



**CALIFORNIA STATE SCIENCE FAIR
2002 PROJECT SUMMARY**

Name(s) Jessica M. Massey	Project Number J1423
Project Title Planarian as an Indicator Organism: Will Nitrate in Hinkley Well Water Compromise Our Future?	
Objectives/Goals This project investigates the planarian's behavior in different levels of nitrate and examines current levels of nitrate contamination in area wells. Potential problems for humans are discussed.	
Abstract Methods/Materials I used black, brown, and dugesia planarian. Experimentation with nitrate levels was first conducted from 2 # 60 ppm to find an experimentation range. Planarian adjustment to contaminant and spontaneous regeneration were examined. Comparisons were made based on activity in control water. Water samples in the area were tested to check for nitrate involvement in the water table. Two nitrate comparator tests were used for nitrate testing in the water.	
Results Nitrate levels below 10 ppm are tolerable for planarian; however, spontaneous regenerations (appearing as fragmentation into tiny, living particles) did occur. At present, local water well tests indicate that nitrate contamination ranges from 0 # 27 ppm.	
Conclusions/Discussion The California State safe drinking water standard for human consumption is 10 ppm. Some water samples drawn from wells in the local area exceed safe levels. Health concerns abound regarding agricultural industries (dairy and alfalfa ranching) located on or near the Mojave River (dry). This planarian study leaves many questions regarding our own ability to withstand current and future nitrate contamination.	
Summary Statement Using planaria as an indicator organism, tests were conducted using water from area wells contaminated with different levels of nitrate to observe planarian adjustment to nitrate.	
Help Received Teacher advised on project	