



End User: BHP Billiton

Location: Carnarvon Basin, Western Australia

Application: Steam Water Let Down

Challenge: Hazardous Work Conditions

Technology: DRAG® Multi-stage

Results: Over 20% noise reduction

## Pyrenees Floating Production Storage and Offloading

### Background

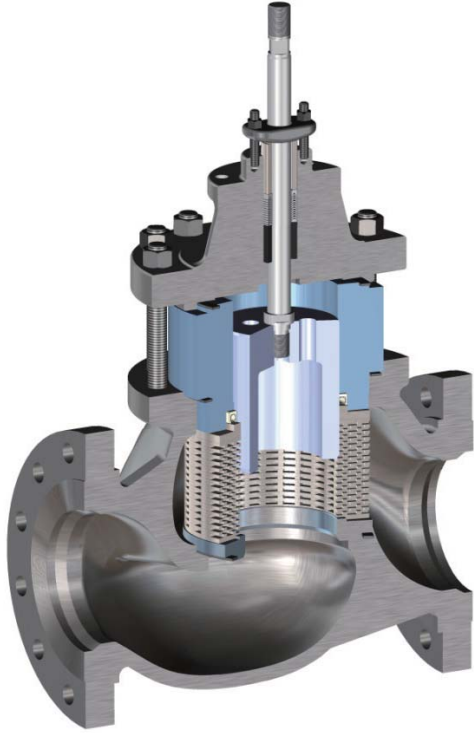
The Pyrenees FPSO, owned by MODEC and operated by BHP Billiton, has been in operation off the coast of Western Africa since February of 2010. Installed in 200 meters water depth, the vessel is capable of processing 96,000 barrels of oil per day and has an oil storage capacity of approximately 850,000 barrels.

### Customer Challenge

Prior to MODEC's conversion of the vessel for BHP Billiton, the Pyrenees FPSO utilized a six-inch #300 carbon steel globe valve featuring single-stage pressure reduction to regulate process steam flow. The design of the existing valve created excessive high trim exit velocities, pushing noise levels to 103 dBA, and threatened costly damage and eventual valve failure. The resulting hazardous working conditions rendered portions of the vessel unusable – a critical set back for an application demanding full 24/7 operation.

### The Valve Doctor® Solution

CCI's Valve Doctor team worked closely with MODEC engineers on site to analyze existing processes and recommend a solution. Drawing upon over 50 years of severe service experience, CCI replaced the existing single-stage valve with a multi-stage DRAG valve to help reduce excessive fluid velocities and energy levels.



### **DRAG® Technology Delivers Results**

CCI's unique DRAG® technology prevents the development of high fluid velocities at all valve settings while effectively controlling system pressure and flow rate over the valve's full stroke. This focuses on preventing creation of noise -- rather than attempting to muffle sound once it is produced. Noise is controlled by making sure trim exit jets leaving the valve disk stack do not induce excessive acoustic levels inside the pipes. Subsequently, the noise passing through the pipe wall and sensed in the vicinity of the valve is lower than specified levels.

### **Customer Benefit**

Utilizing DRAG technology, CCI was able to:

- Reduce noise levels by 25 dBA
- Ensure compliance with Health and Safety Regulations, thus allowing previously unusable portions of the ship to be utilized
- Increase life expectancy of the valve
- Reduce maintenance costs by with fewer required trim replacements

### **About CCI**

CCI offers world class technical expertise to ensure optimum process performance for the oil and gas, fossil and nuclear industries. The Valve Doctor® experts have in-depth knowledge on control and isolation valve design, as well as actuation, noise reduction, system piping and system operation. With headquarters in Rancho Santa Margarita, California, and offices worldwide, customers have trusted CCI to provide quality products and services for over four decades.