



**CALIFORNIA SCIENCE & ENGINEERING FAIR  
2019 PROJECT SUMMARY**

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| <b>Name(s)</b><br><b>Ryan Brown</b>   | <b>Project Number</b><br><b>S0306</b> |
| <b>Project Title</b><br><b>Water Well Perforations and Their Impact on Well Efficiencies</b>  |                                       |
| <p style="text-align: center;"><b>Abstract</b></p> <p><b>Objectives</b><br/>The objective of this project was to determine if the type of perforations of a water well casing would determine the efficiency of the yield of a water well.</p> <p><b>Methods</b><br/>Constructed two well models using the following materials: 4' Carbon steel wire wrap casing, 4' Polyvinyl chloride carbon mill slot casing, 1000 pounds Quickrete all-purpose gravel, flow meter, Two Fifty-five-gallon drums, 3 cubic feet of Number three fine sand (Filter Pack), 1/2" irrigation Tubing and a Tape measure.</p> <p>Proceeded to test each well by inducing water into the formation and measured the amount of water yielded in each well model to determine which well was more efficient.</p> <p><b>Results</b><br/>The PVC casing with mill slot perforations yielded .71 gallons per test, while the mild steel wire wrap casing yielded .69 gallons per test. This clearly shows that the type of perforations did not affect the yield of water inside the well. The results indicate that perforation type is not a significant factor in the yield of a water well.</p> <p><b>Conclusions</b><br/>Through my knowledge gained from this experiment I have found that both perforations are equally efficient. I also learned through my research that there are several types of perforations and types of material that can be used for well casing. When putting in wells either material would benefit its users. Since both types of perforations are equally effective you would have to consider other factors when constructing a water well.</p> |                                       |
| <b>Summary Statement</b><br>I compared wire wrap casing to mill slot casing to determine which one would make a more efficient water well.  |                                       |
| <b>Help Received</b><br>My dad helped me gather research sources as well as overseeing my construction of the models.   |                                       |