



J.T. THORPE & SON, Inc.

Established 1906

ENGINEERS and CONTRACTORS

**SUMMER 2008 QUANTUM INTERNATIONAL GROUP REFORMER DOME DESIGN
& SUPPLY PROJECT, NEW ZEALAND PLANT**

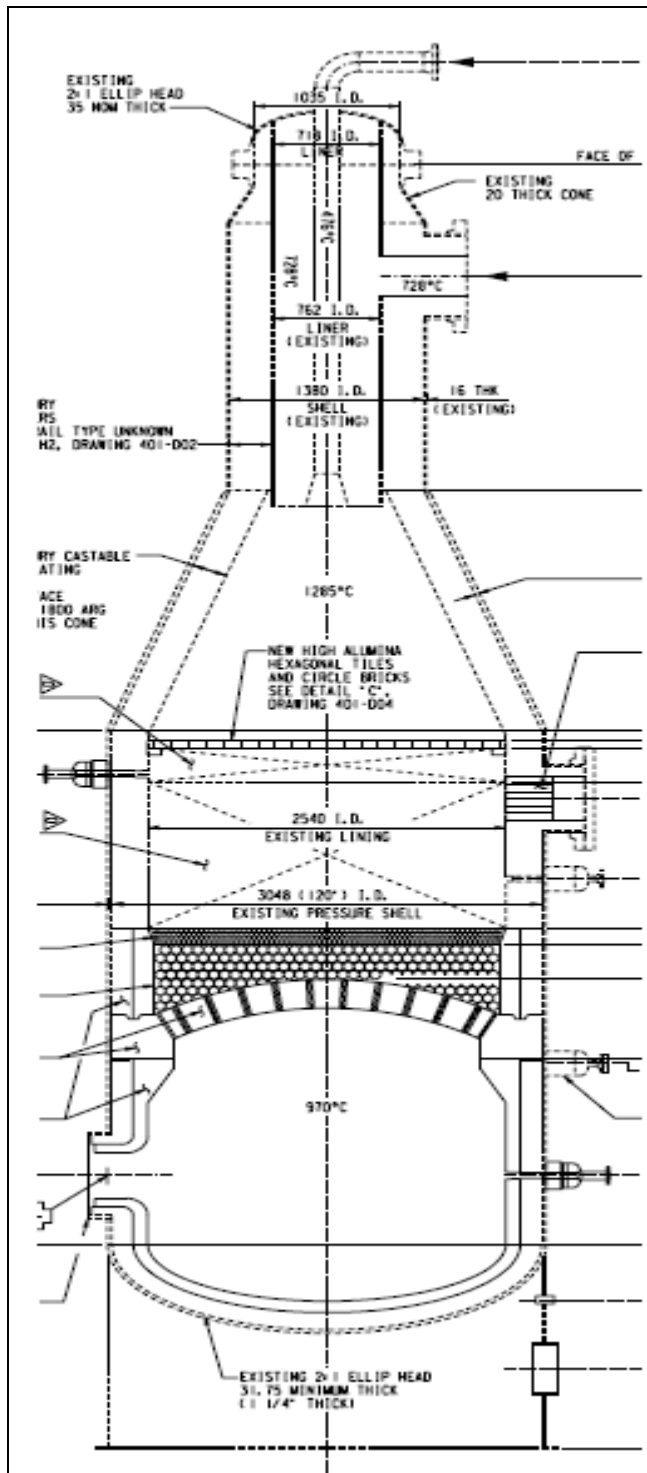
QIG was awarded a project in April 2008 to design, supply and supervise installation of a reformer refractory dome.

The purpose of the reformer modification was to replace a metal reformer catalyst dome support with a brick dome support. The metal support was unreliable and caused several unplanned outages due to excessive warpage caused by the high temperature service.

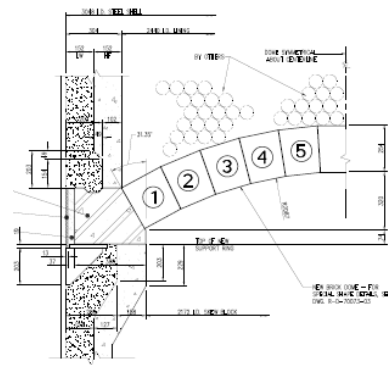
QIG designed the dome blocks, the skew blocks, metal skew-block support ring and the adjacent refractory linings. QIG also designed a special temporary dome block support system used during installation of the dome.

The dome blocks were cast in the JTT Kentucky shop. The dome was pre-assembled in the shop to confirm the fit-up. All of the items were supplied to New Zealand before their November 2008 Outage.

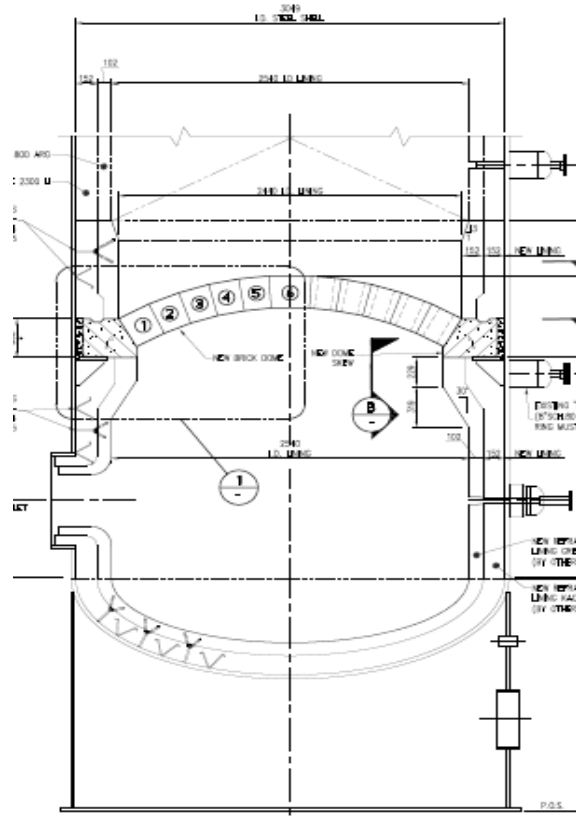
The field installation was completed in New Zealand with QIG supervising the local New Zealand refractory crew. The dome installation was completed on schedule with no fit-up or installation issues.



Secondary Reformer Catalyst Support Dome Modification Project



DOME SUPPORT DETAIL 1
scale: 1/10mm reference: -



SECTIONAL ELEVATION A
scale: 1/20mm reference: -

QIG Catalyst Support Dome design



New Zealand's Old warped metal catalyst support – this was an unreliable design



JTT Kentucky's World-Class Casting shop