WHAT IS CLAIMED IS:

1. A computer-implemented method for determining a water treatment parameter, comprising:

receiving, by a computer, at least two measurements of fluorescence emission spectra of a water sample including a first peak emission wavelength and at least a second peak emission wavelength, respectively, emitted in response to an excitation wavelength;

determining, using the computer, a first component value associated with the first peak emission wavelength and a second component value associated with the second peak emission wavelength; and

calculating, using the computer, a value for the parameter based on at least one coefficient calibrated with respect to a relationship between the fluorescence emission spectra of the first and second components and the parameter

receiving, by the computer, a DOC value determined using a DOC meter;

receiving, by the computer, absorbance measurements of the water sample;

determining, by the computer, A254 values and SUVA values based on the absorbance measurements;

receiving, by the computer, fluorescence emission spectra for each DOC and A254 value;

determining first and second linear coefficients for each of a plurality of component values, including the first and second component values; and

determining the water treatment parameter value based on a linear combination of a ratio of the first and second component values multiplied by the first linear coefficient, and the A254 value multiplied by the second linear coefficient.

2. The method of claim 1 wherein the water treatment parameter is a trihalomethane formation potential (THMFP), the method further comprising:

receiving a pH measurement of the water sample;

receiving a temperature measurement of the water sample;

receiving an alkalinity measurement of the water sample; and

wherein calculating further includes the linear combination of the pH, temperature, and alkalinity with the ratio and the absorbance measurement.

3. The method of claim 1 wherein the measurements of fluorescence emission spectra include integration of values over a predetermined range of emission wavelengths representing concentration of component species associated with each peak emission wavelength.

4. The method of claim 1 wherein the absorbance and fluorescence measurements are obtained from a common instrument.

5. The method of claim 1 wherein the absorbance and fluorescence measurements are obtained substantially simultaneously.