Lloyd’s Register

Compliance Services – an overview

28 August 2026

Institute of Corrosion, Aberdeen branch

Lloyd's Register Compliance Services – an Overview

Corrosion Awareness Day, 2026

Fiona Clark – Head of Global Projects

AGENDA

- **LR Compliance Services: Independent Assurance Throughout the Asset Lifecycle**
- **The Compliance Challenge**
- **What is Compliance?**
- **Where LR Fits**
- **The Asset Lifecycle**
- **Corrosion's Role**
- **CASE STUDY**

“Turning technical knowledge into demonstrable confidence”

THE COMPLIANCE CHALLENGE

How do organisations know their assets are safe?

Not because:

- someone designed them
- someone inspected them
- someone produced a report

But because there is evidence that:

- risks are identified
- degradation mechanisms are understood
- controls are effective
- decisions are independently challenged

WHAT IS COMPLIANCE?

Many engineers immediately think regulations

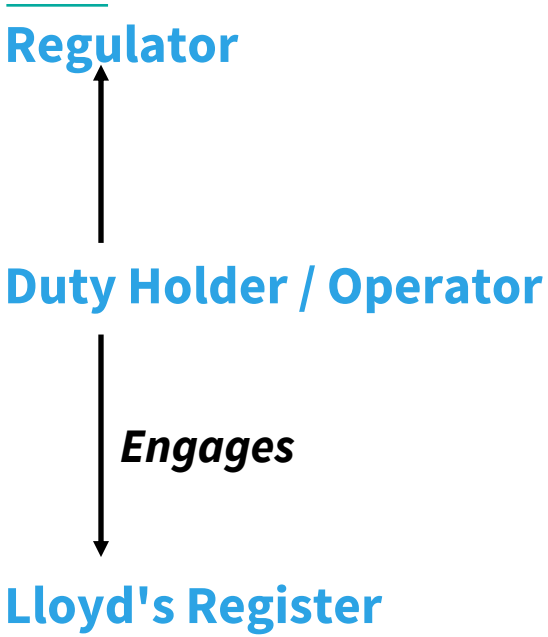
Let's broaden that definition -

Compliance means demonstrating conformance with:

- Regulations
- Industry standards
- Company requirements
- Safety cases
- Engineering good practice

Compliance is really about confidence

WHERE LR FITS

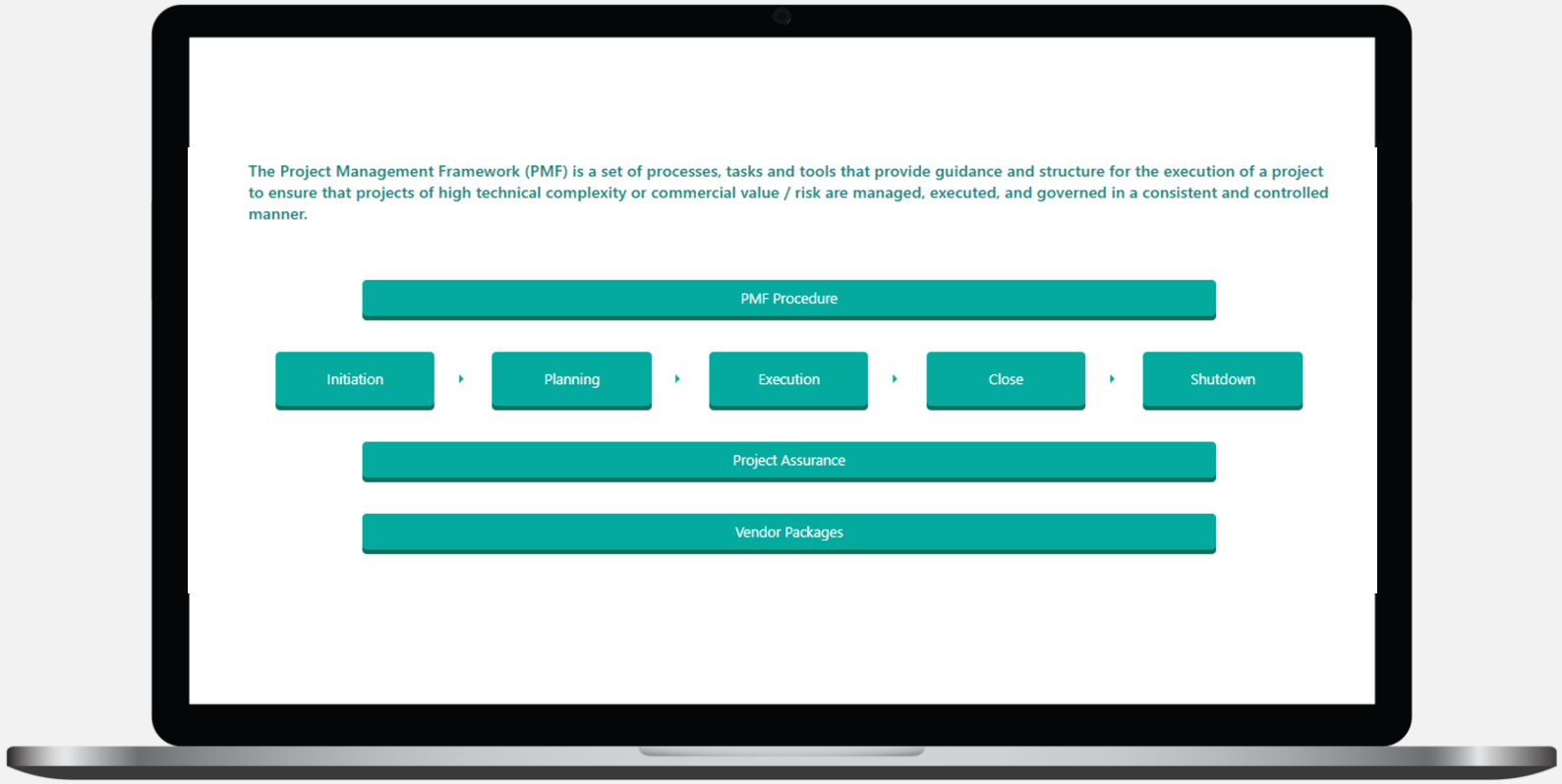


Party	Role
Regulator	Sets expectations and enforces compliance
Duty Holder	Ultimately accountable for safety and integrity
Operator	Manages day-to-day operation and risk control
Lloyd's Register	Provides independent assurance and verification

LR's Role provides confidence that what is claimed can be demonstrated

Management of complex Projects

Successfully managing a complex project requires the leadership of people, resources, risks, stakeholders, finances, and project controls to deliver agreed outcomes while balancing commercial, operational, and customer priorities in a dynamic environment.



THE ASSET LIFECYCLE

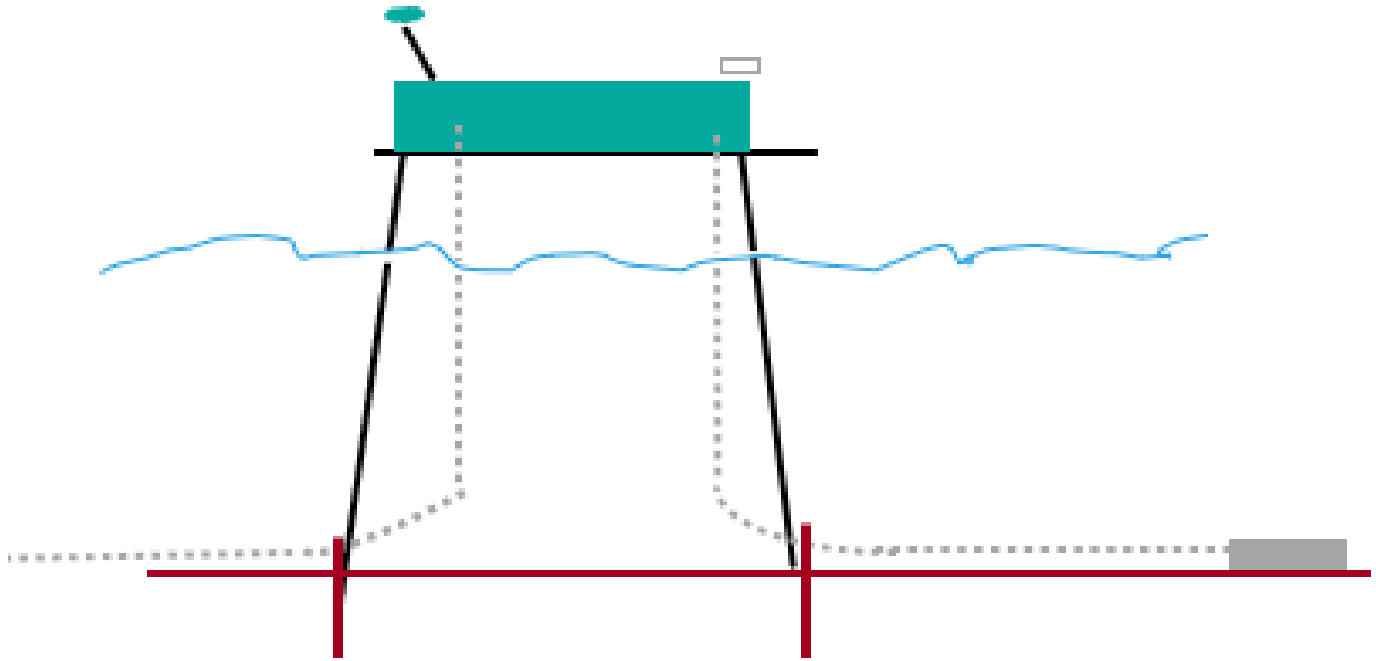
Concept → FEED → Design → Construction → Operations → Life Extension → Decommissioning

- Design review
- Independent verification
- Vendor inspection
- Construction Survey
- Asset integrity assessment
- Operational survey
- Life extension reviews

Global Offshore Technical Support Office

LR has expertise in all the Engineering disciplines needed for an offshore project:

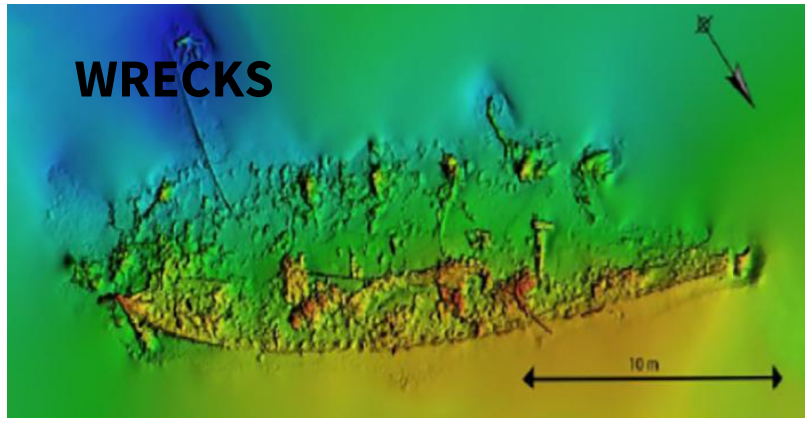
- Corrosion
- Materials & Welding
- Instrumentation
- Electrical
- Floating structures
- Fire & Safety
- Process
- **Mechanical and Pressure systems**
- **Subsea, Pipelines and Wellheads**
- **Geotechnical**



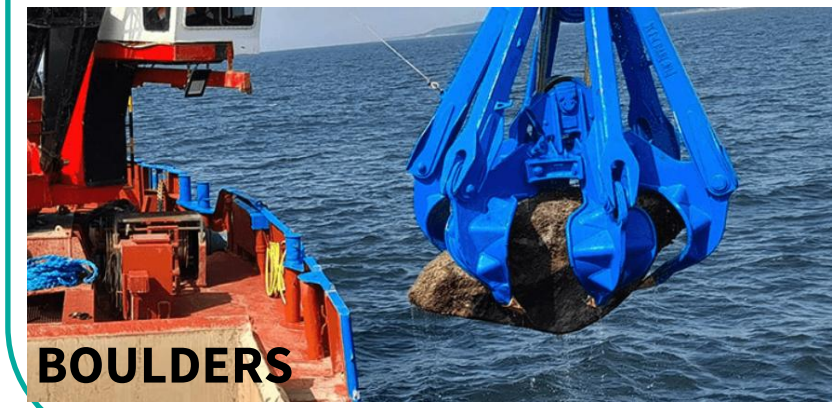
Global Offshore Technical Support Office - Geotechnical

OBSTRUCTIONS and ITEMS OF DEBRIS

- Unidentified obstructions have the potential to have serious consequences during installation.
- These should be avoided or removed.

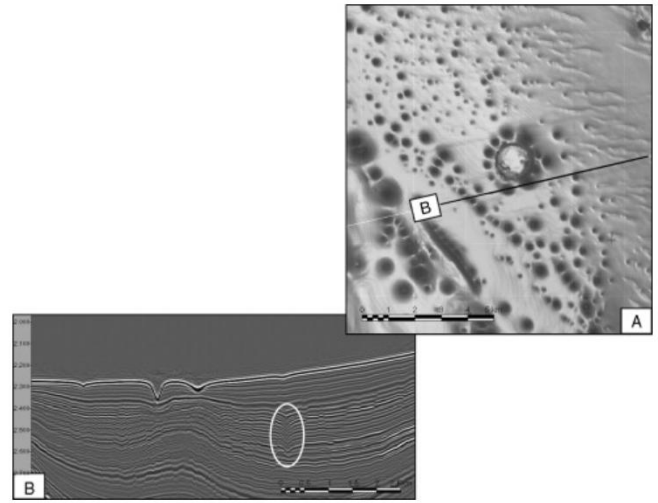


Vega-Sanchez & Herrera, 2022



POCKMARKS and SHALLOW GAS

- Pockmarks activity poses a threat to anchor stability and installation.
- Shallow gas has an impact on the mechanical properties of the soil



Imbert, 2011

Global Offshore Technical Support Office – Technical Safety

Services	Deliverables
Test Specimen Application & Independent Witness	Independent Witness Statement
Type Approval Certification	Certificate of Fire / Cryogenic Approval
Project-specific Design Appraisal	Design Appraisal Document (DAD)
Inspection & Integrity Assessment	Repair / Remedial Actions Advice

Application Witness

Fire Test Attendance

Cryogenic Test Attendance

Certificate Of Cryogenic & Fire Approval

This is to certify that the product(s) detailed below will be accepted for compliance with the applicable Lloyd's Register Rules and Regulations for use on offshore units classed with Lloyd's Register, and for use on offshore units and onshore facilities when authorised by contracting governments to issue the relevant certificates, licences, permits etc.

Manufacturer	International Paint Ltd.
Address	Stoneygate Lane, Felling, Gateshead, Tyne & Wear, NE10 0JY, United Kingdom
Type	Cryogenic (Jet Release) and Jet Fire Resisting Protection Systems
Description	Structural Steel Hollow Sections protected with a "CHARTEK 2218 / CHARTEK 1960CSP Hybrid" Epoxy Intumescent Coating System, reinforced with Carbon Composite Mesh for Cryogenic (Jet Release) Exposures for up to 60 minutes, followed by Jet Fire Exposures for up to 200 minutes
Trade Name	CHARTEK 2218 / CHARTEK 1960CSP Hybrid
Specified Standard	ISO 20088-3: 2018 "Determination of the Resistance to Cryogenic Spillage of Insulation Materials, Part 1: Jet Releases" ISO 22899-1:2007 "Determination of the resistance to Jet Fires of Passive Fire Protection Materials – Part 1: General Requirements"

This Certificate is not valid for equipment, the design or manufacture of which has been varied or modified from the specimen tested. The manufacturer should notify Lloyd's Register EMEA of any modification or changes to the equipment in order to obtain a valid Certificate.

The Design Appraisal Document and its supplementary Type Approval Terms and Conditions form part of this Certificate.

This Certificate remains valid unless cancelled or revoked, provided the conditions in the attached Design Appraisal Document are complied with and the equipment remains satisfactory in service.

Keith Taylor

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A member of the Lloyd's Register group

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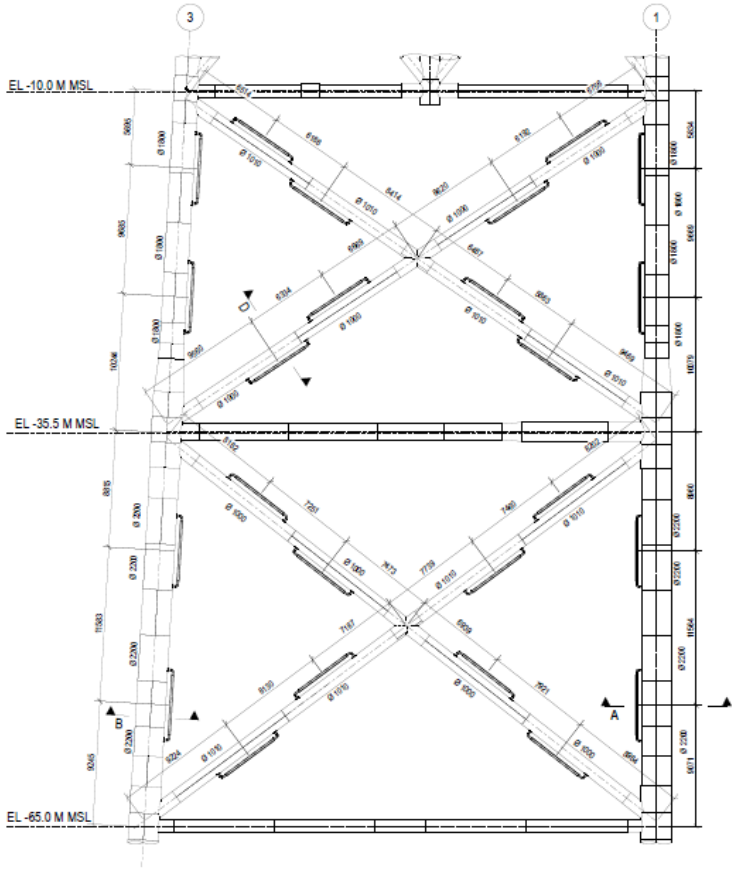
Type Approval Certification

On-Site Survey, Condition / Integrity Assessment

Global Offshore Technical Support Office – Materials and Corrosion

Materials	Corrosion
Material Specifications	Material Selection & Corrosion Control
Metallurgical failure investigation	
Sour service assessment and testing	
Welding Engineering	Cathodic protection
Manufacturing and Fabrication support	Coatings
Non-destructive testing	In-service corrosion assessment
Inspection & Integrity Assessment	

Steel grade specification, welding and fabrication support



Sacrificial anode Cathodic Protection layout - offshore jacket

Corrosion Engineering

“Why Corrosion matters to Compliance”

Corrosion protection aims for the following:

- The selected materials are correctly selected for pipelines, flowlines and production equipment
- Wall loss does not lead to loss of containment or structural failure
- Coating degradation does not limit useful component life
- Anode wastage does not compromise design life
- Cracking does not occur

Survey

- Vendor inspection
- Construction/ Fabrication Survey
- Operational surveyors (in-service)

LR’s role in Offshore Greenfield projects - a Case Study

Case study – Corrosion protection design for subsea equipment

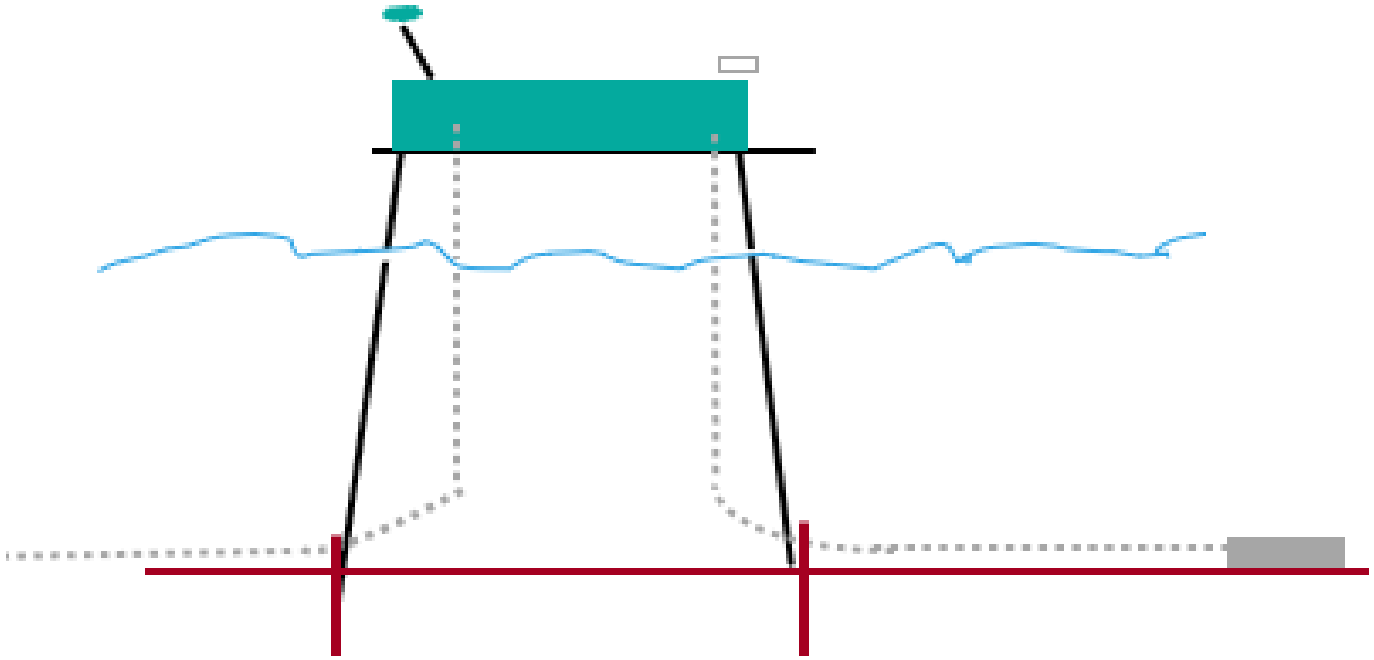
LR Corrosion Specialists reviewed the cathodic protection and coatings

Coating selection

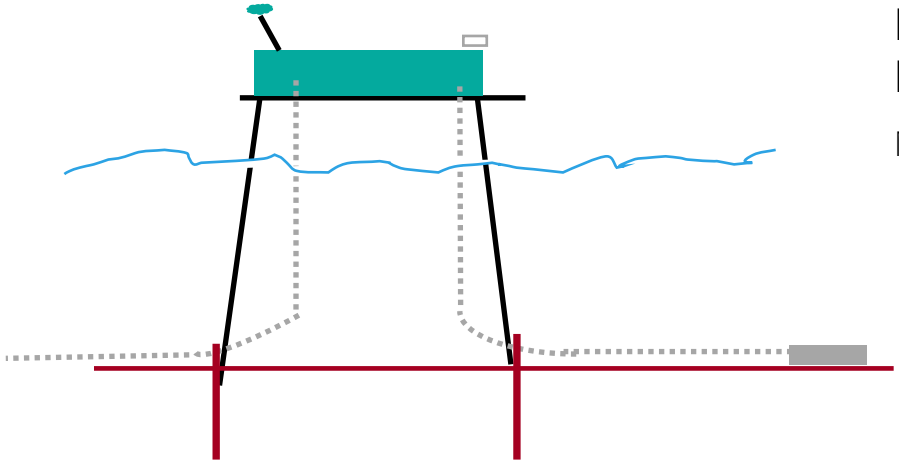
Coating qualification

Sacrificial anode specification

Cathodic protection calculations



Relevant Offshore Project terminology



EPIC

Engineering Design, Procurement, Installation and Commissioning

Main phases of a project

EPIC contractor

Contractor with responsibility for E, P, C and I delivery

Examples: Wood, Saipem, TechnipFMC, Worley, Subsea 7

Work

The deliverable of the EPCI contractor

Examples: Basis of Design, Design Reports, Specifications, Equipment, Procedures

CVA

Contractor Verification Agent

The agency (e.g. LR) who verifies that EPCI Work will result in a safe Facility

Contractor Verification Agent (CVA) - Role

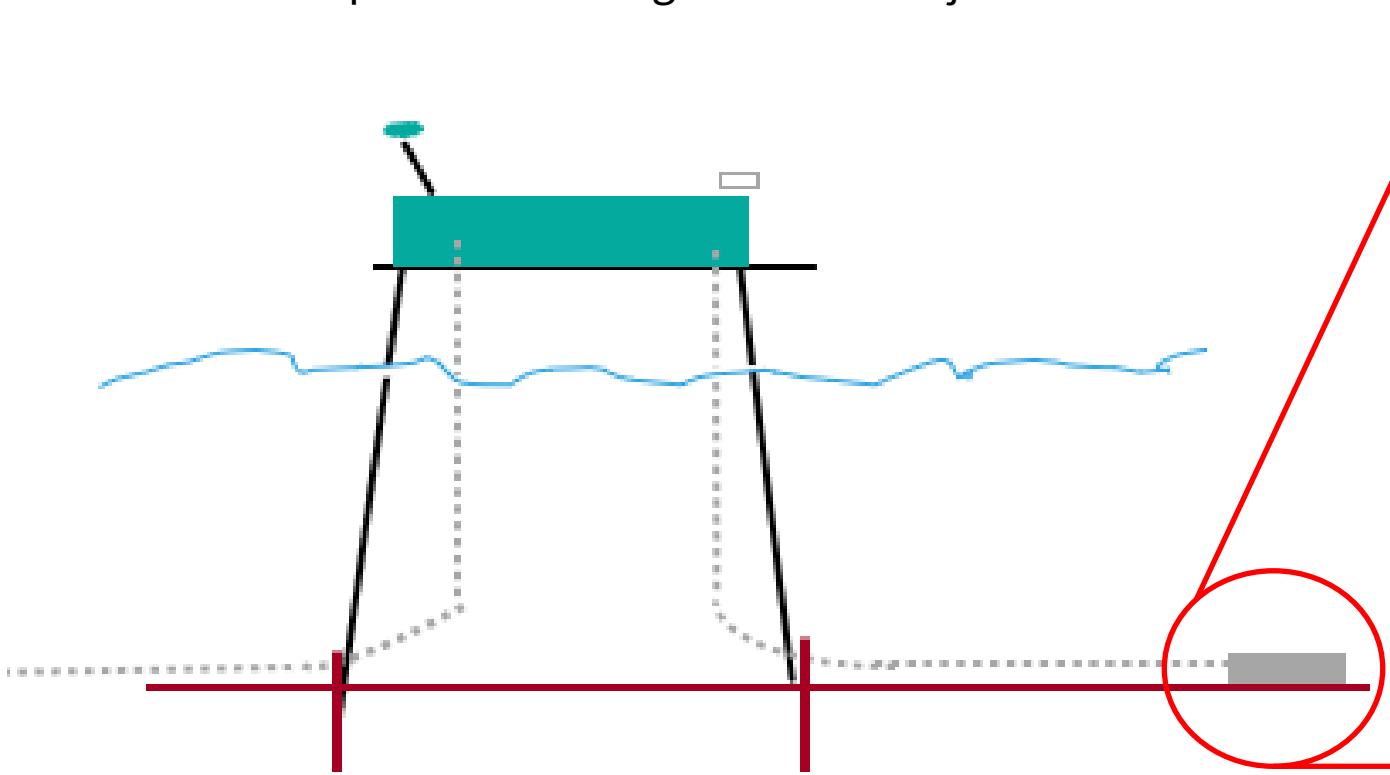
CVA - the agency – independent of the project designer and vendors - that verifies that the Engineering Design, Procurement, Installation and Commissioning (EPIC) Work will result in Facilities that are:

- Safe
- Compliant with governing Regulations
- Compliant with COMPANY requirements

Case study – Corrosion protection design for a subsea distribution unit

LR Corrosion Specialist reviewed the cathodic protection and coatings

- Cathodic protection design was the subject of much discussion



LR Verifying a cathodic protection design for 20-year life

Selected inputs	Original design	1st re-design	2nd re-design	Remarks
Design Protection Potential (Ag/AgCl)	-0.8 V	**-0.85 V**	**-0.85 V**	Client specification required -0.85 V due to anoxic H_2S-containing seawater conditions
Seawater resistivity	0.4 µ.m	0.4 µ.m	0.4 µ.m	0.4 µ.m was accepted after being queried against the Basis of Design worst case of 0.49 µ.m and then accepted through a formal Technical Query from vendor to COMPANY, who accepted the 0.4 µ.m
Report Rev.	01	02	03	

LR Verifying a cathodic protection design for 20-year life

Requirement/ Report Rev.	01	02	03	
Anodes for initial polarisation of the structure	Pass	Pass	Pass	
Anode mass for design life	Pass	Pass	Pass	
Anode current output at end of design life for final polarisation	10 anodes Pass	**10 anodes Fail**	**12 anodes Pass**	2 off 116 kg zinc anodes were added in the 2nd redesign to achieve the final current demand for polarisation at end of design life

Evolution of the design using LR feedback led to an acceptable design

Thank you

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