# PROPOSED
# REMOVAL OF THE NUMERIC CRITERIA FOR COLOR


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## INTRODUCTION

As a water quality assessment parameter, color does not provide an adequate determination of true impairment. Waterbodies have a range of color from 0 to over 300 Pt units (Wetzel 1983). Natural minerals, such as calcium carbonate can impart greenish colors while ferric hydroxide can impart red. Organic substances, tannins, lignin and humic acids from decaying vegetation also give color to water (Wetzel 1975, Reid and Wood 1976). The EPA "Red Book" (EPA 440/9-76-023, July, 1976) states that "Because of the extreme variations in the natural background amount of color, it is meaningless to attempt numerical limits." According to the EPA "Gold Book" (Quality Criteria for Water: 1986. EPA 440/5-86-001), one of the main intentions of a color criterion is to not allow productivity to be reduced. The Gold Book states that "the effects of color in water on aquatic life principally are to reduce light penetration and thereby generally reduce photosynthesis by phytoplankton and to restrict the zone for aquatic vascular plant growth." This is contrary to many efforts that are in place to control human-induced productivity increases. The parameter of color has historically been important in the characterization of drinking water. In terms of Drinking Water Regulations, the parameter of color is considered by the EPA as a secondary standard related to aesthetics. Secondary standards are not health threatening and are only tested for on a voluntary basis.

Oklahoma is currently the only state within EPA Region 6 that has a numeric color criterion. Nationally, very few states have numeric criterion for color. A numeric criterion for color of 75 Platinum-Cobalt Units first appeared in the 1979 Oklahoma Water Quality Standards. Since 1981, the Oklahoma Water Quality Standards have had a numeric criterion for color of 70 Platinum-Cobalt Units.

In the 2009 OWQS revision, the applicability of the color numerical criterion was limited to only permit development. The EPA response below indicates that this revision leaving a criterion applicable to only discharge permitting was not appropriate as a water quality standard and that a method for implementing the narrative criterion was required. A method for assessing the narrative color is now adopted into the latest draft CPP.

OWRB staff proposes to remove the numerical criteria for color in entirety. Staff also proposes that the narrative criteria remain in place to ensure that waters are not adversely affected by color from any potential nonpoint source or pointsource color discharges.

## DRAFT PROPOSED LANGUAGE CHANGES

**785:45-5-19. Aesthetics**

(c) The following criteria apply to protect this use:

(1) **Color.** Surface waters of the state shall be virtually free from all coloring materials which produce an aesthetically unpleasant appearance. ~~For permitting purposes, color producing substances, from other than natural sources, shall be limited to concentrations equivalent to 70 Platinum-cobalt true color units.~~

## ECONOMIC CONSIDERATIONS

There are no anticipated negative economic impacts associated with this change. A reduction in parameters sampled would have a positive economic impact on agencies that make water quality assessments. This change, if approved by EPA, would also eliminate the TMDL requirements, and associated costs, for lakes that have been identified as impaired for color.