled for in your treatment train. The requirement is to sample at the source prior to any treatment.

    _____

    _____

    Provide or attach a sketch:

27. How many samples is your system required to take? The requirement is one sample per month for each treatment plant. _____

28. When will the sample(s) be taken each month?
    Week_____Day_____Time of day _____
    (The sample must be taken on the same hour of the same day as the source water alkalinity and finished water TOC are taken.)

29. Describe how the operator will ensure that the sample was taken at normal operating conditions.

    _____

    _____

30. How will the running annual average be calculated for compliance with the source water TOC alternative compliance criteria #1 & #3 or for calculating TOC removal? Attach any reporting forms to perform these calculations.

    _____

    _____

Monitoring Plan for Source Water Total Organic Carbon (TOC), Source Water Alkalinity and Finished Water TOC. (Cont.)

Monitoring plan information for source water alkalinity:

20. Record the name and phone number of the laboratory performing the analysis.

_____

21. Is the above party approved by EPA or the State to perform this analysis?_____

22. Record the approved EPA method to be used for analysis.

_____

4. Attach any sampling instructions (type of bottle to be used, how to sample, sample preservation measures, how to ship and in what time frame, etc.) provided by the laboratory for this analyte.

31. Describe and show in a sketch where this analyte will be sampled for in your treatment train. The requirement is to sample at the source prior to any treatment.

_____

_____

Provide or attach a sketch:

32. How many samples is your system required to take? The requirement is one sample per month for each treatment plant. _____

33. When will the sample(s) be taken each month?
Week_____Day_____Time of day _____
(The sample must be taken on the same hour of the same day as the source water TOC and finished water TOC are taken.)

34. Describe how the operator will ensure that the sample was taken at normal operating conditions.

_____

_____

35. How will the running annual average be calculated for compliance with the source water alkalinity part of alternative compliance criteria #3 or for calculating TOC removal? Attach any reporting forms to perform these calculations.

_____

_____

Monitoring Plan for Source Water Total Organic (TOC), Source Water Alkalinity and Finished Water TOC. (Cont.)

Monitoring plan information for finished water TOC:

23. Record the name and phone number of the laboratory performing the analysis.

_____

24. Is the above party approved by EPA or the State to perform this analysis?_____

25. Record the approved EPA method to be used for analysis.

_____

4. Attach any sampling instructions (type of bottle to be used, how to sample, sample preservation measures, how to ship and in what time frame, etc.) provided by the laboratory for this analyte.

36. Describe and show in a sketch where this analyte will be sampled for in your treatment train. The requirement is to sample at the combined filter effluent representative of the treated water.

_____

_____

Provide or attach a sketch:

37. How many samples is your system required to take? The requirement is one sample per month for each treatment plant. _____

38. When will the sample(s) be taken each month?
Week_____Day_____Time of day _____
(The sample must be taken on the same hour of the same day as the source water TOC and source water alkalinity are taken.)

39. Describe how the operator will ensure that the sample was taken at normal operating conditions.

_____

_____

40. How will the running annual average be calculated for compliance with the finished water TOC alternative compliance criteria #2 or for reduced monitoring or for calculating TOC removal? Attach any reporting forms to perform these calculations.

_____

_____

Monitoring Plan for Source Water Specific Ultraviolet Absorption (SUVA).

(The conventional PWS will sample for SUVA according to the following monitoring plan, keep a copy of this plan in plant files and update this plan any time there is a change to the information below.)

Monitoring plan information for source water SUVA:

26. Record the name and phone number of the laboratory performing the analysis.
_____

27. Is the above party approved by EPA or the State to perform the analysis for SUVA?_____

28. Record the approved EPA methods to be used for analysis.
_____

4. Attach any sampling instructions (type of bottle to be used, how to sample, sample preservation measures, how to ship and in what time frame, etc.) provided by the laboratory for SUVA.

41. Describe and show in a sketch where SUVA will be sampled for in your treatment train. The requirement is to sample at the source prior to any treatment.
_____
_____
Provide or attach a sketch:

42. How many samples is your system required to take? The requirement is one sample per month for each treatment plant. _____

43. When will the sample(s) be taken each month?
Week_____Day_____Time of day _____

44. Describe how the operator will ensure that the sample was taken at normal operating conditions.
_____
_____

45. How will the running annual average be calculated for compliance with the source water SUVA alternative compliance criteria #5? Attach any reporting forms to perform this calculation.
_____
_____

Monitoring Plan for Finished Water Specific Ultraviolet Absorption (SUVA).

(The conventional PWS will sample for SUVA according to the following monitoring plan, keep a copy of this plan in plant files and update this plan any time there is a change to the information below.)

Monitoring plan information for finished water SUVA:

29. Record the name and phone number of the laboratory performing the analysis.
_____

30. Is the above party approved by EPA or the State to perform the analysis for SUVA?_____

31. Record the approved EPA methods to be used for analysis.
_____

4. Attach any sampling instructions (type of bottle to be used, how to sample, sample preservation measures, how to ship and in what time frame, etc.) provided by the laboratory for SUVA.

46. Describe and show in a sketch where SUVA will be sampled for in your treatment train. The requirement is to sample at the combined filter effluent representative of the treated water.
_____
_____
Provide or attach a sketch:

47. How many samples is your system required to take? The requirement is one sample per month for each treatment plant. _____

48. When will the sample(s) be taken each month?
Week_____Day_____Time of day _____

49. Describe how the operator will ensure that the sample was taken at normal operating conditions.
_____
_____

50. How will the running annual average be calculated for compliance with the finished water SUVA alternative compliance criteria #6? . Attach any reporting forms to perform this calculation.
_____
_____

Monitoring Plan for Source and Finished Water Alkalinity.

(The conventional PWS will sample for this analyte according to the following monitoring plan, keep a copy of this plan in plant files and update this plan any time there is a change to the information below.)

Monitoring plan information for finished water alkalinity:

32. Record the name and phone number of the laboratory performing the analysis.
_____

33. Is the above party approved by EPA or the State to perform this analysis?_____

34. Record the approved EPA method to be used for analysis.
_____

4. Attach any sampling instructions (type of bottle to be used, how to sample, sample preservation measures, how to ship and in what time frame, etc.) provided by the laboratory for this analyte.

51. Describe and show in a sketch where this analyte will be sampled for in your treatment train. The requirement is to sample at the combined filter effluent representative of the treated water.
_____
_____
Provide or attach a sketch:

52. How many samples is your system required to take? The requirement is one sample per month for each treatment plant. _____

53. When will the sample(s) be taken each month?
Week_____Day_____Time of day _____

54. Describe how the operator will ensure that the sample was taken at normal operating conditions.
_____
_____

55. How will the running annual average be calculated for compliance with the finished water alkalinity additional alternative compliance criteria #1? Attach any reporting forms to perform these calculations.
_____
_____

Monitoring Plan for Source and Finished Water Magnesium.

(The conventional PWS will sample for this analyte according to the following monitoring plan, keep a copy of this plan in plant files and update this plan any time there is a change to the information below.)

Monitoring plan information for source and finished water magnesium:

35. Record the name and phone number of the laboratory performing the analysis.
_____

36. Is the above party approved by EPA or the State to perform this analysis?_____

37. Record the approved EPA method to be used for analysis.
_____

4. Attach any sampling instructions (type of bottle to be used, how to sample, sample preservation measures, how to ship and in what time frame, etc.) provided by the laboratory for this analyte.

56. Describe and show in a sketch where this analyte will be sampled for in your treatment train. The requirement is to sample at the source prior to any treatment for the source water sample and combined filter effluent representative of the treated water for the finished water sample.
_____
_____
Provide or attach a sketch:

57. How many samples of each is your system required to take? The requirement is one sample of each per month for each treatment plant. _____

58. When will the sample(s) be taken each month?
Week_____Day_____Time of day _____

59. Describe how the operator will ensure that the samples were taken at normal operating conditions.
_____
_____

60. How will the running annual average be calculated for compliance with the finished water magnesium removal additional alternative compliance criteria #2? Attach any reporting forms to perform these calculations.
_____
_____