

Management of the Construction of Tailing Storage Facility Under Multiple Contractors – the Role of the Survey Consultant

Henry Opoku Gyampoh, Prince Sasu, Akwesi Ampomah Poku and Francis Ayerizemi Akunyagra (Ghana)

Key words: Engineering survey; GNSS/GPS; Mine surveying; Positioning; Risk management

SUMMARY

Surveyors play a vital role in the management of the Tailing Storage Facility (TSF), which spans from pre-construction, construction phase, and post-construction to closure and decommissioning. Managing the construction of tailing storage facilities (TSF) under multiple contractors is a daunting and challenging task, and the role of a surveyor is essential in ensuring the safety, compliance, and efficient construction of the facility. Tailings are the leftover materials from the processing of mined ore. They consist of ground rock, unrecoverable and uneconomic metals, chemicals, organic matter, and effluent from the process used to extract the desired products from the ore. Tailings can be in the form of liquid, solid, or a slurry of fine particles. The tailings are therefore filled with substances and chemicals that are not friendly to the environment and its habitat, making it non-negotiable to construct a storage facility that will collect and contain the unwanted substances. A TSF is essential in permit application and information for environmental groups.

In an ideal mine site, the construction phase is handled by the consultant and his choice of a competent contractor to assist in the execution of the facility. The Minerals Commission of Ghana in its quest to enhance and build local capacity in the mining industry aided the decision of mining companies to give preference to locally owned companies to execute contracts on mining engineering services of which TSF is one.

The surveyor's role on TSF is not limited to topographical survey for design purposes but is extended to, construction, oversight monitoring, surveillance, and geospatial data management. Surveyors are responsible for collecting, managing, and updating geospatial data related to the TSF.

Management of the Construction of Tailing Storage Facility Under Multiple Contractors – the Role of the Survey Consultant (12645)

Henry Opoku Gyampoh, Prince Sasu, Akwesi Ampomah Poku and Francis Ayerizemi Akunyagra (Ghana)

FIG Working Week 2024

Your World, Our World: Resilient Environment and Sustainable Resource Management for all

Accra, Ghana, 19–24 May 2024

This data includes topographic surveys, GIS mapping, and geodetic control, which is crucial for long-term management.

The object of this exercise is to analyze the role the surveyor plays in the geospatial data management of multiple contractors during the construction phase of a TSF, to appreciate the peculiar challenges and the steps taken to overcome them. From the systematic approach, the modality and sequence of data capture, the validation of results, and the presentation to the satisfaction of the stakeholders to uphold the professionalism and ethics of the surveyor.

Management of the Construction of Tailing Storage Facility Under Multiple Contractors – the Role of the Survey Consultant (12645)

Henry Opoku Gyampoh, Prince Sasu, Akwesi Ampomah Poku and Francis Ayerizemi Akunyagra (Ghana)

FIG Working Week 2024

Your World, Our World: Resilient Environment and Sustainable Resource Management for all
Accra, Ghana, 19–24 May 2024