



**CALIFORNIA STATE SCIENCE FAIR  
2015 PROJECT SUMMARY**

<b>Name(s)</b> <b>Anshul Narain</b>	<b>Project Number</b> <b>J1016</b>
<b>Project Title</b> <b>Water Desalination: Reducing Seawater Salinity Using Low Voltage Current</b>	
<p style="text-align: center;"><b>Abstract</b></p> <p><b>Objectives/Goals</b> The objective of this project is to use an alternative means of energy for desalinating seawater instead of using conventional methods (burning of fossil fuels). The alternative energy source proposed to be used is electricity. The goal is to desalinate the water to the point where it will be suitable for agricultural and drinking purposes (salinity levels reaching .01%).</p> <p><b>Methods/Materials</b> The salt water will be entered into the containment unit. In the containment unit there will be 2 charged carbon electrodes, the cathode collecting the sodium ions and the anode collecting the chloride ions. The Refractometer will measure the salinity of the water and the pH meter will measure the pH of the water making sure that it is still neutral.</p> <p>pH meter Refractometer (measures Salinity) Salt water (4 %) Carbon electrodes Variable power source Containment unit</p> <p><b>Results</b> Even when the voltage was increased, the water was only desalinated to a certain extent and could not go below a certain level of salinity. The test was run at 3 volts, 4.5 volts, and 6 volts. At all levels of voltage, the water could only be desalinated to 3% salinity. Each time the desalination process occurred at different a rate and as the voltage increased, the time the water took to desalinate decreased.</p> <p><b>Conclusions/Discussion</b> The results most likely occurred the way they did because the carbon electrodes did not have a large enough surface area. This meant that the electrode would be covered in the sodium and chloride ions to the point where they could not collect any more of them. Now the project will be continued with the use of larger surface area electrodes (preferably copper).</p>	
<b>Summary Statement</b> The purpose of this project is to create a system which will desalinate water without the conventional methods of burning fossil fuels, instead it will be using electricity at a low current voltage to carry out the procedures.	
<b>Help Received</b> Used lab equipment from Clovis North High School	