

Appendix E - Designation Values and Expected Peak Day Concentrations

The Expected Peak Day Concentration (EPDC) represents the concentration that statistically is estimated to recur once per year. In the area designation process, measured concentrations that are higher than the calculated EPDC, after the EPDC is rounded to the precision of the relevant State standard, are identified as affected by an extreme concentration event and are not considered violations of the State standards.

The Designation Value (DV) refers to the highest measured concentration (rounded to the precision of the relevant State standard) remaining at a given site after all measured concentrations affected by extreme concentration events are excluded. In the calculations of EPDCs, concentrations affected by exceptional events or unusual concentration events are not excluded. However, measured concentrations that are identified as affected by an exceptional event or unusual concentration event are excluded from being considered as the DV. If the highest DV within an area does not exceed the State standard, and all other criteria are met, then the area can be considered in attainment for that pollutant. Other criteria that must be met include completeness and representativeness criteria as described in Appendix B.

As an example of the use of the EPDC, if the calculated ozone EPDC for a site is 0.096 ppm, and the four highest measured concentrations are 0.125, 0.113, 0.102, and 0.094 ppm, then the DV is equal to 0.10 ppm. This is because the EPDC of 0.096 ppm would be first rounded to 0.10 ppm (consistent with the precision of the ozone standard that is two decimal places), and 0.10 ppm is the highest measured concentration equal to or lower than the rounded EPDC. The measured concentrations of 0.125 ppm (rounded to 0.13 ppm) and 0.113 ppm (rounded to 0.11 ppm) are higher than the rounded EPDC of 0.10 ppm and are excluded as extreme concentrations and are not considered as the DV.

The validity of the EPDC is based on the high day coverage for each of the three years. The high day coverage is the percentage of expected high days that are complete during the year. The expected high days are those days specific to each given site that historically have daily maximum concentrations in the top ten percent of all daily maximum concentrations, based on data through 2023.

The calculated EPDC is considered valid for designation purposes only if the data meet one of the following three conditions: (1) if the high day coverage is at least 75 percent for each of the three years; (2) if the high day coverage is at least 75 percent for each of two years and the EPDC is less than or equal to 75 percent of the applicable State standard; or (3) if the high day coverage is at least 75 percent for one year and the EPDC is less than or equal to 50 percent of the applicable State standard.

When the EPDC is not calculated or the calculated EPDC is not considered valid for designation purposes, the EPDC is not used in determining the DV. In these cases, the DV is simply the highest measured concentration (rounded to the precision of the Relevant State standard) at the site during the specified three-year period, after excluding data affected by exceptional events and unusual concentration events, if any.

Finally, the EPDC is the same indicator that CARB endorsed for the air pollution control and air quality management districts to use as an indicator in reporting their progress toward attainment of the State standards, as required by the Health and Safety Code section 40924. Use of the EPDC is described more fully in the document titled: *Guidance for Using Air Quality-Related Indicators in Reporting Progress in Attaining the State Ambient Air Quality Standards* (CARB, September 1993).

The EPDCs and DVs listed in Appendix F are based on air quality data collected from 2022 through 2024. This is the most recent three-year period for which air quality data are available and is the same three-year period used in reviewing the area designations described in the text of this staff report. The EPDCs and DVs are listed for each site in the State with appropriate data. Concentrations are listed for ozone, suspended particulate matter (PM₁₀), hydrogen sulfide (H₂S), and fine particulate matter (PM_{2.5}). The data for the other pollutants for which there are State standards are not presented because there are either no violations of the relevant State standards or the data are insufficient for determining the appropriate DVs. Complete data for all pollutants, except visibility reducing particles, is available in electronic format and can be accessed from our *Air Quality and Emissions Resources* website via email request at carbaqdms@arb.ca.gov.