

# US EPA Region 4 Guidance on Ambient Air Monitor Siting Criteria Waivers

September 26, 2018

## Purpose

This document is intended to serve as guidance for air monitoring agencies that are considering requesting a waiver of one or more ambient air monitor siting criteria requirements. Additionally, this document clarifies the regulatory requirements that must be met for a waiver to be approved and provides examples and instructions on what information should be submitted with a waiver request. This document intends to promote consistency in how these waiver requests are developed by monitoring agencies and evaluated by EPA Region 4. It is meant only to provide clarification of existing requirements and does not create new requirements or supersede existing requirements.

Monitoring agencies should endeavor to ensure that siting criteria requirements are met, especially at long-term monitoring sites, and siting criteria waiver requests should be rare. To ensure that siting criteria requirements are met and reduce the need for waiver requests, monitoring agencies should conduct siting evaluations of all monitoring sites annually, and provide the results of these evaluations in their annual ambient air monitoring network plans.

As stated in 40 CFR Part 58, Appendix E, Section 10, new sites should generally be able to meet siting criteria and existing sites may be granted exceptions if provisions in the CFR can be met and it is adequately demonstrated that the need or purpose for monitoring is still relevant if siting criteria are not met.

Alternatives to requesting a waiver of siting requirements include:

- site reconfiguration such as addressing obstructions or tree dripline issues or moving the probe inlet to meet siting requirements;
- moving the monitor(s) to another location that accomplishes the same monitoring objective and that is representative of the same spatial scale and air shed ;
- redefining the monitoring objective and operating the monitor(s) as special purpose monitor(s) that do not meet siting criteria (Note: Such monitors will not count toward minimum regulatory monitoring requirements but may serve another purpose such as monitoring in a unique or important area. If such monitors would not be comparable to the NAAQS, then a NAAQS exclusion flag can also be requested.); or
- discontinue the site, if appropriate and not required by regulation.

Before developing a siting criteria waiver request, agencies should consult with the appropriate air monitoring state contact at EPA Region 4. The Region will work to provide advice on what options may be appropriate for each site. Typically, EPA Region 4 does not grant siting requirement waivers for monitors with larger spatial scales (e.g. neighborhood or larger scales). In most cases, waivers have been previously granted for source-oriented monitors or for unique circumstances. EPA can provide examples of previously-approved submittals upon request.

## Regulatory Requirements for Siting Criteria Waiver Consideration

The regulatory requirements for waivers of ambient air monitoring siting criteria requirements are found in 40 CFR Part 58, Appendix E, Section 10:

### 10. WAIVER PROVISIONS

Most sampling probes or monitors can be located so that they meet the requirements of this appendix. New sites with rare exceptions, can be located within the limits of this appendix.

However, some existing sites may not meet these requirements and still produce useful data for some purposes. The EPA will consider a written request from the State agency to waive one or more siting criteria for some monitoring sites providing that the State can adequately demonstrate the need (purpose) for monitoring or establishing a monitoring site at that location.

10.1 For establishing a new site, a waiver may be granted only if both of the following criteria are met:

10.1.1 The site can be demonstrated to be as representative of the monitoring area as it would be if the siting criteria were being met.

10.1.2 The monitor or probe cannot reasonably be located to meet the siting criteria because of physical constraints (e.g., inability to locate the required type of site the necessary distance from roadways or obstructions).

10.2 However, for an existing site, a waiver may be granted if either of the criteria in sections 10.1.1 and 10.1.2 of this appendix are met.

10.3 Cost benefits, historical trends, and other factors may be used to add support to the criteria in sections 10.1.1 and 10.1.2 of this appendix, however, they in themselves, will not be acceptable reasons for granting a waiver. Written requests for waivers must be submitted to the Regional Administrator.

## Example Information Needed to Support a Waiver

EPA Region 4 requests that each siting criteria waiver request be included in the annual air monitoring network plan and be renewed every five years in the 5-year air monitoring network assessment. Monitoring agencies should review existing waivers that have been previously approved by EPA to determine if they are still necessary, or if actions can be taken to bring those sites into compliance with the siting criteria. A waiver request should include:

- The specific siting criteria requirement(s) in 40 CFR Part 58, Appendix E, including the appropriate citation(s), for which a waiver is being requested.
- A narrative explaining why a waiver is being requested.
- Measurements or other information documenting why the site does not currently or will not meet siting criteria requirements (e.g., distance measurements to nearby trees, obstructions, or roadways, wind rose(s), photos from the cardinal directions, specific AQS reports, etc.).
- Evidence that either criterion in section 10.1.1 or 10.1.2, for an existing site, or the criteria in both sections for a new site, are met. Examples of evidence for each of these requirements are provided in the next section.

## Examples of Information to Provide

### **I. Demonstrate that a site is as representative of the monitoring area as it would be if the siting criteria were being met.**

To demonstrate that this requirement is met, provide data or other analyses to demonstrate that the proposed site is representative of the monitoring area, and quantify any effect(s) on the data from the siting criteria issues. General examples of appropriate data or analyses include:

- Comparison of concurrent monitoring data (hourly, or the finest time resolution of data available) collected at the site for which a waiver is requested and a nearby site that does meet siting criteria. Appropriateness of a nearby comparison site can be determined on a case-by-case basis considering factors such as monitoring objective, distance, spatial scale, pollutant, nearby sources, terrain, meteorology, and the nature of the siting criteria issues.
- Comparison of concurrent air sensor data comparing the site for which a waiver is requested with nearby site(s) that do meet siting criteria.
  - Additional guidance on air sensors, and results of EPA sensor evaluations is available at [EPA's Air Sensor Toolbox<sup>1</sup>](#).

---

<sup>1</sup> Air sensor performance testing conducted by EPA has indicated that sensor performance and data quality depends on several factors. Some ozone and PM sensors have demonstrated good correlation with regulatory monitors. Your

The analysis provided should cover a complete calendar year of data to account for seasonal variability, or at a minimum should cover the season of expected highest concentration for the pollutant/area.

Prior to beginning the process of developing information to support a siting criteria waiver request, please consult with the appropriate air monitoring EPA Region 4 state contact. Since each site, pollutant, and circumstance can be different, EPA Region 4 would like the opportunity to provide input early in the process on a proposed analysis. Example analyses that may be appropriate include scatter plot/correlation analyses, summary statistics (maximum, minimum, median, variance), and boxplots.

In limited cases, a narrative and descriptive discussion may be a sufficient demonstration. For example, at a source-oriented site, an obstruction might not interfere with measuring air from a target source due to the orientation of the source, orientation of the monitor, and typical wind patterns.

## **II. Demonstrate that the monitor or probe cannot reasonably be located to meet the siting criteria because of physical constraints.**

To demonstrate that this requirement is met, provide a list or table, and a map of other candidate sites that were considered. The list should demonstrate that no sites are available in the area suitable for the intended monitoring objective that meet siting criteria requirements and describe the other sites that were considered and why they were not selected.

When identifying a candidate site's suitability, statements like "Site does not meet X siting criterion," or "Site meets all siting criteria, but property owner is not agreeable to housing the monitoring site" are acceptable. This requirement may be easier to demonstrate for source-oriented sites that are intended to characterize the maximum concentration near a source, since the number of areas expected to experience maximum concentration may be limited. More alternative sites can be considered for sites that are representative of a larger spatial scale. For sites with larger spatial scales (e.g., neighborhood or larger scale ozone or PM<sub>2.5</sub> sites), suitable sites can usually be found that both meet the intended monitoring objective and meet siting criteria requirements.

Please consult with the appropriate air monitoring EPA Region 4 contact when considering an analysis or discussion to demonstrate that the proposed site cannot be reasonably located to meet siting criteria. Each site, pollutant, and circumstance can be different. The Region would like the opportunity to provide input on a proposed analysis or rationale as early in the process as possible.

---

EPA state air monitoring contact can assist in developing an appropriate sensor study for your application. While air sensors may present a lower-cost alternative to operating concurrent monitors, data from air sensors that have not been designated by EPA as Federal Reference Methods or Federal Equivalent Methods cannot be used for regulatory decisions related to the national ambient air quality standards. EPA's Air Sensor Toolbox is available at: [epa.gov/air-sensor-toolbox](https://www.epa.gov/air-sensor-toolbox).

## Other Considerations

As noted in 40 CFR Part 58, Appendix E, Section 10, most sampling probes or monitors, and new sites (with rare exceptions), can be located so that they meet the siting criteria requirements. In general, siting criteria waivers are unlikely to be approved for area-wide ozone or PM sites, or NCore sites, because suitable locations that meet siting criteria almost always exist within the target area of representativeness for these types of sites. In such cases, EPA Region 4 will work with the monitoring agency to reconfigure a site to meet siting criteria, or to relocate the site to a nearby location. Alternatively, an agency can operate special purpose monitors (SPMs) that do not meet siting criteria requirements, and note in the annual ambient air monitoring plan that the monitor does not meet the requirements of 40 CFR Part 58, Appendix E. Please note however, that SPMs cannot be used to satisfy the minimum monitoring requirements in 40 CFR Part 58, Appendix D, and may not be comparable to the NAAQS.

As described in 40 CFR Part 58, Appendix E, Section 5(b), “The scavenging effect of trees is greater for ozone than for other criteria pollutants. Monitoring agencies must take steps to consider the impact of trees on ozone monitoring sites and take steps to avoid this problem.” Because of the known impact of tree proximity on ozone data quality, and because ozone is a regional pollutant which can be measured over a wider area with more alternative locations for monitor siting, siting criteria waivers for ozone sites that do not meet the requirements for spacing from trees will require a higher standard of evidence for approval.

Note that each regulatory requirement for which a waiver is requested will be evaluated independently. Proposed waiver requests should clearly describe how the regulatory requirements for a waiver approval are met for each of the requirement(s). In general, it is more difficult to meet the requirements for a waiver if a site is not meeting multiple siting criteria requirements, as each requirement that is not met may affect the quality and representativeness of the data collected.

## Examples of Approved Waiver Requests

EPA will provide examples of approved siting criteria waiver requests upon request. Please contact the appropriate EPA Region 4 air monitoring state contact for this information.