CALIFORNIA STATE SCIENCE FAIR
2015 PROJECT SUMMARY

Name(s)

Logan A. Dalton

Project Number

35312

Project Title

Examining Potential Well Water Contamination and Implications for Mitigation

Abstract

Objectives/Goals

The objective of this experiment was to discover the source of well water contamination on the Dalton Farm in Idaho. Samples were taken from the Surface Canal, the Test Well in question, and a Control Well located at the same depth as the Test Well, but a half kilometer further from the Surface Canal. My goal was to help the farm owners solve this problem informed by my findings.

Methods/Materials

A LaMotte Urban Water Testing Kit, and its procedures were used to test for: Bacteria, Dissolved Oxygen, Hardness, Iron, Nitrate, Phosphate, pH, and Temperature. I also used safety goggles, timer, chlorine bleach, and waste container

Results

Correlations were found in Bacteria and Dissolved Oxygen. Coliform Bacteria presented in the Test Well and the Surface Canal water but not the Control Well. The Test Well had a Dissolved Oxygen value between the Control Well and the Surface Canal indicating transport of oxygenated surface water into the test well. These tests were performed three times, results did not vary. The remaining parameters were inconclusive.

Conclusions/Discussion

The Coliform Bacteria and dissolved oxygen correlations support my hypothesis. Volcanic geology could facilitate the contamination, serving as a transport to the annulus below the sealant. Recommendations are to inject more sealant into the annulus or relocate the well further from the Surface Canal.

Summary Statement

This project aims to establish the source of water contamination in the Test Well to help the owners remedy this problem.

Help Received

My father helped supervise the water tests;drove me to the water locations;and took photos of me. My mother helped me type my report.

Preliminary