



GEO-FOUNDATIONS Contractors Inc.

Pointe du Bois Generating Station - Powerhouse



Date: 2000

Technology: Rock Anchors

Over a five-month period at the end of 2000, Geo-Foundations successfully completed a complex project that included the installation and stressing of high capacity strand anchors to tie down the 90-year old powerhouse structure at Pointe du Bois Generating Station in eastern Manitoba. The project consisted of two principal scopes of work conducted simultaneously – new mass concrete installation and rock anchor installation – all indoors inside the operating powerhouse.

Installation of new mass concrete was required in 31 of the powerhouse's sub apron chambers in order to provide a means for bearing and distributing the loading from each of the new upstream rock anchors. Coring of large diameter holes through the powerhouse floor slab was required to access these small chambers for the first time since they were entombed during the powerhouse's original construction. Strict safety precautions were followed for work in this truly confined space which included installation of dowels and reinforcing steel, erection of formwork, and placement of nearly 1000 m³ of concrete.

Anchoring of the powerhouse superstructure was achieved by the installation of 48 high capacity, 18-strand, Class 1 corrosion protected rock anchors, arranged three per pier at sixteen piers. The rock anchors required drilling to 32 metres depth through reinforced concrete and Canadian Shield bedrock. Including re-drilling of holes that required consolidation grouting, more than 2,500 lineal metres of drilling was completed. Each of the 48 rock anchors was proof tensioned and locked off at design load 3,050 kN.



Drilling inside the powerhouse



Multi-strand rock anchor in the midst of proof tensioning



Rock anchor installation using an off-coiler