"Cad-Capture has a robust technology for QA/QC. They did a marvellous job for us which helped us to meet up with our target."

Customer Focus

Company:
Nigeria LNG Limited

What they do:
Incorporated in 1989 to harness Nigeria's vast natural gas resources and produce Liquefied Natural Gas (LNG) and Natural Gas Liquids (NGLs) for export from the LNG Plant Complex, Bonny Island.

Project title:
Cad-Capture's CaptureQC™ assists Nigeria LNG to achieve outstanding quality resulting in an increase in process efficiency.

The project:
CAD Quality Assurance, Data Validation and Fault Rectification of 341 Process Engineering Flow Scheme (PEFS) Drawings.

Cad-Capture was required to implement its expertise in:

1) Quality Assurance

2) Data Validation

3) Fault Rectification

Project: Nigeria LNG Limited

Nigeria LNG Limited is jointly owned by Nigerian National Petroleum Corporation, Shell, Total and Eni. It was incorporated in 1989 to harness Nigeria's vast natural gas resources and produce Liquefied Natural Gas (LNG) and Natural Gas Liquids (NGLs) for export from the LNG Plant Complex, Bonny Island.

In 1999, Nigeria LNG (NLNG) invited tenders for the redraw of all its 341 Process Engineering Flow Scheme (PEFS) drawings. The contract was awarded to an offshore company due to the low price tendered. Unfortunately on completion of the contract NLNG became aware of serious quality issues with the drawings. Errors found included; Tag Nos; Equipment Nos; Line Nos; Class Nos; line types; layering; line thickness; arrow direction; revision status; text styles and height; dimensions; symbols; attributes.

NLNG sought advice from Shell, one of its owners, who recommended that the entire 341 PEFS should go through an independent Data Validation and Quality Checking exercise. Furthermore, Shell recommended Cad-Capture as a solutions provider, having successfully redrawn 2000 PEFS for Shell UK Stanlow Refinery in 1997.

The requirements were as follows:

Quality checking of each native AutoCAD drawing for drawing errors

The quality checking shall include the following:

1. Checking that the line types are correct as in the original
2. That the layering is properly done
3. Checking of line thickness
4. Checking of arrow direction
5. Revision status
6. Consistency of the text styles and height
7. Dimensions
8. And any other drawing attributes as may be requited to meet international standard

Validation of each native file for data integrity

The validation shall include among others the following:
1. Checking of data in the drawing making sure that it represents the philosophy of design
2. Checking of the tag Nos
3. Equipment Nos
4. Pipe Line Nos
5. Piping Class Nos
6. Revision Nos
7. Revision Clouds and Triangles

The validation and quality checks shall be carried out according to the following standards and any other standards acceptable to the oil and gas industry:

Shell DEPs
DEP 31 10 03 10 Gen Symbols and Identification System - Mechanical
DEP 32 10 03 10 Gen Symbols and Identification

System – Instrumentation
DEP 32 10 03 10 Gen Preparation of Process Flow Scheme and Process Engineering Flow Scheme
DEP 02 00 00 10 Gen Preparation of microfilming of technical drawings

British Standards
BS 1553 Specification for graphical symbols for general engineering Part 1 Piping Systems and Plant

With the aim of automating as much of the checking process as possible, Cad-Capture pioneered the use of internationally recognised statistical sampling techniques based on ISO 2859 to provide a confident measure of conformance, developing a specialist library of functions, known collectively as CaptureQC™, such that checks could be performed in a systematic and rigorous manner, thereby minimising the potential for human error and increasing process efficiency.
In addition, as a result of work undertaken on P&ID/PEFS related projects, Cad-Capture customised CaptureQC™ to provide a library of specialist applications to check and validate P&ID/PEFS drawings.

Directly integrated with CAD, CaptureQC™ enables a systematic and rigorous approach to be taken with regard to quality checking and validation, minimising human error and improving process efficiency. CaptureQC™ steps through individual drawing entities, isolating specific properties, including e.g. layer, line type, text style etc, for assessment by a fully trained Quality Check Monitor (QCM), experienced in P&ID/PEFS drafting methods and standards. Using integrated 'light box' style functionality, raster images of original hard copy PID/PEFS drawings can be directly overlaid onto AutoCAD or MicroStation data for comparison, enabling validation of e.g. tag, equipment, pipeline and revision numbers etc. CaptureQC™ logs all operations performed including e.g. entities assessed, assessment results (e.g. PASS, FAIL), together with any corrective action taken, for a comprehensive audit trail of the work completed.

Kingsley Onuorah, Project Manager for NLNG, said "Firstly we did the conversion from hardcopy to electronic native file (AutoCAD), but did not have the technology to do a thorough like to like quality check to ascertain errors or vital part of the documents missed during conversion. That is where Cad-Capture came in. Cad-Capture has a robust technology for QA/QC in that area and did a marvellous job for us which helped us to meet up with our target. Cad-Capture did such fine job at a very short schedule."

Cad-Capture's innovative approach to quality assurance was critical to the success of the project. The project was completed on time and within budget and fully satisfied the expectations of NLNG. NLNG now owns an accurate set of Process Engineering Flow Scheme drawings that can be relied upon.

If you would like to know more about what we could do for you, phone:
01254 504444

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www.cadcap.co.uk