



Dolphin Analysis

Structural Identification and Risk Analysis

Client:

Companhia Vale do Rio Doce

Project:

The company had been running the port facility for more than 30 years and was interested in knowing if there were any problems with the aging facility. The facility includes equipment for transporting and loading minerals onto very large barges. The loading mechanism is protected from ship impact by a series of dolphins. STRAAM not only investigated all of the land based equipment, but also investigated the stability of the dolphins. One of the dolphins was found to have a partial foundation failure.



Benefit to the Client

The client was reassured about the integrity of the large part of the structure. Additionally, with the foundation failure identified, resources could be dedicated to dealing with this small-scale problem. The rest of the equipment was scheduled for another inspection after 5 years of operation.



Instrumentation

STRAAM Group personnel were operating with the help of a Brazilian Geotechnical company. The servo-accelerometers (later used as the basic work-horse for STRAAM) were housed in a dedicated box and measurements of the response to a ship impact were obtained.