

DuraSeal® 301P Pressurized Stuffing Box Provides Intervention-Free Operations for 478 Days

Objectives

- Increase the meantime between failure (MTBF) rate for the stuffing box in a CHOPS (cold heavy oil production with sand) application. This progressing cavity pump (PCP) system required two interventions in the first 2 months of operation, both of which were caused by a failed dynamic seal in the stuffing box.
- Diagnose the source of repeated stuffing box failure with a minimal impact on budget and production.

Our Approach

- Working closely with the client, Weatherford deployed an artificial lift team to find the source of the premature stuffing box failure.
- Through an in-depth fluid analysis, the team discovered that the abrasive particle sizes—similar to clay or a lapping compound—were much smaller than is found in other CHOPS wells. The analysis concluded that the sand cut for the new well ranged between 1 and 75 percent with an average operating sand cut of 14 percent. Although within the upper design limits of the stuffing box, the unique particle size and shape directly contributed to premature failure of the stuffing box when combined with the application speed and pressures.
- Based on the results of the fluid analysis, the team recommended installation of the DuraSeal 301P pressurized stuffing box with a hydraulic charge system. This would be installed upon the next stuffing box failure.
- Following a third conventional stuffing box failure, the team installed the DuraSeal 301P pressurized stuffing box with minimal downtime.

Value to Client

- Following installation of the DuraSeal 301P stuffing box, the stuffing box MTBF rate increased from less than 30 days to 478 days.
- Stuffing box failures had cost the operator US \$3,510 per failure for a total spend of \$10,530 during the first 3 months of operations. By increasing the MTBF rate, the DuraSeal 301P stuffing box reduced intervention costs by US \$55,926.



Following installation of the DuraSeal 301P pressurized stuffing box, the MTBF rate increased from less than 30 days to 478 days and counting.

LOCATION

Northeast Alberta, Canada

WELL TYPE

CHOPS slant well

ARTIFICIAL LIFT TYPE

Progressing cavity pump

PCP WELLHEAD SPEED

140 rpm

SAND CUT

14% average, 75% maximum

PRODUCTS/SERVICES

- DuraSeal 301P pressurized stuffing box

