



**CALIFORNIA STATE SCIENCE FAIR
2007 PROJECT SUMMARY**

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| Name(s) Mikayla R. Jundt | Project Number J0909 |
| Project Title Water Purification with Solar Energy | |
| <p style="text-align: center;">Abstract</p> <p>Objectives/Goals The purpose of my project was to purify water using only solar energy. I chose to use a solar still based on the El Paso Solar Project model.</p> <p>Methods/Materials The El Paso Solar Still was improved by using aluminum backed rigid, insulation for the box. My small solar still (0.372m²) was used to purify saline water from an irrigation ponding basin. The water was tested before it was put into the still and tested after the water was purified. The cost of the improved solar still was used to determine the unit cost to produce a liter of purified water. The unit cost was compared to the cost of store bought water.</p> <p>Results My still produced water more pure than the state standard for drinking water. When I did the tests at the City of Fresno Waste Water Treatment Lab, the reduction in electro-conductivity proved that 99.5% of all solids were removed from the water. The same results were demonstrated by testing for the removal of suspended and dissolved solids. My still produced purified water for 14 cents per liter. If all costs (bottling, shipping, etc.) were considered, my cost would be 43 cents per liter, which is less than the average store cost of \$1.07 per liter.</p> <p>Conclusions/Discussion Through my experiment I was able to conclude that evaporating saline water using solar energy and a solar still can produce purified water. The improved solar still with aluminum backed, rigid insulation more cost effectively purified saline water than other solar still models researched.</p> | |
| Summary Statement My project purifies saline water using only solar energy. | |
| Help Received Mr. David Trauger, Senior Lab Tech with the City of Fresno helped me test the water samples. Mr. Steve Hogg, Manager of the Waste Water Treatment Facility with the City of Fresno was my expert. Mr. Steve Carner, Manager with Pepsi-Cola Bottling Grp., Fresno helped me determine bottling and shipping costs. | |