



**CALIFORNIA STATE SCIENCE FAIR  
2002 PROJECT SUMMARY**

<b>Name(s)</b> Nicole L. Francisco	<b>Project Number</b> <b>S0511</b>
<b>Project Title</b> <b>Estimating Future NO(2) Concentrations at Mt. Miguel High School</b>	
<b>Abstract</b> <b>Objectives/Goals</b> NO(2) is one of the common components of automobile exhaust. If individuals are regularly exposed to a high concentration of NO(2), it can potentially be hazardous to their health. Future students of Mt. Miguel High School will soon be attending school immediately adjacent to a freeway where NO(2) concentrations may significantly increase. The purpose of this project was to estimate future concentrations of NO(2) at Mt. Miguel High School. <b>Methods/Materials</b> This was done by preparing passive diffusion samplers and placing them at freeway locations at distances from the freeway similar to MMHS and the new freeway under construction. The tubes of the samplers are small#71mm (length) by 11mm(diameter)-with two stainless steel meshes in one cap at the closed end, coated with TEA-a chemical compound that absorbs NO(2) during the exposure period. After a three-day exposure period, the samplers were treated for color development with two analysis solutions and analyzed with a spectrophotometer at 540nm. Nitrite standards were used to create a standard curve. <b>Results</b> Results showed that Freeway #1 sampler concentrations and current school sampler (control) concentrations were similar. Freeway #2, Freeway #3, and Freeway #4 sampler concentrations were significantly higher than school sampler concentrations. <b>Conclusions/Discussion</b> These concentrations were just below the World Health Organization's issued guidelines for human exposure to NO(2) (1987). Therefore, there is reason to believe nitrogen dioxide concentrations should be carefully monitored after freeway construction is complete.	
<b>Summary Statement</b> The purpose of this project was to estimate future concentrations of NO(2) at Mt. Miguel High School by preparing passive diffusion samplers, placing and then exposing them at freeway locations, and analyzing them with a spectrophotometer.	
<b>Help Received</b>	