

	Test Summary	September 14, 2009
	Resonant Fatigue Testing	Page 1 of 4
	4 1/2" OD, 11.60 ppf, P-110 GB HB 7" OD, 23.00 ppf, P-110 GB HB	Rev. 0

Introduction

This document summarizes the testing performed to qualify GB DWC Connections for ConocoPhillips who has particular interest in fatigue resistant connections for Drilling with Casing operations in their South Texas Lobo Field. GB Tubulars developed two couplings for drilling with casing. Each uses standard API BTC pin threads. The GB CD Coupling is a shortened API BTC Coupling where the pin noses meet in the center for the high torque resistance needed for rotating while drilling. The GB HB is essentially the GB CD Coupling with a sacrificial, integral, hard-faced wear sleeve on the mill side providing the robust wear protection needed for casing drilling operations. See Figure 1.

Test Procedure

The test program was developed to demonstrate satisfactory performance within the anticipated worst-case casing drilling scenario defined by ConocoPhillips. During testing applied build rates, rotational cycles, and internal pressure levels (and hold times) exceeded anticipated maximum operating conditions for additional margins of safety.

Two samples of each size were supplied and all samples were used for make/break testing. Make/Break Testing consisted of a mill make-up where the coupling is bucked onto a piece of casing followed by two field makeups/breakouts and a final field makeup. After each breakout, pin and box threads underwent a critical visual inspection prior to the next makeup.

After completing make/break testing, one fully assembled sample of each size was used for resonant fatigue testing; the other was set aside as a spare to be used if needed. The following table lists anticipated worst-case casing drilling conditions provided by ConocoPhillips.

Casing	Rotating Hours	RPM's	Max. Rotations
4 1/2" OD, 11.60#, P-110	100	120 to 150	900,000
7" OD, 23.00#, P-110	150	120 to 150	1,350,000