



**CALIFORNIA STATE SCIENCE FAIR  
2013 PROJECT SUMMARY**

<b>Name(s)</b> <b>Joel E. Randolph</b>	<b>Project Number</b> <b>J1718</b>
<b>Project Title</b> <b>Nuclear Plant</b>	
<b>Abstract</b> <b>Objectives/Goals</b> My project was to determine the effect of a minor source of radiation(thorium containing lantern mantles) on plant growth. I hypothesized that the plants exposed to radiation would suffer ill effects ranging from slower growth rates to mutations. <b>Methods/Materials</b> My project was to determine the effect of a minor source of radiation(thorium containing lantern mantles) on plant growth. I hypothesized that the plants exposed to radiation would suffer ill effects ranging from slower growth rates to mutations. <b>Results</b> In most cases the plants suffered detrimental effects when exposed to the lantern mantles. In some this was slower growth, but in others actual abnormalities appeared. 41% of the zinnia seedlings failed to sprout in one trial when exposed to radiation. But, in a later trial the rate of zinnia seeds sprouting compared to the control. The beans showed the most noticeable effect from radiation. Not only did specimens exposed to radiation consistently show a slower growth rate, 17% showed abnormalities. <b>Conclusions/Discussion</b> My hypothesis was supported by this experiment. Plants exposed to radiation during my experiment most often exhibited negative effects. If these same effects carry over to trashed lantern mantles at campsites and dumps, what might be the possible environmental effect?	
<b>Summary Statement</b> My project is to explore the effect of a commonly found object containing radioactive substances on plant life.	
<b>Help Received</b> Mother helped put together board, nagged me to water plants, and recorded data as I measured plants; Uncle who lent geiger counter; Brother who showed me how to make graphs.	