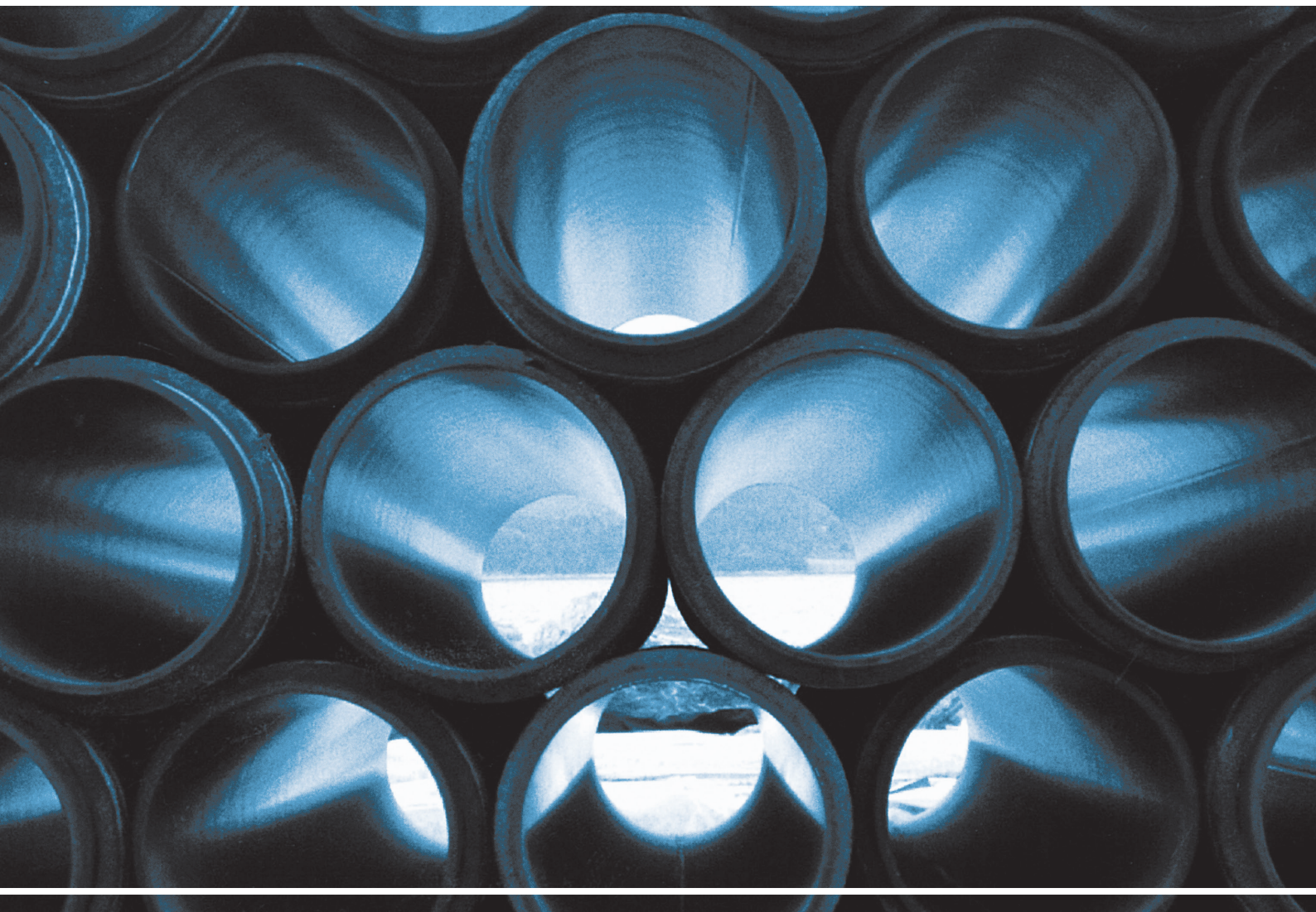




MATERIALS & STRUCTURAL LABORATORY SERVICES

From Microstructure to Mega-Structure



ABOUT LABORATORY

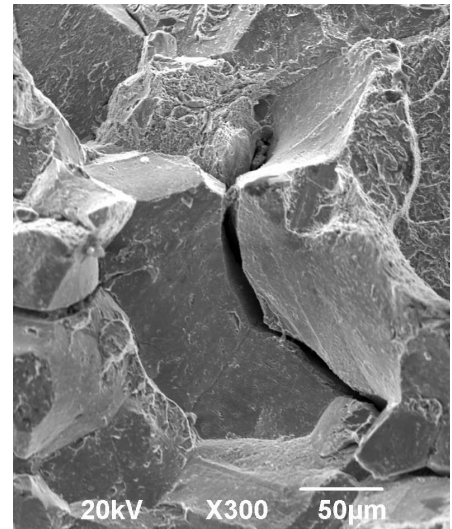
Established in 1984, DNV GL Singapore Laboratory has built trust and confidence for over three decades with services delivered for worldwide projects and customers across oil & gas, maritime and other general industries including infrastructure. Since its establishment, the Laboratory is NATA (National Association of Testing Authorities, Australia) and SAC-SINGLAS (Singapore Laboratory Accreditation Scheme) accredited to ISO/IEC 17025.

Over the years, the Laboratory strives to assist customer in pursuing safer, smarter and greener solution through testing, qualification and assessment of their materials, component and structure. Today, the laboratory is well recognized as a reputable independent laboratory service provider in South East Asia with state-of-the-art facilities and highly competent technical professionals.

KEY SERVICES AND COMPETENCE

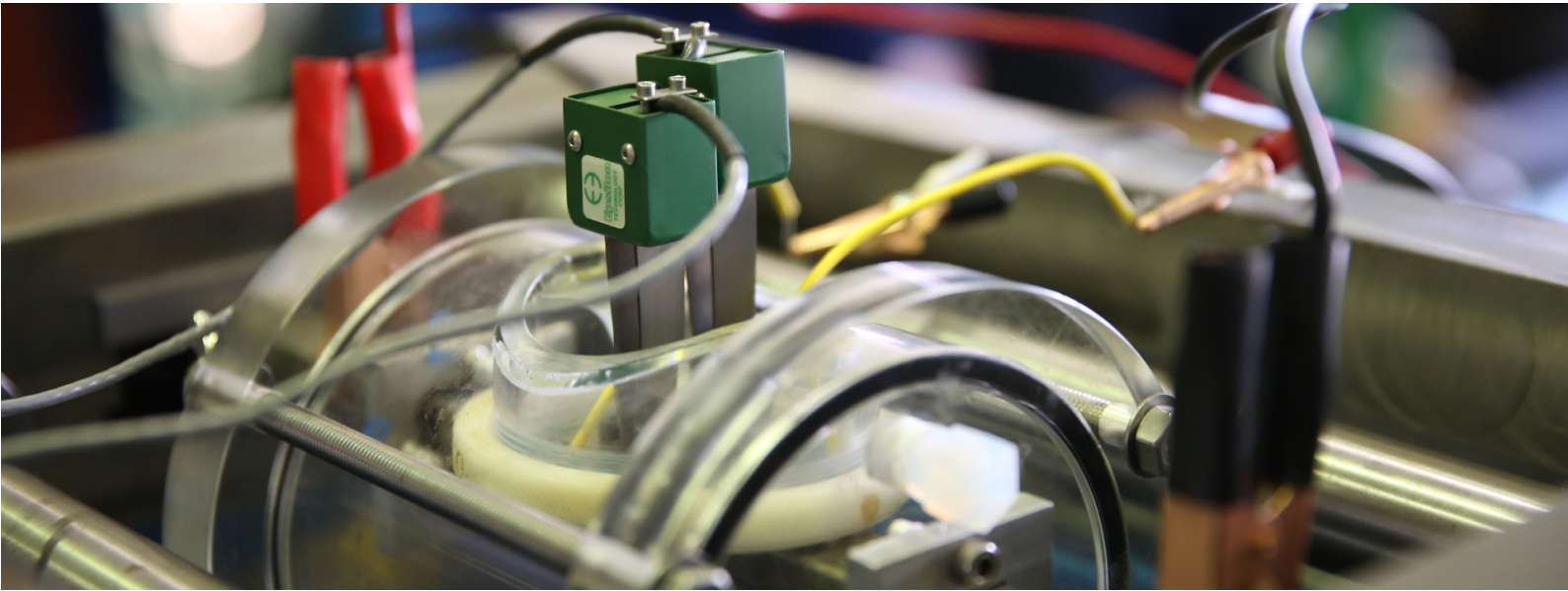
With years of continuous development in the services and facilities, the laboratory has built its unique capability in providing a broad range of laboratory-based services, from microstructure to mega-structure. There are eight key services offered by laboratory today:

- Welding Procedure Qualification (WPQT)
- Fracture Mechanics Testing (CTOD, SENB/SENT, Fatigue Test)
- Failure Investigation
- Corrosion and Sour Service Testing
- Coating Qualification
- Calibration of Instrument
- Weighing of Offshore Structure and Module
- Component and Large Scale Testing



Apart from performing standard tests, laboratory professionals are passionate in seeking innovative and customized testing solution to help customers solve the challenges rising from executing project in harsh environment. One good example of such

achievement is its development of sour SENT test which enables realistic approach in conducting Engineering Critical Assessment (ECA) for project to be operated in sour service environment.



MULTI-DISCIPLINARY TEAMS

To meet industry's need for one-stop services, the laboratory has established four well-structured and inter-independent service teams and laboratories, namely:

- Strength Laboratory
- Metallurgical and Failure Investigation Group
- Corrosion and Coating Laboratory
- Calibration, Component and Weighing Service Group

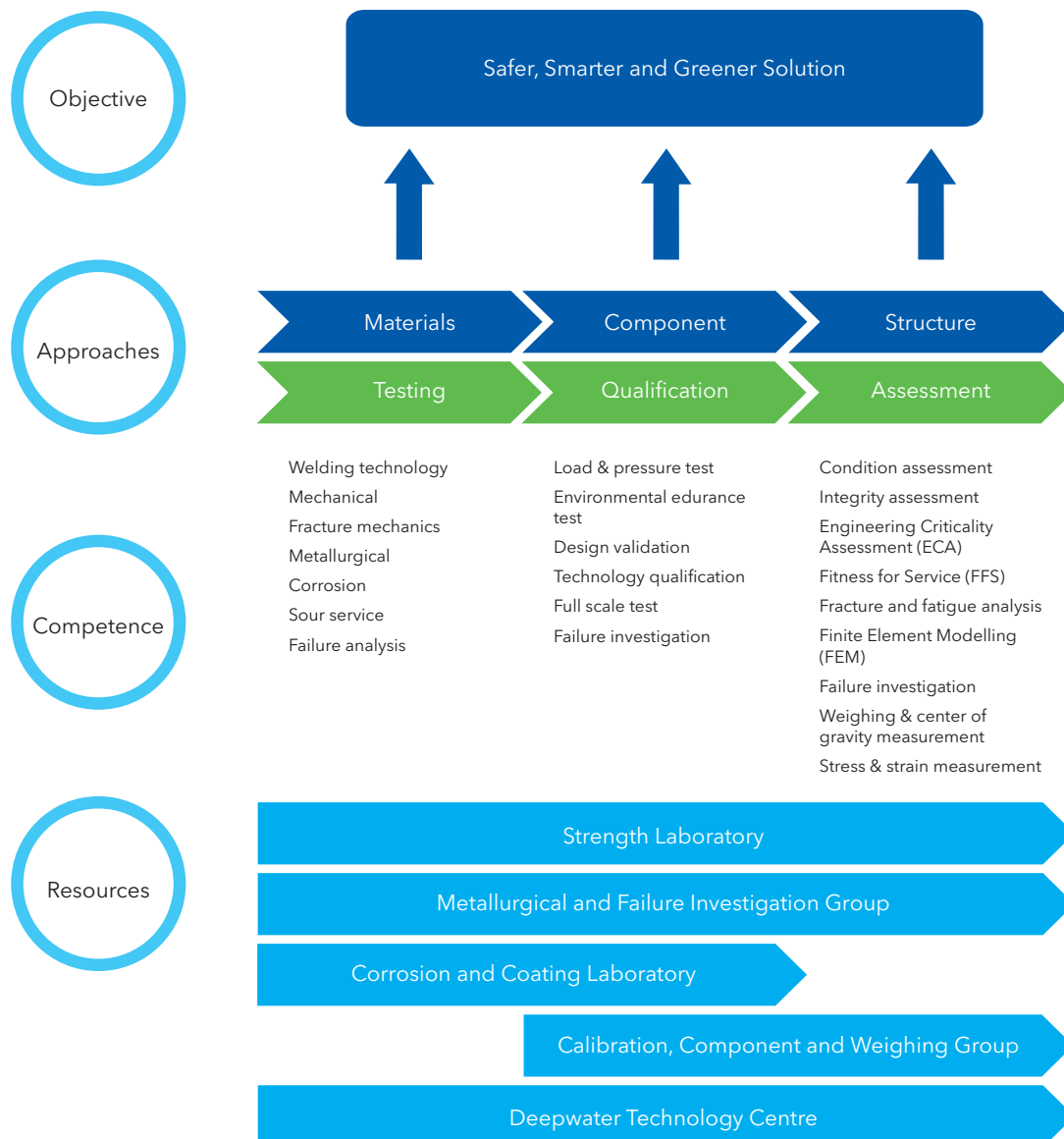
Each team and laboratory possesses unique disciplinary competency. By harnessing the multi-disciplinary and complementary technical capability, the laboratory is able to serve customers from various industries with comprehensive services from laboratory testing to field services.



INTEGRATED APPROACH

As oil & gas projects are now developed in harsher environments, there is an increasing demand to address specific material challenge faced by industry, such as condition associated with high pressure/high temperature (HP/HT), sour service, ultra deep water or arctic environment. This usually requires integrated services through one or multiple approaches: testing of materials, qualification of component and/or technical assessment of the structure/system.

Benefitting from full breath of DNV GL's technical competence, especially the recent development of DNV GL Deepwater Technology Centre located in Singapore, the laboratory services are greatly exploited and further developed with greater involvement in more complex projects as well as Joined Industry Project (JIP) for technology development.



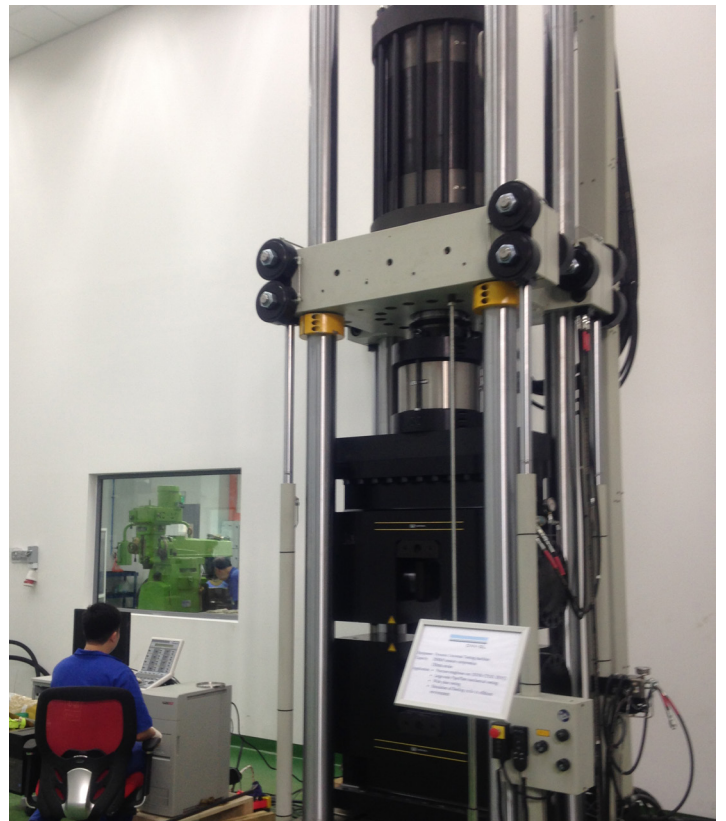


STATE-OF-THE-ART FACILITIES

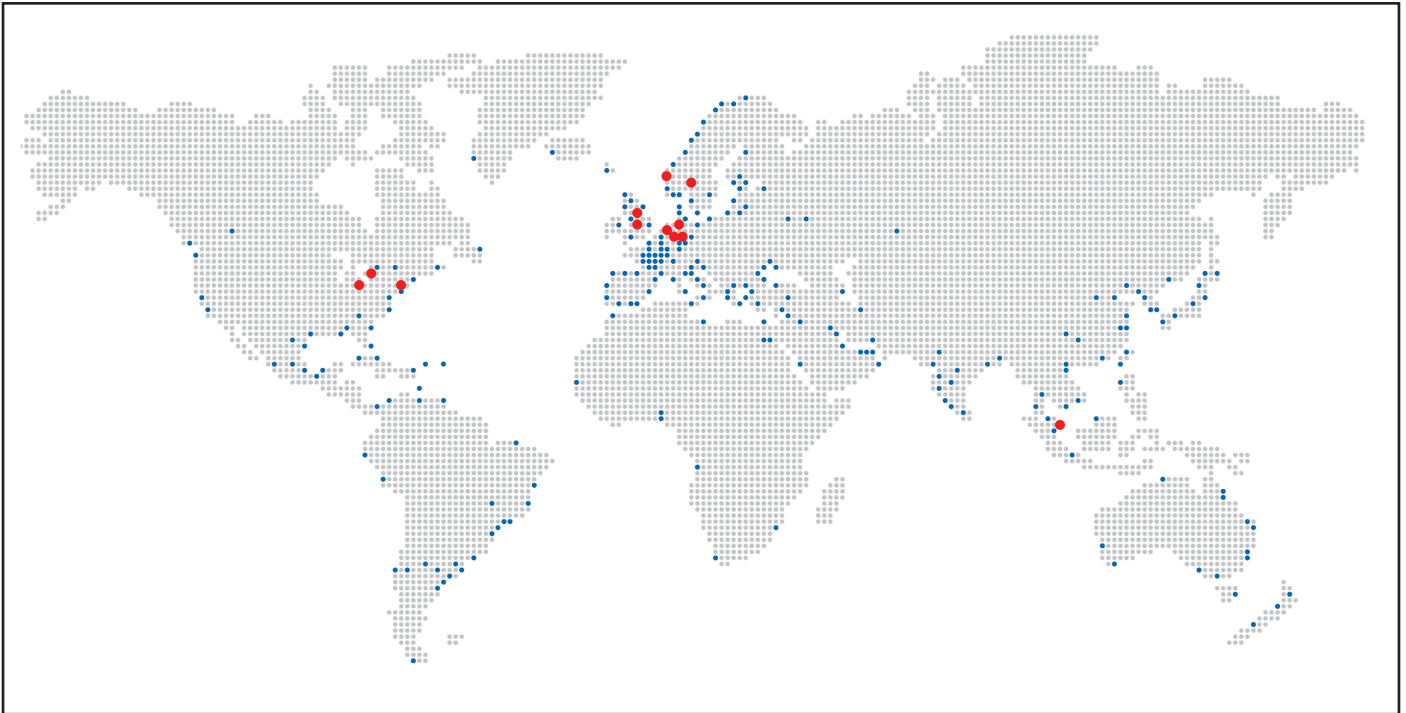
1st March 2014 marks the beginning of a new era for DNV GL Singapore Laboratory. The laboratory is now operating in a new building over 5500 square metres with state-of-the-art facilities and higher performance test machines. This has greatly enhanced the laboratory capacity to deliver high-end laboratory services and capability in technology development, further cementing DNV GL as the leading Laboratory service provider in Asia Pacific.

Some of the advanced performance test machines and facilities available in the new laboratory include:

1. Over 1200 m² testing hall - capable of accommodating large component, structure or full scale linepipe testing
2. 2500 KN Dynamic Universal Testing Machine - enable test for larger component and thicker material
3. Semi-automatic Billet Bandsaw Machine - capable of cutting up to 52" diameter pipe or 52" W x 52" H plate
4. Modern sour service testing lab with built-in safety facility by design



Worldwide DNV GL Laboratories



● DNV GL Laboratory

● DNV GL office

The Americas

Columbus, OH
Chalfont, PA
Rochester, NY

Europe

Oslo, Norway
Bergen, Norway
Spadedam, UK
Loughborough/Ambergate, UK
Hamburg, Germany
Herne, Germany
Mülheim/Ruhr, Germany
Amhem, The Netherlands

Asia Pacific

Singapore

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DNV GL

Driven by our purpose of safeguarding life, property and the environment, DNV GL enables organizations to advance the safety and sustainability of their business. We provide classification and technical assurance along with software and independent expert advisory services to the maritime, oil and gas, and energy industries. We also provide certification services to customers across a wide range of industries. Combining leading technical and operational expertise, risk methodology and in-depth industry knowledge, we empower our customers' decisions and actions with trust and confidence. We continuously invest in research and collaborative innovation to provide customers and society with operational and technological foresight. With our origins stretching back to 1864, our reach today is global. Operating in more than 100 countries, our 16,000 professionals are dedicated to helping customers make the world safer, smarter and greener.