

# WATER ENGINEERS FOR THE AMERICAS & AFRICA TRIP REPORT



## Trip Summary

The purpose of this trip was to assess the current state of all distribution systems and begin Phase 3 of the Quebrada Pastor School Project. Objectives for this trip included collecting GPS data, conducting rapid E.Coli/coliform (REC) tests, and surveying the community. The project team was in Quebrada Pastor from Monday, March 9th, to Thursday, March 12th.

The travel team was a collaboration between WEFTA and Engineers Without Borders. The team consisted of the Responsible Engineer, Alex Litofsky, MC Moritz, and Mamie Green from the Northeast Ohio Chapter (EWB-NEO), as well as three students from the Case Western Reserve University Chapter, Wendy Yin, Adriana Navarro, and Miles Greene.

## Next Steps

1. Develop a comprehensive post-trip report detailing the state of both Mario Lopez systems, the Carrisal system, and the Alfonso Lopez intake
2. Discuss with the community the scope of their project and if they have the capacity to take on projects in neighboring communities

## Trip Narrative

The team arrived in Panama City on Saturday morning (March 7th). Their stay was arranged with Lisi Dominguez and Ricardo Quintero, local project partners who generously opened up their home as an accommodation. The team settled in and enjoyed a couple of hours exploring Panama City on foot.

On Sunday morning, the team flew from Panama City to David and got all the bags packed for both teams. On this trip, with a large enough travel team, it was decided that one group would travel to Quebrada Pastor and the other to Cerro Muleto to maximize the time spent in both communities. The team also bought groceries in preparation for an early departure the next morning.

On Monday, the team split, and the Quebrada Pastor team, consisting of three professional members and three students, took a rental car, arriving at the community in the mid-afternoon. We were greeted by Angel Caballero, the community's water committee president and our primary project contact. The team hiked up to Angel's house, where our stay was graciously arranged by Angel and his family. Once the team got settled, we sat down with Angel to create a game plan for the next three days, reviewing the tasks he had planned and ranking them in order of importance.

On Tuesday morning, the team walked the Mario Lopez line. It was discovered that the entire "Mario Lopez 2" line, which would have constituted Phase III of the project, had already been completed. We walked from the concrete tank to the intake, taking GPS coordinates along the pipeline. We also took nitrate/nitrite and rapid E.coli/coliform (REC) tests. In the afternoon, we toured a cacao cooperative and then met with Jose Molina, the project contractor, to assess an issue in the neighboring community of Rio Oeste. There, we took flow rates and GPS points along the pipeline. Further discussions were had regarding whether this project was within the scope of our chapter. The team decided that Rio Oeste does not fall within our project scope, but were glad to provide the users of the line with the data we collected so that they can continue improving their distribution system.

On Wednesday morning, the team checked out the Carrisal system. GPS points were taken along the system, and nitrate/nitrite and REC tests were conducted. The team was informed about an issue with two houses along the line that seemed to be getting an inconsistent water supply compared to the rest of the system. Upon further inspection, the team discovered a significant elevation change on the household's individual tap, which is likely disrupting flow. We reported that it was not an issue with the

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main system. Afterwards, the team hiked up to the proposed Alfonso Lopez intake location and collected water samples for quality. In the afternoon, the team checked out the centro tanks before walking over to the school. Angel arranged a time for us to meet with the school principal. The team sampled water at the school's tanks, assessed the new storage tanks provided by MINSA, and assessed the state of construction of the new high school. The team had the opportunity to discuss the state of the water supply at the school with the principal. From the discussion, it seemed that there was insufficient organization from the school's end, resulting in the responsibility falling heavily on the community.

Thursday morning, we wrapped up with a meeting with the community's water committee and the PTO president. We discussed the current operation of the water committee, whether they felt the committee was running smoothly, and any issues that were arising. After the discussion, the team also handed the remaining nitrate/nitrite test strips and the REC petrifilm tests to Angel for use in the community, providing him and the water committee with the necessary directions to conduct the tests and what the results indicate. Around noon, the team left Quebrada Pastor to head back to David, where we met with the other half of the team. In the evening, we met with Alex M, a Rotary representative, and had dinner in Boquete while discussing project logistics.

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## Photos



*Figure 1: Rapid E.Coli/coliform and nitrate/nitrite testing at Mario Lopez 2 intake*

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*Figure 2: Flow rate testing at Rio Oeste*

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*Figure 3: Tour of the cacao cooperative*

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*Figure 4: Water quality testing at a household along the Carrisal line*

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*Figure 5: Collecting a water sample at the proposed Alfonso Lopez intake*

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*Figure 6: Water quality testing at the proposed Alfonso Lopez intake*

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*Figure 7: Assessing the Centro tanks*

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*Figure 8: Discussion about the construction of the new high school and the new storage tanks*

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*Figure 9: Quebrada Pastor team with Angel Caballero; From left to right: Angel, Adriana, Wendy, MC, Alex, Miles, Mamie*

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*Figure 10: Team hiking down from Angel's house to the community*