

Munyanza Red Water Test

August 23rd 2008

In the summer of 2008 JJ Larson and Adam Sigler did an orange water test on the Munyanza well. We took turns pumping the well at a constant rate for 1 hour and took a series of samples from the well through time. We returned to the compound and boiled the water to oxidize the iron so we could get a visual on the amount of iron present. This was not strictly quantitative, but was very appropriate because when they boil water for tea, the appearance has a lot to do with whether they want to use it or not.



Here are the notes from the test and the pictures of the water:

- 7:17 start pumping
 - Rate:
 - 14 handle pumps every 20 seconds, 42 pumps per minute
 - It took 7 seconds to fill a one liter bottle
- 7:20 sample number 1 (Orange Quencher Bottle)
- 7:35 Sample 2 (Daima Bottle)
- 7:50 Sample 3 (Kabarnet Bottle)
- 8:05 Sample 4 (Pineapple Quencher Bottle)
- 8:20 Sample 5 (Nalgene)

Our thought had been that if they pumped the well for sufficient time each morning to clear the volume of water in the borehole, perhaps the iron enriched water could be flushed out before pumping water that people would use for cooking and drinking. Some calculations on the volume of water in the well compared to what we pumped would be interesting. I did this at one point but don't remember what I came up with...

I hope this helps. Cheers, Adam Sigler

Results:

Time Zero: Not Boiled



Time Zero: Boiled



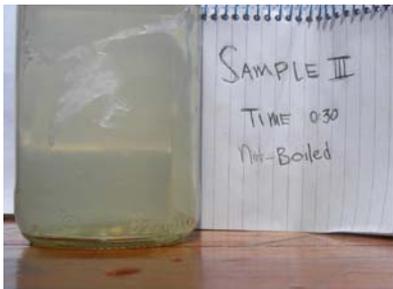
Time 15 minutes: Not Boiled



Time 15 minutes: Boiled



Time 30 minutes: Not Boiled



Time 30 minutes: Boiled



Time 45 minutes: Not Boiled



Time 45 minutes: Boiled



Time 60 minutes: Not Boiled



Time 60 minutes: Boiled



Shirali Observations:

When Chris Allan and I arrived at Shirali in July of 2008, they were replacing the drop pipe in the well in an attempt to address the red water issue. I took these pictures of the old drop pipe with the pump rod in the center. The pipes were rusted below the water line and not rusted above the water line.

I believe that Shirali has a plastic casing and Munyanza has a metal casing. This means that the Munyanza well has a larger source of iron to oxidize than the Shirali well. In the Munyanza test, I do not believe that we pumped the well for long enough to evacuate all of the water from the well. This means we cannot conclude whether the metal well parts are the only source of iron or if there is some amount of iron entering the well from the aquifer. My feeling is that the iron is coming from the metal in the well and not from the aquifer.

