

Bogotá, Colombia Inspection
P-Wave Pipe Inspection

Pure Technologies Ltd.
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Location – Bogotá, Colombia
Length – 5.5 km
Diameter – 78” (2000mm)

Purpose and Background: Pure Technologies Ltd is planning to assess the condition of pre-stressed concrete cylinder pipe (PCCP) in the Tibitoc – Casablanca line of the Bogota Aqueduct (Acueducto agua y alcantaredillado de Bogota) .

The following document contains the relevant information for the P-Wave inspection of the 78-inch diameter pipeline from the Tibitoc Reservoir to station 4+600.

Location:

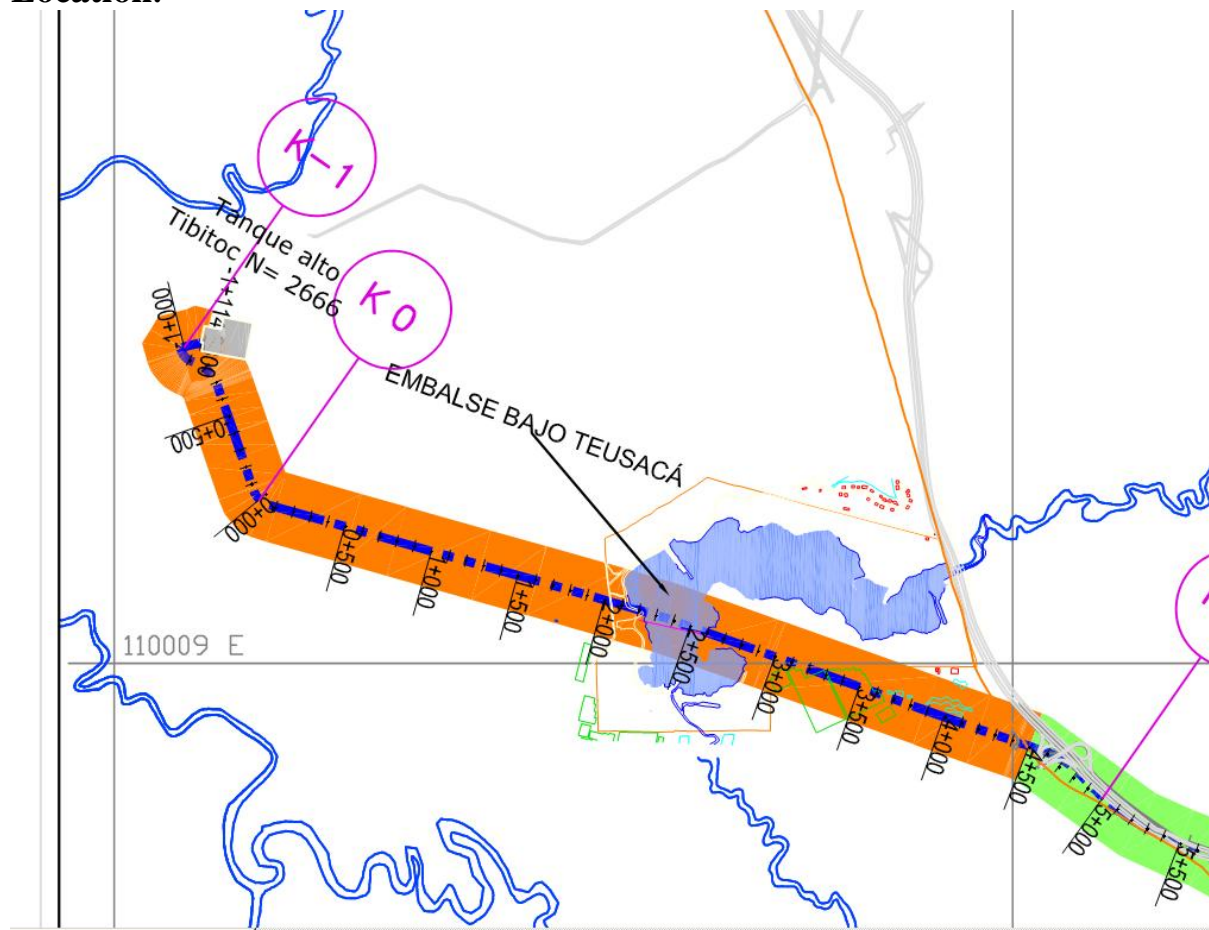


Figure 1: Location of Pipeline

Methodology

The pipeline will be inspected by Pure Technologies P-Wave technology. A specially designed 78" P-Wave cart will be assembled in the pipe. P-Wave carts search for anomalous electromagnetic readings that can be indicative of appurtenances, structures, or wire breaks. Pure Technologies' Data Analysts then identify any readings that are indicative of wire breaks, measure their size, estimate the number of wire breaks, and submit a report.

The contract requires inspection of 5.5 kilometres of 78" (2000mm) diameter pipeline. The inspection will take approximately 3-4 days.

Inspection Details

According to the drawings available, a rope support team will be useful in aiding the descent of the inspection team from section -1+114 (at the Tibitoc Tank) to -0+600, due to the slope of approximately 12% along the 714m length. The segment of the line passing under a lake may also require rope support to allow the cart to traverse the slopes in that region. The remainder of the inspection should be able to proceed without assistance in the pipe. Topside personnel will be required at each entry and exit point along the pipe, with support personnel located both behind and ahead of the inspection team.

Access points are available at: -1+114 (Tibitoc Tank V-3), -0+260 (V-7), 2+058 (Municipal manhole), and at 4+420 (V-9). Additional openings may be available that are not labeled on the drawings.

Additional Information

Confined Space Entry:

- Ventilation and Confined Space personnel will be required.
- An attendant must remain at the Access points at all times. Communication will be maintained between the attendant and the P-Wave team.
- Air monitoring will be required at each Access point and with the entrants at all times.

Anticipated Schedule:

The inspection will likely be performed over a three day period. The first day would have the team enter at V-3, inspect the steep section and exit at V-7, leaving the equipment secured in the pipe for the next day. The second day would start at V-7 proceeding to the manhole just before Lake Teusaca. Day three would continue the inspection past V-9, completing the inspection. Additional time would be available in case of dewatering issues or other delays.

Major Equipment Needed:

- P-Wave Equipment
- Air Quality Meters
- Personal Protective Equipment including but not limited to helmets, flashlights, safety rope, air monitors, gloves, harnesses, waders, and safety glasses.

Pipe Construction Details:

For a complete list of pipe construction details, please see appendix A.

Appendix A: Pipe Construction Details