

2010 ASCE PACIFIC SOUTHWEST REGIONAL CONFERENCE: WATER AND ENVIRONMENTAL DESIGN COMPETITION

DESCRIPTION

In 2001 the beautiful blue water (Figure 1) of Lake Mead turned “pea soup” green (Figure 2), negatively affecting its quality as a water source and as a place for recreation. It is believed that runoff water resulting from an unusually wet spring combined with permitted wastewater treatment plant discharge was the major cause of the phenomenon observed. The goal of this project is to identify the contaminant(s) and to design a treatment system that can remove this contaminant(s) from the Lake Mead water.



Figure 1-Clean Water



Figure 2-Green Water

PARTICIPANTS

Each Team must consist of a **minimum** of 4 participants. A **maximum** of 5 participants are allowed. At least one member must be a female and at least one member must be an underclassman (1st or 2nd year engineering student). The female participant can be an underclassman and count toward the underclassman requirement. All players must be registered attendees for the Pacific Southwest Regional Conference 2010. Only one Team per school is allowed to register.

DESIGN AND CONSTRUCTION CRITERIA

All systems must be built from products that can be purchased from large retail stores such as any grocery, home improvement, “mart” stores, etc. A copy of all receipts as well a cost summary sheet **must** be provided at the event for all items used as part of your system, including any chemicals. The system must be small enough for the Team to carry to the site of the competition and then remove once the event is over. Each Team will be provided 1 gallon of contaminated Lake Mead water and be required to provide a sample (50-100 mL) of the treated water to the judge.

DESIGN POSTER AND PRESENTATION

- Every team must be ready to display their poster at 0730; teams can start preparing their poster display at 0700. The team captain or other team members may present on behalf of their team.
- The poster must describe the design, the principles on which the design is based, the materials used, the cost of the materials, the schematic of the process, and possibilities for large scale implementation. The poster must also clearly state the name of your school and names and academic level (e.g senior, junior) of all participants.
- Please provide an easel or stand for your poster.
- Presentations will be a maximum of **3** minutes long in front of the judges during the poster display period. The presentation should describe the treatment process and any measures taken to significantly reduce cost and/or simplify the treatment process that the team deems important. It should also discuss the possibilities for large scale implementation.

COMPETITION GUIDELINES

Teams will be given 3 hours to treat 1 gallon of water.

Teams will **NOT** be allowed extra water to rerun experiments.

SCORING

- This event will be scored out of 100 points:
 - Treatment System Aesthetics: 15 points
 - Treatment System Costs: 25 points
 - Poster Display/Presentation: 10 points
 - Quality of the treated water: 40 points
 - Implementation Possibility: 10 points