

Given use of ambient monitoring and background data within the greater Memphis area, many of the nearby source emissions will likely already be accounted for within the ambient background monitoring concentrations, which further supports the use of a limited inventory area for the modeling assessment.

If a PSD increment consumption analysis is required, the construction date of the nearby sources that met the criteria for inclusion in the NAAQS analysis will be reviewed, and all sources which were constructed after the major source baseline date will be included in the PSD increment consumption analysis.

2.4.2 Ambient Background Monitors

It is anticipated that only 1-hour NO₂ impacts will exceed their SIL value, which would require the selection of ambient background concentrations to be included in the cumulative modeling analysis. However, given the vacatur of the PM_{2.5} significant monitoring concentration (SMC), per 40 CFR 51.166(i)(5) and 40 CFR 52.21(i)(5)(i)(K), there are no specific pre-construction monitoring exemptions available for PM_{2.5}. Given the availability of current, high-quality data from existing state-run monitoring networks, MZX is proposing that no preconstruction monitoring be required for PM_{2.5}. Additionally, since the project emissions increase will exceed 100 tpy for both NO_x and VOC (precursors to ozone), MZX has selected a background monitor for ozone. Ambient background monitoring concentrations are necessary for any required full NAAQS analysis for the facility. Nearby ambient background monitoring stations were reviewed, and the following sections describe the stations that were chosen as appropriately representative ambient background monitoring stations. Locations of the selected background monitors are shown in Figure 2-4.

2.4.2.1 NO₂ Background Monitor

The following site was selected as an appropriately representative background monitor for NO₂:

NO₂ – LH Polk and Colonial Dr., Marion Site (AQS Site ID 05-035-0005)

The Marion site is the closest geographically to the MZX site (located less than 30km to the northwest) and has valid data through the most recent monitoring year (2024). Marion is in a similar climatological region and is surrounded by similar residential and light industrial landuse types. It is classified as a near road monitor and as such provides a more conservative background value for use in the NO₂ modeling analysis.

While background concentrations in the form of the NAAQS standards will be derived for use in the NAAQS modeling analyses results summaries, background concentrations may be derived for use in the NAAQS analyses based on a season and hour-of-day approach. Available EPA guidance (e.g., *Clarification on the Use of AERMOD Dispersion Modeling for Demonstrating Compliance with the NO₂ National Ambient Air Quality Standard, September 2014*) would be used for derivation of the season and hour of day background concentrations.

2.4.2.2 PM_{2.5} Background Monitor

The following site was selected as an appropriately representative background monitor for PM_{2.5}:

PM_{2.5} – Memphis 6388 Haley Rd., Shelby Farms Site (AQS Site ID 47-157-0075)

PM_{2.5} backgrounds are not explicitly needed for any modeling based on preliminary results however a monitor is being provided to address pre-construction monitoring requirements.

To satisfy the need for any pre-construction monitoring, the Shelby Farms Site was chosen for PM_{2.5} consideration as it was not a “near road” monitor, was in a geographic location more similar to the area around the proposed site than other monitors in the Memphis area, and it is considered an urban scale monitor, considering more regional scale impacts to the monitor. While not the geographically closest ambient PM_{2.5} monitor to the proposed site, this monitoring location is in a more representative geographic area (e.g., not in high traffic or downtown Memphis area), than other more nearby monitors, when compared to the MZK facility location.

2.4.2.3 Ozone Background Monitor

The following site was selected as an appropriately representative background monitor for ozone:

Ozone – 5 East South St., Hernando Site (AQS Site ID 28-033-0002)

As discussed in Section 2.2.8.1, projected ozone impacts using the conservative MERP methodology are expected to be well below the EPA-recommended SIL value, thus precluding the need for any cumulative ozone NAAQS review.

However, since the project emissions increase will exceed 100 tpy for both NO_x and VOC (precursors to ozone), a regional characterization of ozone background will be provided. The Hernando Site was chosen for ozone consideration as it is not a “near road” monitor, is in a geographic location similar to the area around the proposed site, and it is the geographically closest ambient ozone monitor to the proposed site. The most recent design value period is 2022-2024. The 2022-2024 design value (71 parts per billion [ppb]) is above the ozone NAAQS for the Hernando monitor; however the area continues to be designated attainment for ozone. Further, with the 2025 ozone season ending on October 31, preliminary monitoring data indicates that the 2023-2025 design value will again be below the 70 ppb NAAQS. In any case, the proposed project will not be significant for ozone, therefore will not contribute significantly to degradation of the ozone NAAQS in the area.