

EPM managed to close the first gate of the Auxiliary Gallery of Deviation of the Ituango Hydroelectric Project

- **With this advanced engineering maneuver, we managed to advance by 50% the closure of the auxiliary diversion tunnel (GAD)**
 - **Divers performed underwater engineering work to enable this first gate weighing 300 tons to be closed**
- **After the closure of the second gate, in the coming months it will be possible to build the final GAD plug and make progress in reducing the risks for the communities located downstream of the project.**

In an underwater engineering maneuver, on Wednesday, May 29, one of the two floodgates of the Auxiliary Diversion Gallery (GAD) was closed. This was a new milestone within the risk mitigation work in the Ituango Hydroelectric Project.

As it can be recalled, the contingency in the Ituango Hydroelectric Project began on April 28, 2018 with the obstruction of the auxiliary diversion tunnel (GAD). In September of the same year, specialized personnel entered GAD's floodgate chamber and found that the two floodgates, each weighing 300 tons, had moved 15 meters.

With the closure of the first gate –the left one - the work of about three months came to fruition (the entrance to the GAD began nine months ago). It entailed the work of divers, contractor personnel and EPM experts, who, supported by specialized equipment and cranes, repaired and coupled the heavy structure to the servomotor.

Underwater Work

In order to close the left gate, it was necessary to clear the area of the “pocket” where it was housed, and remove the sheet located at the bottom of the tunnel, then proceed with the closure of 50% of this tunnel.

In advanced engineering work, a group of divers performed underwater tasks, consisting of dredging and removing sediments, rocks and metal material that prevented the two floodgates in the GAD from properly closing.

The work of the divers was complex due to zero visibility, because neither sunlight nor artificial light could enter this point. To progress, a 2D sonar, an electroacoustic device that emits acoustic waves, and by means of the Doppler effect visualizes in real time the behavior on a computer screen. With this technological aid, the diving supervised advised and recommended underwater work. Applied diving was semi-autonomous with air supplied from the surface.

Water was drained with hydraulic and pneumatic dredges, and divers drilled large rocks using special tools. Another challenge was to cut the metal sheets underwater, with the safety pipes.

What's next?

After closing the GAD's left gate, the work was centered on the closing of the right gate to complete total closure.

At this moment assembly of the right gate is taking place, with a weight of 300 tons. It was broken into three pieces during plugging and natural uncovering of the auxiliary deviation tunnel (GAD) at the beginning of the contingency in the Ituango Hydroelectric Project.

As with the left gate, specialized divers will clean the pocket of the right gate so that in the coming weeks, it will proceed to close and achieve a definitive closure of the GAD. This advancement will allow construction of the 22-meter plug downstream of the floodgate chamber on the dam axis, and thus progress in reducing the risks to the communities located downstream of the main works of the future power plant.

Data

The auxiliary diversion tunnel (GAD) was built to divert the waters of the Cauca River while the two original diversion tunnels were technically and definitively plugged. The tunnel is approximately 1,700 meters long, 14 meters wide, and 14 meters high.