SAMARCO CASE

Samarco Dam Collapse: Brazil's worst environmental disaster.

At 3.45 pm on 5 November 2015 a huge eferred to as Fundão Dam, operated by the Brazilian mining company Samarco collapsed. It sent a tidal wave of 32 m to 40 m cubic meters of mining waste across the bucolic countryside with scenic green valleys, villages and farmland.

The waste - a liquid mix of water, sand and clay – killed 19 people, destroyed villages, left hundreds homeless and killed fish and aquatic life, as it flowed down the larger River Doce to the sea, more than 600km away.

CHALLENGE: To implement an integrated, intelligent and analytical solutions for monitoring and risk management at Samarco, that consider its unique issues with its specific requirements.

Samarco Case: Geo Inspector Platform.

In mid-2016, approximately six months after the collapse of the Fundão Dam (which occurred on November 5, 2015), IntellTech began a project with the Geotechnical Area of Samarco to integrate all geotechnical data from its structures. The goal was to establish a robust online monitoring platform and to provide geotechnicians and engineers essential information in the shortest time possible, to support their decision making processes.

As a result, the Geo Inspector Web-Mobile Platform has been implemented for planning, integration of manual instruments, auscultation planning, analytics, risk charts, inspection planning, asset management, anomalies management and control, reports and KPI’s, manual instrument monitoring and field inspections.

Samarco Case: SHMS Platform.

After just over 12 months after the collapse of the Fundão Dam, and also after the implementation of the Web-Mobile Geo Inspector Platform, IntellTech started the project of customization and implementation of the SHMS Platform as the main solution for the Geotechnics data integration and consolidation integrated with the Information Technology and Automation areas of Samarco.
Once the SHMS was implemented, every geotechnical asset and sensor was integrated, and module customizations were developed, generating new features and modules according to Samarco's business rules and specific needs. Indeed, SHMS Platform streamlined geotechnical analysis and decision-making processes, supporting Engineers and Technicians in getting consolidated information from dynamic reports, KPI's, quantitative and qualitative analyses, correlations, data comparisons, and much more, based on the readings of all data collected by the SHMS.

**SHMS Platform**

SHMS and Geo Inspector software solutions can be deployed on-premises and/or on the Cloud, depending on the infrastructure requirements. IntellTech takes into consideration all of the access policies and security rules of each client. At Samarco, our software solutions have been deployed on-premises, so that the integration between the geotechnical components, information technology (IT), and automation areas could be accomplished. This effort was responsive to critical and strategic monitoring and geotechnical risk management. For this purpose, redundancy mechanisms and policies were developed on a server at the automation area. IntellTech also synchronized all Geo Inspector data and information from the automation area to a server located in the IT sector. This effectively served the Geotechnical Department, which was the end client.

Throughout the project, IntellTech fulfilled a significant number of new integrations, enhancements, and adaptation requests and developed new features and modules to address the Samarco’s specific geotechnical needs.

There are currently more than 1400 instruments of different types, as shown in the table. This was a unique value delivery. This effort was possible because SHMS and Geo Inspector software solutions have been developed to be completely customizable, based on the specific needs of IntellTech client. These flexible solutions allow IntellTech clients to order new integrations and/or product adaptations and have them placed with a high priority on the product’s roadmap.