

SAN JUAN NM REGIONAL SCIENCE & ENGINEERING FAIR

JUNIOR AND SENIOR DIVISION

ABSTRACT & CERTIFICATION

TITLE: Deleterious Effects of Atmospheric Sulfur Dioxide (SO₂)

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School: Navajo Preparatory School

Grade Level: 11th grade

Type the Body of Your Abstract Here (250 Word Maximum)

In early 2020, Farmington, New Mexico experienced a perfect storm of high sulfur dioxide emissions and atmospheric temperature inversions that trapped those emissions in the pre-dawn air. This all-time high SO₂ concentration for Farmington, NM was documented on January 13, 2020 at 6:48am via The Weather Channel app on an iPhone: 329 µg/m³. This 329 µg/m³ easily exceeded the EPA standard of 212 µg/m³. This SO₂ concentration, and many others, was deemed as unhealthy for sensitive groups of people. This and other high concentrations of sulfur dioxide typically, but not always, diminished after sunrise, when the arrival of sunlight would break up the temperature inversion and allow the escape of sulfur dioxide. Sometimes, the sulfur dioxide problem lasted all day long, such as December 21, 2019.

The goal of this study is to show that regions of the United States, including the Navajo Nation, should not expose sensitive tribal members to these high levels of toxic emissions when temperature inversions exist.

1. The student independently performed all procedures as outlined in this abstract Yes No
2. This project is a continuation. Yes No
3. This project is being presented at SJRSEF NMJAS Paper Competition

I hereby certify that the above statements are correct and the information provided in the Abstract is the result of one year's research. I also attest that the above properly reflects my own work.

Amber White

Student's Signature

02/19/21

Date

