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GEOTECHNICAL INSPECTION USING DATA COLLECTION FORM

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RESUMEN

Geotechnical inspections are essential in pipeline right-of-way. Rains can generate new occurrences, change the risk degree of an existing occurrence or cause damage to an existing containment. A faster and more effective analysis of the data collected in the inspections can influence the type of mitigation and the costs involved. Faced with this scenario, TBG implemented a data collection form in geotechnical inspections, standardizing the information to be collected and creating an environment near real-time visualization. TBG's geotechnical data collection project in the field includes 3 stages, starting with the structuring of the geographic database, preparation of the data collection form and customization of the information visualization and analysis environment.

In structuring the geographic database (ArcGIS), information on crossings, intersections, slopes, geotechnical occurrences and containments were aligned with the gas pipeline guideline using high-resolution satellite images. In addition, the attributes of each variable were standardized.

The data collection form was prepared in ArcGIS Survey123 Connect, covering the administration of the contract (Daily Operational Report - RDO), the evolution of the inspection (registration of kilometeric mark), inspection of geotechnical occurrences and existing containments (measurement of geotechnical risk) and record of new geotechnical occurrences and failures in containments. Data collection is carried out on smartphones and the collected information can be accessed near real-time.

The visualization environment (ArcGIS Online) allows the visualization of information in dashboards with maps, tables and graphs. Analyzes are performed concurrently with data collection. In a corporate environment, several professionals can access and analyze information.

The inspectors' evaluation is very positive, highlighting the elimination of analogical forms, standardization of collected data, ease of filling out forms, map and location resources, automatic and near real-time sending of data. The geotechnical assessment is also very positive, with emphasis on data standardization and near real-time visualization. Managers positively evaluate the near real-time monitoring of inspections and changes in geotechnical risk, with implications for the containment portfolio.