



**CALIFORNIA STATE SCIENCE FAIR
2012 PROJECT SUMMARY**

Name(s) Elle G. Henriksen	Project Number J1108
Project Title Nuclear Power: Hot or Not?	
<p style="text-align: center;">Abstract</p> <p>Objectives/Goals My objective was to investigate whether the levels of ionizing radiation increase with increased proximity to a Nuclear Power Plant. If I increase the proximity to the San Onofre Nuclear Generating Station (SONGS), I predict that the amount of ionizing radiation (detected by a digital Geiger counter) in the environment will increase as compared to other Pacific Coastal areas. According to my research, the closer you live to a nuclear power plant, the higher the risk of negative health effects such as developing leukemia and other forms of cancer, possibly due to higher levels of ionizing radiation in the vicinity of the nuclear power plants.</p> <p>Methods/Materials Scientific Instruments, Inc. Digital Geiger Counter (model GCA-04W), two 9V Duracell alkaline batteries, one sheet of both, Reynolds Wrap aluminum foil and Xerox printer paper, automobile Odometer (Lexus ES350), log book, pen, camera. Go to the entrance of San Onofre Nuclear Generating Station (SONGS), a Pacific coastal area ten kilometers, and Pacific coastal area fifteen kilometers north of SONGS, each 400 meters away from Pacific Ocean. Determine the type of radioactivity that you will be testing. Measure the radiation level for one minute at every 0.2 (two tenths) kilometer intervals (total of 1.4 kilometers). Repeat for 10 trials.</p> <p>Results Analyzing the data suggests no relationship between proximity and radiation levels in the three areas, except for that of the two locations directly underneath the power lines outside of SONGS. In all three areas that were compared for radiation, the levels recorded by the Geiger counter were within the range of background radiation (15-20 micro R/hr). Based on my background research, everywhere on Earth has a level of background radiation of approximately 15-20 micro R/hr, which is composed of minerals containing radioactive elements such as Uranium and Thorium, as well as cosmic radiation.</p> <p>Conclusions/Discussion Although, there is much research that links living in close proximity to a nuclear power plant and the negative impact on health, the data in this investigation suggests that the risk of ionizing radiation exposure due to an individuals proximity to San Onofre Nuclear Generating Station (SONGS) under a normal operating situation is minimal and equivalent to an individuals everyday exposure to background radiation (between 15-20 micro R/hr).</p>	
Summary Statement My objective was to investigate whether the levels of ionizing radiation increase with increased proximity to a Nuclear Power Plant.	
Help Received My mother rented a Digital Geiger Counter for the project and drove me to the locations for measurement.	