



BEAR MOUNTAIN

AIR QUALITY MONITORING REPORT 2023



azdeq.gov

Publication Number: EQR-23-05

Bear Mountain Air Quality Monitoring Report 2023

EXECUTIVE SUMMARY

Goal

The purpose of this study was to perform an air quality screening test for PM₁₀ in Bear Mountain. The objective is to understand PM₁₀ concentrations in Bear Mountain and determine if further investigation is needed.

What We Did

The Arizona Department of Environmental Quality (ADEQ):

- Evaluated potential monitoring sites in the area of concern that would capture representative ambient particulate matter (PM₁₀) concentrations
- Deployed instrumentation at 10 Estrella Rd. Sedona to monitor Ambient PM₁₀ (fine dust that poses a health risk) concentrations from 6/6/2023 – 6/14/2023
- Analyzed the data for potential National Ambient Air Quality Standards (NAAQS) exceedances

What We Learned

There were no 24-hour PM₁₀ concentrations over the daily NAAQS of 150 µg/m³ in the area of concern during the study period. Findings include:

- The average 24-hour concentration during the monitoring period was 19 µg/m³, well below the NAAQS of 150 µg/m³
- The maximum daily average concentration for PM₁₀ was 22 µg/m³, which is less than 1/5 of the NAAQS



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Principle Study Question

Does any 24-hour average during the monitoring period exceed 85% of the PM₁₀ NAAQS?

PM Monitoring

ADEQ conducted particulate matter (PM) monitoring since dust (PM₁₀) is the primary pollutant of concern based on reports from the Bear Mountain community. The findings for particles 10 µm in diameter or less, commonly called dust, were compared to the EPA's NAAQS. The NAAQS represent ambient air quality standards that are protective of public health.

Data Quality Indicators

- Completeness: at least 75% of the hourly concentrations in the 24-hour period for at least fourteen days
- Representativeness: The monitor location is representative of the community at large. Additionally, the study period represents typical weather conditions and source operations
- Instrument requirements: Accuracy within 10% of indicated value for hourly measurements. Sensitivity is minimally 1µg/m³. The lower detectable level is less than 6.0 µg/m³
- Instrument precision: Instrument flow rate is within 5% of indicated value

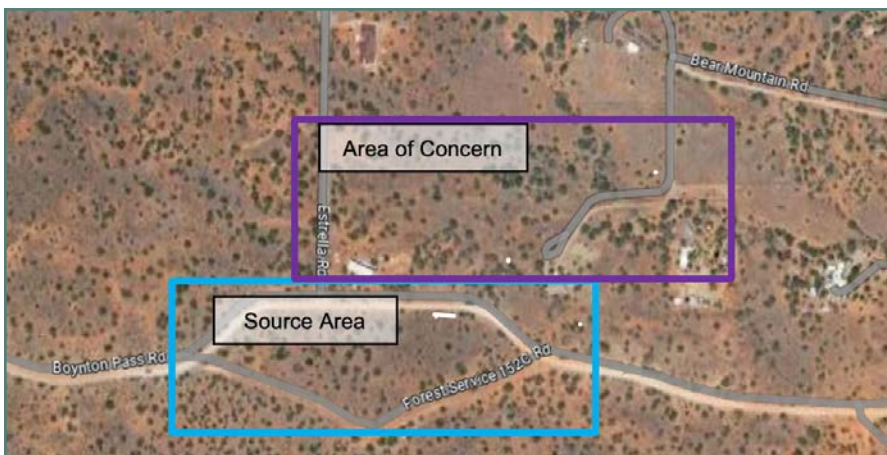
BACKGROUND

The Bear Mountain community has expressed concern about the potential for poor ambient air quality due to dust from nearby sources. As a result, ADEQ deployed a study monitor in the area of concern to monitor for potential PM₁₀ dust impacts from 6/6/2023 – 6/14/2023. Dust presents a human health issue when it is less than 10 µm, which is small enough to penetrate into the lungs and damage lung tissue. The EPA has established a NAAQS stating that ambient levels of PM₁₀ should not exceed a 24-hour average of 150 µg/m³.

Results

No NAAQS exceedances were recorded over the study period, the average 24-hour value was 19 µg/m³, the highest 24-hour value recorded was 22 µg/m³, 15% of the NAAQS.

Figure 1



Conclusion

After reviewing the data to ensure quality data, it was determined that all quality indicators were met and data could be used for understanding air quality conditions in the Bear Mountain study area. Data indicate that ambient conditions were below the threshold for air quality concerns, further investigation was not needed, and the monitoring study was concluded.

Figure 2

