

Using Bills of Materials (BOMs) to Improve Brownfield Facilities' Inventory Levels

Processing 30 years of operational data over a 13-month period using a global team of specialists



Project Overview

An operator approached Oceaneering's Maintenance and Reliability Solutions team with a major task – convert 30 years of existing operational data for five brownfield facilities, contained within their existing BOMs and maintenance history.

Having an accurate Bill of Materials (BOM) is essential for asset maintenance as it offers a record of the spare parts needed to support an

asset's function. If a BOM does not exist and the inventory levels are not established, operators could purchase more spare parts and tooling than required, or worse, not have the spare part when the demand arises.

This 13-month project to develop accurate BOMs and inventory levels was needed to address the customer's lack of confidence in the available inventory data.

Scope of Work

The team needed to develop not only the stock holding requirements and preservation procedures, but also needed to develop new BOM data stemming from approximately 65,000 assets covering five brownfield facilities. The assets included major equipment and packages, such as power generation, gas compression, water injection, air compressors, cranes, and fire water pumps.

The Solution

The 65,000 assets were broken into 220 groups of equipment, with each group's format and content agreed at a kickoff meeting. A sample was created and reviewed by the customer before the larger data set within the group was processed. We also developed the optimal sparing levels by agreeing to the facility requirements, algorithm rulesets, and methodology of review and application. Again, a trial data set was reviewed to ensure the output was in alignment with the customer's expectations.

Execution Plan

A team of 17 engineers, working across four countries, was assembled to deliver the project. For each of the 220 equipment groups, the Oceaneering team and the customer agreed on the deliverable content and structure.

- » Build and approve a sample set.
- » Verify existing BOMs and restructure to bring consistency.
- » Identify obsolete parts.
- » Create new BOMs for assets that did not have a BOM assigned.
- » Deliver in agreed format, ready for loading into the CMMS.
- » Develop the inventory level by agreeing to the facility requirements.
- » Identify any spares requiring a preservation procedure and develop accordingly.

Challenge

With 30 years of data available captured across two CMMS systems, sourcing the valid data was a challenging first step. Adopting an agile methodology, sample sets were delivered for each type of equipment. The customer agreed to the structure and content for each BOM, giving both parties confidence; for example, after three months of work on valves, the deliverable needed minimal changes upon final review.

With a team spanning the globe, communication was critical, especially during the COVID-19 pandemic. Regularly scheduled technical touch points combined with a dedicated kick off to each equipment group gave complete transparency to the methodology selected by the team.

Results

With the BOM data now consistent and technically validated, the customer can now trust the information located in the CMMS. Furthermore, with a completed inventory level review, the practice of over or understocking spare parts can end.

With an accurate portrait of spare parts on hand, downtime can be avoided due to a lack of spare parts for maintenance operations. Additionally, unnecessary expenditure on spare parts that do not need to be kept on the warehouse shelves is avoided. The preservation documentation will ensure spare parts stocked will be kept in a suitable condition.