TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

March 22, 2010

Docket No. EPA-HQ-OAR-2005-0172
U.S. Environmental Protection Agency
Mail code 6102T
1200 Pennsylvania Ave., NW
Washington, D.C. 20460

Re: *Federal Register*, Vol. 75, No. 11, January 19, 2010, National Ambient Air Quality Standards for Ozone, Proposed Rule

Dear Sir or Madam:

The Texas Commission on Environmental Quality (TCEQ) appreciates the opportunity to comment on the United States Environmental Protection Agency's (EPA) proposed revisions to the National Ambient Air Quality Standards (NAAQS) for ozone. The following is a brief overview of our comments.

- The TCEQ is in disagreement with the EPA's proposal to revise the eight-hour standard to a level within the range of 0.060 to 0.070 parts per million (ppm) because of uncertainties relating ambient ozone concentrations to personal exposures and limitations of the epidemiological and clinical studies used as the basis of the revisions. Because of the considerable implications of these revisions, it is extremely important that this policy decision incorporate all of the relevant scientific data and that the data be analyzed using appropriate statistics.

- The TCEQ does not agree with the proposal to establish a distinct secondary ozone standard, different from the primary standard, because the proposed secondary standard: is arbitrary in form; the selected level is indistinguishable from background; does not yield appreciable benefits; is based on studies that may be inappropriate for identifying empirical vegetation effects; and may inappropriately overestimate damages.

- The TCEQ is opposed to the EPA's proposal to require that all decimal digits supported by the calculation software must be retained for actual calculations of eight-hour averages and three-year average ozone values.

- The TCEQ does not support the EPA's proposed broad and unfettered general discretion to use incomplete data and any other data known to EPA but not a part of the federal or state monitoring network to calculate design values for comparison to the NAAQS for purposes of determining attainment or nonattainment.

- The TCEQ does not support the EPA's proposed broad and unfettered general discretion to consider data collected from non-federal reference method monitors that has not been submitted to EPA's Air Quality System.

- The TCEQ is opposed to the accelerated designation schedule. This schedule, combined with the reconsidered standard proposed as a range rather than at a specific level, does not allow for meaningful public input, nor does it provide adequate time for states to conduct technical analysis in support of designation recommendations. The EPA should extend the time for states to submit designation recommendations.

- The EPA's statement that the proposed ozone standard reduction would have no significant impact on small business is disingenuous. Changes to the NAAQS do directly impact requirements for emissions of all sources, both large and small.

- The proposed range of the primary ozone NAAQS will drastically increase the number of distant emission sources that can contribute policy-relevant quantities of ozone to cities.

Enclosed please find our detailed comments. If you have questions, please contact Mr. David Brymer, Air Quality Division Director, at (512) 239-1725 or dbrymer@tceq.state.tx.us.

Sincerely,

Mark R. Vickery, P.G., Executive Director
Texas Commission on Environmental Quality

Enclosure

Comments by the Texas Commission on Environmental Quality Regarding the National Ambient Air Quality Standards for Ozone
EPA Docket ID No. EPA-HQ-OAR-2005-0172

Comments Regarding the Primary Ozone Standard

The Texas Commission on Environmental Quality (TCEQ) is in disagreement with the United States Environmental Protection Agency's (EPA) proposal to revise the eight-hour standard to a level within the range of 0.060 to 0.070 parts per million (ppm) because of uncertainties relating ambient ozone concentrations to personal exposures and limitations of the epidemiological and clinical studies used as the basis of the revisions. Because of the considerable implications of these revisions, it is extremely important that this policy decision incorporate all of the relevant scientific data and that the data be analyzed using appropriate statistics. The issues raised in the following comments are evidence that the EPA has failed to adequately consider significant concerns in setting the limits for both the primary and secondary ozone standard.

While epidemiology studies are important in evaluating ambient exposures to environmental pollutants, they are limited because they rely on the use of ambient data from monitors to characterize personal ozone exposure. The ambient monitoring data from a particular monitor location cannot adequately characterize individual personal ozone exposures. The epidemiology studies used by the EPA are thus not robust enough to support lowering the ozone standard.

People in Texas tend to spend more time indoors in the summer when the temperatures and the ozone concentrations are generally high and therefore, the use of ambient ozone monitoring data as an index for personal exposures can result in exposure error. According to the National Research Council of the National Academies of Science (NRC 2008), "Personal ozone exposure is a major source of uncertainty in ozone-mortality risk estimates." Furthermore, in their overall conclusions and recommendations to the EPA, the NRC (2008) cautioned the EPA on the difficulty of separating health effects due to ozone exposure from health effects due to other pollutants or weather conditions.

Similar limitations of characterizing personal ozone exposure were offered to the EPA by their own Clean Air Scientific Advisory Committee (CASAC) for ozone. The CASAC indicated the importance of adequately characterizing personal ozone exposure to minimize exposure error. A letter dated June 5, 2006, to the EPA from the CASAC said,

"The Ozone Staff Paper should consider the problem of exposure measurement error in ozone mortality time-series studies. It is known that personal exposure to ozone is not reflected adequately, and sometimes not at all, by ozone concentrations measured at central outdoor monitoring sites. Typically, personal exposures are much lower than the ambient concentrations, and can be dramatically lower depending on time-activity patterns, housing characteristics and season. In addition and of particular importance for the ozone time-series studies, there can be no correlation between personal concentrations

of ozone measured over time and concentrations measured at central outdoor sites. Therefore, it seems unlikely that the observed associations between short-term ozone concentrations and daily mortality are due solely to ozone itself."

Other researchers have confirmed the weak correlation between ozone personal exposures and outdoor ozone concentrations in the U.S (McClellan et al. 2009, Sarnat et al. 2000 and Barnett et al. 2005). According to McClellan et al. (2009), the correlation between the ozone concentrations at ambient monitors and indoors in homes, offices, and other workplaces is poor. McClellan attributes low ozone concentrations indoors to the reactive nature of ozone, the tendency of ozone to deposit on surfaces, and the ventilation systems inside buildings.

Many other studies have also indicated that considerable both inter- and intra variability exists in the comparisons of personal ozone exposures and ambient ozone concentrations due to differences in human time-activity patterns. The EPA staff paper has not properly accounted for these variabilities and thus, exposure error and bias are present in the analysis.

Of the few epidemiology studies that found an association with ozone and health effects, the effects are more likely to be attributed to other pollutants such as particulate matter, nitrogen dioxide, and sulfur dioxide. The ratios of these pollutants vary tremendously from region to region. Many recent studies have found the regional variability in pollutant mixtures to confound the results and indicate a negative association of exposure to ambient ozone and adverse health effects. For example, the Kaiser Permanente Report (2002), and the Gauderman et al. (2004) study found no increases in hospital admissions in elderly patients and health effects in children, respectively, due to ozone alone.

Many time-series studies have used patient medical records instead of patient histories to monitor exposure and assess health effects. Similar to ambient monitoring data, patient medical records are inadequate indices to associate ozone exposure and health effects.
In fact, Texas Inpatient Hospital Discharge data on the numbers of hospital visits for asthma between 1999 and 2001 actually show that fewer children in Texas visit the hospital for asthma during peak summer ozone season as compared to wintertime. Results from a four-year (2000-2003) air quality study conducted by Texas A&M University and Driscoll Children's Hospital indicate hospital admissions to be weakly correlated with ambient daily maximum ozone levels.

Interpretation of the results from epidemiology studies is often challenging because it is very difficult to separate the effects of co-pollutants in ambient air. This inability of separating out the risk for each of the other pollutants in air can result in overestimation of the risk from ozone alone. The NRC expressed concern that effects associated with ambient ozone may be the result of not only ozone exposure but of other air pollutants. The NRC lists ambient particulate matter with an aerodynamic diameter no greater than 2.5 micrograms per cubic meter ($PM_{2.5}$) and weather as the possible confounders for ozone.

The TCEQ is very concerned about the insufficient amounts of adverse health effects information at lower ozone concentrations (e.g., 0.04 -0.06 ppm). Many clinical studies used to justify the lower end of the proposed range do not support lowering the ozone standard to 0.06 – 0.07 ppm. One of the studies, on which the proposed new revisions are primarily based, Adams (2006), used a very small sample size (30 health adults, few of which were exposed to low concentrations such as 0.04 or 0.06 ppm). Results from the Adams (2006) study report indicate no adverse effects at 0.04 or 0.06 ppm (compared to the control group) and report statistically significant effects on lung function compared to the control group only at 0.08 ppm.

Further, there is ambiguity in defining what constitutes an adverse health effect on exposure to air pollution. The American Thoracic Society (2000) states a >15 percent reduction in forced expiratory volume in 1 second (FEV1) as a moderate lung function effect. The Adams (2006) study showed a mean lung function decrement of < 10 % in 0.06 ppm exposure group compared to the control group and these effects were not statistically significant. In addition, only two of the thirty participants experienced > 10% effects on lung function (measured by FEV1 decrements). Based on the report by the American Thoracic Society, the effects from the 0.06 ppm are not indicative of adverse effects as the EPA re-analysis and staff paper indicate.

The EPA staff paper criticizes Dr. Adams use of the Scheffe multiple comparisons procedure as being a conservative statistical test that can minimize Type I errors (falsely rejecting the null hypothesis of no difference). The EPA's re-analysis of the Adams (2006) data henceforth referred to as the Brown (2007) memorandum justifies the use of a t-test as an appropriate tool instead of Dr. Adam's approach. However, several statisticians and scientists, including Dr. Adams, have stated that the t-test is an inappropriate statistical tool to use for a single test point. The t-test effectively ignores the majority of the data and does not take into account the multiple comparisons. Dr. Adams disagreed with the EPA's re-analysis and statistical interpretation of his study during a teleconference on March 5, 2007, and in written comments to the EPA during the 2007 comment period.

In addition, the TCEQ also reviewed comments to the EPA from Dr. Richard L. Smith from the Department of the Statistics and Operations Research at the University of North Carolina. Dr. Smith has also expressed concerns on the EPA's re-analysis of Dr. Adams (2006) data. In his 2007 comments to the EPA, Dr. Smith stated that there is insufficient evidence to conclude that there is any well-defined response to ozone exposure below the 0.08 ppm level. Further, Dr. Smith stated the EPA's conclusion is inappropriate. As in their staff paper, conclusions are based on the assumption that the response curve fitted to higher ozone levels can be extrapolated to 0.06 ppm. In Dr. Smith's opinion, the EPA's staff paper's conclusions are not justified given the large uncertainty in the probability of response at 0.06 ppm. The TCEQ strongly concurs with Dr. Smith and agrees that the approach used by Dr. Adams to be more appropriate than the EPA's re-analysis and statistical interpretation of Adams (2006) data.

Large uncertainty exists both in deciding the threshold concentrations of ozone and on what is an acceptable level of personal exposure to ozone. The NRC (NRC 2001) provided acceptable limits of ozone inside airline cabins to the Federal Aviation Administration (FAA). Interestingly, the acceptable levels of ozone are significantly above the primary and proposed revisions for ozone NAAQS (the FAA limits the average concentrations of ozone to less than 0.1 ppm above 27,000 feet, and less than 0.25 ppm above 32,000 feet).

In addition to the TCEQ, Dr. Roger McClellan, former CASAC Chair, also indicated his strong reservations about the revisions of the ozone standard and has submitted his comments to the EPA. In personal communication with the TCEQ, Dr. McClellan indicated the following: "CASAC's recommendation that the Primary Standard should be set in the range of 0.060 to 0.070 ppm represented their collective "policy judgment choice" informed by science. In my opinion, the scientific information was such that EPA Administrator Johnson could have set a NAAQS of Ozone as high as the then standard of 0.08 ppm (by convention rounded to 0.084 ppm). The same is true for Administrator Jackson she need not be constrained by the policy recommendation of CASAC."

In conclusion, it is very apparent that the epidemiological and clinical studies that the EPA used as its basis for the proposal to revise ozone NAAQS have limitations that make them inadequate as key studies. Specifically, the studies did not adequately characterize critical inputs such as personal exposures, uncertainty, and variability in the risk assessment process. Inadequate characterization of critical inputs can result in exposure error measurements. As recommended by the NRC and the CASAC, the EPA should, therefore, develop a new proposal that assesses personal exposure to ozone but also incorporate appropriate statistical tools with the Adams (2006) data to provide convincing and rigorous evidence of significant adverse health effects below 0.08 ppm.

The accelerated designation schedule, combined with the reconsidered standard proposed as a range rather than at a specific level, does not allow for meaningful public input, nor does it provide adequate time for states to conduct technical analysis in support of designation recommendations. The EPA should extend the time for states to submit designation recommendations.

When the EPA revised the ozone standard in 2008, the revision was proposed on June 20, 2007, and the final standard was promulgated March 12, 2008. State recommendations were due to the EPA by March 12, 2009, which provided one year (12 months) from the promulgation of the final standard to the due date for state recommendations.

The expected promulgation date for the newly reconsidered ozone standard is August 31, 2010, and the due date for states' designation recommendations is January 7, 2011. States are afforded just 129 days (4 months and 1 week) to develop and submit designation recommendations. The EPA, however, is afforded nearly 8 months between proposal and final promulgation to conduct public hearings, receive and respond to comment, and prepare the final standard promulgation.

During the recommendation process for the 2008 ozone standard, immediately following promulgation of the final standard in March 2008, the TCEQ staff began assembling data during the spring of 2008 and drafting materials for the state's designation recommendation, including data necessary to analyze relevant factors in determining nonattainment area boundaries. Staff conducted public meetings throughout the state during the summer of 2008 to explain the process and solicit comments. Comments were considered in drafting the final designation recommendation package throughout the fall of 2008. The recommendation was approved by the commission in December 2008, and was sent to the governor for his consideration. The governor submitted the state's recommendation to the EPA in March 2009. To prepare a recommendation package for approval by the TCEQ and the governor, documents must be assembled early in the fall of 2010; given the final standard will not be promulgated until August 31, 2010; there is no time available to provide a public comment period on the draft recommendation. The state process could be accelerated somewhat, but in order to be able to solicit meaningful public input, states should at least be afforded a similar timeframe to that used by the EPA to promulgate the reconsidered standard.

Additionally, depending upon the level at which the finalized ozone standard is set and the potential boundaries of nonattainment areas, Texas could have anywhere from 27 to more than 65 counties designated nonattainment based on 2007, 2008, and 2009 ozone monitoring data. The EPA states in the proposed ozone rule that they "intend to provide technical information and guidance for states as early as possible to facilitate the development of their recommendations." (75 FR 3036) The TCEQ urges the EPA to provide this guidance as soon as possible, but no later than the date of promulgation of the NAAQS. Recent conversations with regional EPA staff suggests, however, that states will not receive technical evaluations from the EPA for several months and possibly not before recommendations are due. The uncertainty regarding the level of the reconsidered standard, combined with the possibility of receiving technical assistance from the EPA too late to be of assistance to states, makes it difficult to target outreach most effectively to those areas which may be designated nonattainment. Further, to determine appropriate boundaries for nonattainment areas, states must have the opportunity to conduct a factor analysis to determine if they should seek to consider boundaries different from the EPA's currently unknown presumptive nonattainment area boundary. Conducting factor analysis prior to finalization of the standard, for an undefined set of counties, based on an undefined standard and with little to no guidance from the EPA, presents a significant challenge. Most states will not have sufficient time to conduct adequate analysis upon promulgation of the final standard because of the accelerated designation timeline.

The EPA states that the "acceleration of designations for the primary standard would help limit any delays in health protections associated with the reconsideration of the standards." (75 FR 3036) Because the accelerated designation process results in a significant burden to states, and a troubling lack of public input, such a claim should reasonably be supported by evidence of a danger to public health caused by a delay of designations by 6 to 12 months. Controls for ozone precursors resulting from state plans will not take effect for months to years under the reconsidered standard, and reduced ozone levels in ambient air expected to benefit public health perhaps years after that, and

certainly at incremental levels. It is unclear precisely how the EPA quantifies the purported health benefits to support an accelerated designation schedule, since the EPA has provided no basis for this assertion, nor any rationale for why such a critical process (determinations by states regarding designations) should be curtailed.

Comments Regarding the Secondary Ozone Standard

The TCEQ does not agree with the proposal to establish a distinct secondary ozone standard, different from the primary standard, because the proposed secondary standard: is arbitrary in form; the selected level is indistinguishable from background; does not yield appreciable benefits; is based on studies that may be inappropriate for identifying empirical vegetation effects; and may thus, inappropriately overestimate damages.

The EPA has not demonstrated additional benefits from revising the secondary standard to the W126 index.

In the 2007 Staff Paper, the EPA demonstrates that the W126 index and the then-current secondary standard (eight-hour average at 0.084 ppm) vary somewhat in identifying areas at risk during some time periods in some locations. The Paper notes that non-overlapping areas may be protected by the W126 that would not be protected by the primary standard. However, in the present rule making, the EPA fails to compare the current secondary standard of 0.075 ppm, or the proposed range of the primary standard of 0.060 to 0.070 ppm, to the W126. Neither does the EPA explain why the current form and level of the secondary standard are inadequate to protect vegetation. Further, the 2007 Staff Paper reports tree damage and crop loss estimates compared to the former secondary standard of 0.084 ppm, but not the proposed range of 0.060 to 0.070 ppm. Therefore, the EPA has failed to demonstrate the benefit, and provide a rational basis, for changing either the form or the level of the current secondary standard.

The proposed form of the secondary standard is not appropriate for identifying vegetation effect.

Recent research shows that flux-based indices are more appropriate for identifying vegetation effects than cumulative or summation approaches. More research is needed to develop, test, and validate appropriate flux-based indicators that more closely mimic empirical plant responses. A flux-based measure reflects actual uptake of ozone by a plant, rather than simple ambient concentrations, which may or may not be absorbed into leaf stomata. As far back as 1994, Musselman et al. established that ozone fluxes are more important than ambient concentrations in foliar injury. Further, Musselman and Lefohn (2007) state that "[b]oth exposure- and flux-based metrics may overestimate plant response," indicating that further work is needed. However, flux-based indices that properly incorporate plant uptake and defense responses have not been adequately quantified, tested, and validated in empirical studies. Also, recent research concludes that flux-based threshold values have been established for only a very small number of species (Musselman and Lefohn, 2007). Investigation of flux models suggests that plant

uptake of ozone is more important than ambient levels of exposure. However, Musselman et al. (2006) found "serious limitations" in existing flux-based indices that do not incorporate plant detoxification mechanisms subsequent to uptake. Further, appropriate measures of flux are "difficult to quantify" because of the "considerable uncertainty" involved in quantifying these defense mechanisms.

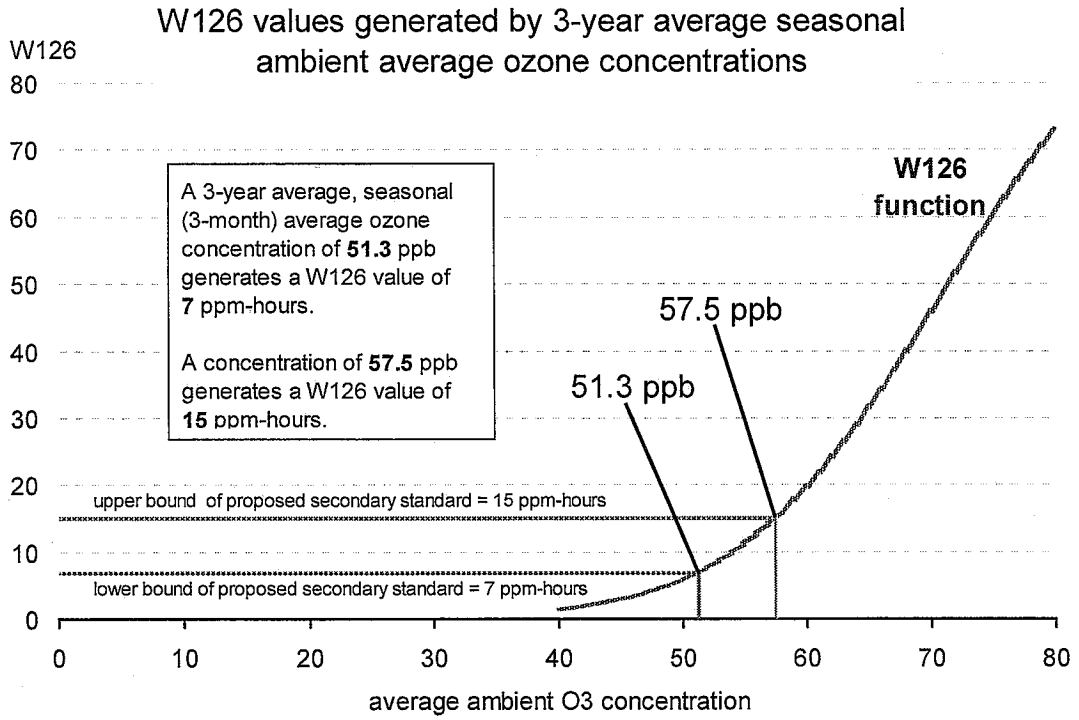
Recent research has focused on improving ozone indices to integrate more realistic plant responses including simulation of stomatal ozone flux characteristics, and measures of maximum permissible ozone concentrations (MPOC). However, as Krause, et al. (2005) explain, "the currently available database for ozone flux-plant response relationships is sparse," and therefore, "sound quantitative definitions of cause and effect are very limited." Further, they note that the few data points that do exist are based entirely on chamber experiments, which represent conditions conducive to maximal ozone uptake, rather than empirical field studies under ambient conditions.

There is considerable uncertainty in extrapolating from open top chamber (OTC) studies to real-world, empirical results. These studies do not adequately simulate empirical exposure regimens and may overestimate plant responses.

The conclusions reached in the proposal are founded on results from OTC studies, and other artificial exposure regimen, and concentration-response (C-R) functions derived from these studies. However, the World Health Organization (2000) notes that "exposure–response studies usually apply to open-top field chambers, and extrapolation to the open field may be difficult." Krause, et al. (2005), note that data from existing studies are based entirely on chamber experiments which represent conditions conducive to maximal ozone uptake, rather than empirical field studies under ambient conditions. Chamber studies measure ozone concentrations at locations in direct proximity to the vegetation being studied, often at canopy level. These studies then correlate ozone doses with plant responses. Results from chamber studies must be validated with empirical studies of actual vegetation responses, correcting for confounding influences. Holland et al. (2002) state that "[a] given dose of a pollutant will produce a variable response depending on a wide range of factors," which include: species and cultivar, plant age, other pollutants, temporal factors, variations in temperature and light, water availability and humidity, soil moisture and nutrient factors, pests and pathogens, and the potential for acclimation. Further, Holland et al. (2002) state that "[m]ost research in this area has investigated the direct effects of pollutants on crops under conditions that are to a greater or lesser extent artificial." The National Park Service (2006) also noted the difficulty in differentiating effects of ozone from other effects, such as water availability. The National Park Service report states that, "[i]n a natural ecosystem, many other factors can ameliorate or magnify the extent of ozone injury at various times and places such as soil moisture, presence of other air pollutants, insects or diseases, and other environmental stresses." This may be especially important in more arid areas of the western U.S. which have much different species of vegetation, many of which have not been subjected to testing and validation in OTC or field studies, as have eastern native species.

The proposed W126 range is too low, leading to violations at ambient ozone concentrations that have not been shown definitively not to reflect background levels.

Three-year seasonal (3-month) average ozone concentrations of only 52 ppb produce W126 index values above the 7 ppm-hours lower bound of the proposed range for the secondary standard. This level, 52 ppb, has been found to be in the range of background and transported ozone in some areas. Even the upper bound of the proposed range, 15 ppm-hours, can be generated with average ozone concentrations of only 58 ppb. This standard is too stringent, yields violations for non-locally generated ozone, and allows negligible or no local contribution of ozone.



The proposed secondary standard is set too close to background ozone concentrations, leading to the possibility of violations of the secondary standard at ozone concentrations that are well below the proposed primary standard. There is continuing uncertainty in identification of appropriate values for background ozone.

Under the range of values for the proposed secondary standard, an area could monitor two years of ozone concentrations at background levels (0.035 ppm) during the peak three month season, then monitor values just under the primary standard during the peak three month season during a single year and violate the secondary standard. This can occur at both the lower bounds of the proposed ranges for the primary and secondary standards (0.060 ppm primary and 7.0 ppm-hours secondary) and the upper bounds (0.070 ppm and 15.0 ppm-hours).

Studies that assume background levels that are too low will bias damage estimates too high.

Damage estimates will be too high if the estimate of background ozone levels is too low. There is evidence (Lefohn and Foley, 1993; Lefohn et al., 2001) that estimates of background levels are too high. Studies based on invalid background values could over-estimate damages.

The functional form of the W126 index is arbitrary and has been insufficiently tested and validated.

The selected sigmoid function is just one of many functions in the family of generalized logistic functions having the characteristic "S" shape (e.g., arctangent, hyperbolic tangent, Gompertz function, Weibull function, cumulative Gaussian function). The form and parameter values selected for the sigmoidal (W126) function are arbitrary. Any number of sets of functional parameters could generate a function that provides a similar shape and comparable asymptotic value. An insufficient number of different forms of the sigmoidal function have been empirically tested and there is no evidence that all vegetation, or even all sensitive species, would be protected by the particular chosen specification of the sigmoid function. The W126 equation, though designed to more fully weight higher, biologically-relevant values, is not robust to even minor variations in parameterization. Small changes in parameters, such as the multiplicative constant in the denominator ("4,403") result in substantially different weighting schemes, especially at mid-level concentrations where vegetation effects could be most pronounced due to, as yet unidentified, threshold effects. Further, the exponential constant in the denominator ("126") was selected to yield an asymptote to one at roughly 126 ppb ozone, purposely emulating the old one-hour standard. The value 126 has not been demonstrated to be relevant for identifying vegetation effects. Rather, the W126 was selected merely because it is the cumulative exposure index that has been studied the most. There has been insufficient assessment of other cumulative exposure indexes that could more adequately explain vegetation damages.

Different specifications of the exposure index have been shown to result in different, sometimes conflicting, trends. Lefohn, et al. (2008) explain that "careful selection of O3 exposure metrics is required when assessing trends for specific purposes, such as human health, vegetation, and climate change effects."

General Comments

The TCEQ is opposed to the EPA's proposal to require that all decimal digits supported by the calculation software must be retained for actual calculations of eight-hour averages and three-year average ozone values.

The TCEQ is opposed to the EPA's proposal to establish an requirement that all decimal digits supported by the calculator or calculation software must be retained for actual calculations (75 FR 3050) of eight-hour averages and three-year average ozone values.

While the TCEQ understands the EPA's concern with truncation of data used during calculations, computer systems and data handling software are capable of handling data with potentially very large number of decimal places. Digits at decimal places that are far beyond the number of significant digits of the original data used to generate the calculated values (e.g., 14 or 15 decimal places for ozone ppm values averaged from data measured at three decimal places) are not statistically significant and provide no practical, scientific, mathematical, or legal value towards states complying with the NAAQS. Additionally, the proposed requirement could create conflicts in decimal place retention for data that is transferred from a data acquisition and handling system to a separate software system for calculations if the two software systems have different decimal place capabilities. The EPA's proposal could force states to modify existing software or purchase new software to ensure the number of decimal places is consistent throughout all data handling steps after the initial one-hour ozone concentration data.

As an alternative, the TCEQ proposes that the EPA establish a set minimum number of decimal places to be retained for calculations purposes that is statistically significant to address the EPA's concern without requiring states to arbitrarily retain all possible decimal places, e.g., a minimum of six decimal places be retained for calculation purposes. This approach would address the EPA's concern, provide a clear and consistent requirement for states to follow, and would not burden states with retaining data with large numbers of decimal places that has no value.

The TCEQ does not support the EPA's proposed broad and unfettered general discretion to use incomplete data and data not certified by the appropriate state regulatory agency to calculate design values for comparison to the NAAQS for purposes of determining attainment or nonattainment.

The EPA is proposing to provide that the Administrator have "general discretion to use incomplete data to calculate design values that would be treated as valid for comparison to the NAAQS despite the incompleteness, either at the request of a state or at his or her own initiative." See discussion at 71 Fed. Reg. 2938, 3031, and proposed rule language for Appendix P to Part 50, 3(d)(vi) at 71 Fed Reg. 2938, 3050. The adoption of such broad, unfettered discretion would be arbitrary and capricious. While the EPA notes that similar provisions exist for the $PM_{2.5}$ and lead NAAQS, and that the Administrator would consider "monitoring site closures/moves, monitoring diligence, and nearby concentrations in determining whether to use such data," the proposal provides no discussion regarding the necessity for such discretion. Additionally, the Administrator has provided no rationale for the procedural process for how such discretion would be exercised, including provisions for notice, or appeal of, such a decision by states. While the proposal contains a list of items that the Administrator would consider in making such a determination, the proposal does not discuss the relative considerations for each item in the list, nor does the EPA provide a rationale for why the items in the list are important in this context. Current requirements for data completeness insure that assessments regarding air quality are fair and evenly applied. The current proposal provides no rationale for why it would ever be appropriate for the EPA to consider incomplete data in

making determinations regarding design values that would have lasting and sweeping affects across the country.

The EPA is proposing to provide that the Administrator have broad and unfettered discretion to consider data collected from monitors that are not part of a state's approved monitoring network and is not submitted to EPA's Air Quality System for comparison to the NAAQS for purposes of determining attainment or nonattainment. See discussion at 75 Fed. Reg. 2938, 3032, H. Data Selection, and proposed rule language for Appendix P to Part 50, 2(a) at 71 Fed Reg. 2938, 3049. The adoption of such broad, unfettered discretion would be arbitrary and capricious. The EPA provides no basis for the need for such discretion, nor the criteria regarding when such discretion would be exercised. Additionally, the Administrator has provided no rationale for the procedural process for how such discretion would be exercised, including provisions for notice, or appeal of, such a decision by states or the public. Data "known to EPA" is not adequately defined and can easily result in states and other entities making recommendations based on a different data set. Regulatory decisions should be made based on data of known, acceptable, and comparable data quality. The EPA has not provided any basis or criteria for how any such additional data would be certified as meeting these requirements in a similar manner as states are required to certify the data from their federally approved monitoring networks; nor has EPA provided any process for providing public notice of which data they will consider meet the criteria and should be considered. This practice may also provide a disincentive for environmental or industry groups to fund additional monitoring sites which can used to help provide public ozone notifications and aid in ozone modeling. Current requirements for ambient monitoring networks are adequate to assure that appropriate air quality data are collected.

The TCEQ does not support the EPA's proposed broad and unfettered general discretion to consider data collected from non-federal reference method monitors that has not been submitted to EPA's Air Quality System.

The EPA is proposing to provide that the Administrator have broad and unfettered discretion to consider data collected from monitors that are not part of a state's approved monitoring network and are not submitted to the EPA's Air Quality System for comparison to the NAAQS for purposes of determining attainment or nonattainment. See discussion at 75 Fed. Reg. 2938, 3032, H. Data Selection, and proposed rule language for Appendix P to Part 50, 2(a) at 71 Fed Reg. 2938, 3049. The adoption of such broad, unfettered discretion would be arbitrary and capricious. The EPA provides no basis for the need for such discretion, nor the criteria regarding when such discretion would be exercised. Additionally, the Administrator has provided no rationale for the procedural process for how such discretion would be exercised, including provisions for notice, or appeal of, such a decision by states or the public. Regulatory decisions should be made based on data of known, acceptable, and comparable data quality. The EPA has not provided any basis or criteria for how any such additional data would be certified as meeting these requirements in a similar manner as states are required to certify the data from their federally approved monitoring networks; nor has the EPA provided any process for providing public notice of which data they will consider meet the criteria and

should be considered. Current requirements for ambient monitoring networks are adequate to assure that appropriate air quality data are collected.

The TCEQ does not agree with the proposal of a secondary standard. However, if the EPA pursues the secondary standard, the TCEQ offers the following comment.

The TCEQ prefers that designations for the secondary standard follow the same schedule as the primary standard, so to avoid confusion and duplicative planning efforts for areas likely to be designated as nonattainment for both standards. Currently, all areas in Texas that exceed the proposed secondary standard range also exceed the proposed primary standard range. The number of SIPs due as a result of the reconsidered standard creates a logistical challenge in acquiring commission approval in a timely manner. Submittals would likely have to be staggered over a period of time. While combining state implementation plans for the secondary standard with those for the primary would result in a heavier resource burden up front, it would significantly reduce resource and document management burdens in the long-term.

Changes to the ozone NAAQS will directly impact small businesses.

While the TCEQ acknowledges that the EPA believes it is not required to complete a regulatory flexibility analysis of this proposed rule (American Trucking Assn v. EPA), the statement that the proposed ozone standard reduction would have no significant impact on small business is disingenuous. Changes to the NAAQS directly impact requirements for emissions of all sources, both large and small. As a consequence of lowering the ozone standard, states are required to implement rules to ensure compliance with the NAAQS and the development and implementation of those rules (which must assure attainment and maintenance of the NAAQS) will impact small businesses.

Additionally, another direct result of NAAQS changes are the EPA's development and distribution of Control Technique Guidelines (CTGs), as required by the Federal Clean Air Act. CTGs are a clear indication of the direct impact that lowering the ozone standard will have on small businesses. The EPA's recommendations for CTGs contain thresholds that will directly impact small and micro-businesses.

By developing the CTGs, the EPA acknowledges that Reasonably Available Control Technology (RACT) may be realized only through changes in current volatile organic compound (VOC) producing processes, many of which have direct and substantial effects on small businesses. For example, these changes include the use of low VOC chemicals, physical process changes, and in some cases installation and operation of VOC control systems. While CTGs are guidance and have not been through federal notice and comment rulemaking requirements, the EPA uses the CTGs as guidance in assessing whether states have appropriately implemented RACT as required by FCAA, §§ 110, 172, and 182. Additionally, CTGs are often used as guidance for assessing whether Reasonably Available Control Measures (RACM) have been implemented by states as required by FCAA, §§ 110, 172 and 182, since the CTGs contain the EPA's assumptions regarding appropriate VOC emissions limitations from small businesses. Use of the

CTGs as guidance by the EPA in determining whether FCAA requirements have been met is illustrative of the fact that the NAAQS has direct impacts on small businesses, since the CTGs provide recommendations for controls for small businesses.

Lastly, the EPA's documentation in the previous Regulatory Impact Analyses (RIA) for the 2008 eight-hour ozone standard admits that there is not sufficient currently available control technology to attain the 75 ppb standard. The EPA has not appropriately evaluated the potential impact to small businesses in light of the fact that the EPA acknowledges that there is not currently available technology to attain the proposed standard.

The proposed range of the primary ozone NAAQS will drastically increase the number of distant emission sources that can contribute policy-relevant quantities of ozone to cities.

The proposed range of the primary ozone NAAQS will drastically increase the number of distant emission sources that can contribute policy-relevant quantities of ozone to cities. At concentrations as low as the proposed range for the standard, the effects of sources outside the boundaries and control of Texas are much more important than when the NAAQS was higher. When the standard was higher, the effects of local emissions, on top of the effects of background and transport, were more likely driving the frequency of ozone exceedances. As the standard approaches background ozone concentrations, however, the effect of local emissions on the frequency of exceedances is greatly diminished.

Recent research has clearly shown that airsheds extend beyond city limits, state boundaries, and even national boundaries. Indeed, recent studies of northern hemisphere background ozone have found that each of the continents in the northern hemisphere affect the air quality of the others (Anenberg et al., 2009; Fiore et al., 2009). Researchers have reached a consensus that background ozone on the west coast of the US is on a statistically-significant upward trend, due to increasing emissions on the other side of the Pacific Ocean (Cooper et al., 2010; Chan and Vet, 2009; Parrish et al., 2009; Jaffe et al., 2007). Rising Asian emissions have changed the chemical environment of the northern Pacific, so that ozone and precursors created in eastern Asia can be transported across the Pacific frequently enough to affect the air quality in the western US (Parrish et al., 2004). Policy-relevant quantities of precursor emissions and ambient ozone can be transported thousands of kilometers, to arrive at a city that has few local emission sources to control. For example, one of the monitors in Texas that would be out of attainment if the standard were set at 65 ppb or lower is located in Big Bend National Park, one of the most remote national parks in the continental U.S. Big Bend National Park is located in Brewster County, which has a population of 9,331 (as estimated by the US Census Bureau for July 1, 2008), in a county of 6,184 square miles, yielding a population density of 1.5 persons per square mile. For a nonattainment area such as Big Bend, all of the emission sources responsible for nonattainment are located outside the area.