

Subsea Testing and Research (STAR) Labs

A60N is pleased to introduce STAR labs to entities involved in subsea operations. The labs offer two subsea locations, connected to shore by power and communications cables, for equipment and technology focused, testing, monitoring, and research.



Opportunities

The A60N STAR Labs provide opportunities for testing, qualification and equipment trials.

Material testing

The performance of materials in seawater is a perpetual challenge. In-situ testing of materials presents many benefits in aiding our understanding of performance and eliminating costly operational failures.

Technology qualification

Implementation of new technology introduces risks for a variety of stakeholders. Offshore testing to increase technology readiness levels (TRLs) helps lower operational risks.

Equipment trials

Equipment problems during IMR operations can lead to costly vessel delays and safety risks. The STAR Lab sites provide offshore environments to test equipment in a safe low risk, low cost setting.

Background

Subsea equipment is becoming more complex with increased expectations of quality, functionality and reliability. These demands require ever more testing under actual subsea conditions, which are often very different in Australia to the rest of the world.

In harsh environments, such as the shallow continental shelves around the Australian coast, equipment service life is often severely reduced when compared to the design life. Typically, equipment is designed, manufactured and tested for colder environments, not accounting for some of the warm water effects seen in Australia.

The knowledge gained by testing equipment in a subsea environment will ensure better end user reliability, significantly reduce clients operating costs and provide a key differentiator for leading equipment manufacturers.

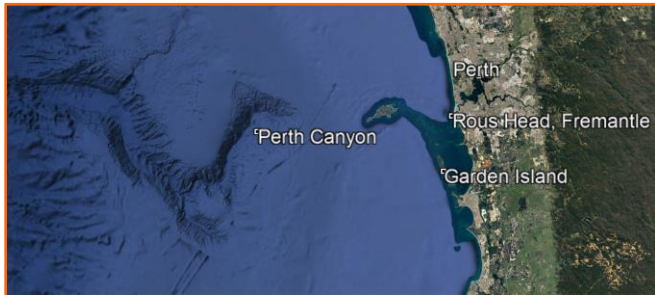


Perth and recent Australian O&G projects.

As subsea oil and gas facility operators in Australia will attest, replacing unreliable control system equipment, is one of their biggest operational costs. With intervention vessel mobilisation costs in the millions and day rates in the hundreds of thousands, robust and reliable equipment can save tens of millions of dollars in OPEX.

About the STAR Lab Facilities

The A60N STAR Labs offer testing and research opportunities in close proximity to Perth, Western Australia, the offshore oil and gas hub of Australia. The test sites are situated at Rous Head, Fremantle and Garden Island.



STAR Lab test locations in relation to Perth Canyon and Perth.

Rous Head

The Rous Head testing area is located in approximately 7 metres of water, 200 metres from the shore crossing.



Rous Head onshore facility and offshore testing area.

Garden Island

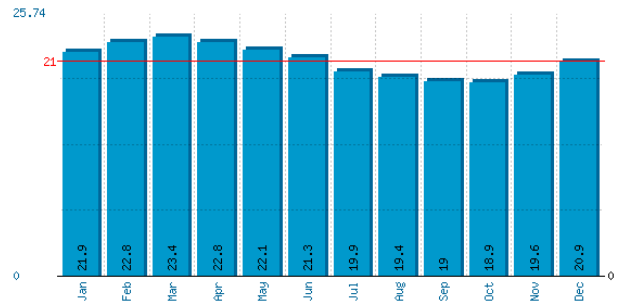
The Garden Island testing area is in approximately 25 metres of water, located 3.5 km offshore.



Garden Island onshore facility and offshore testing area.

Environment

Average surface seawater temperatures offshore Perth are summarised in the following graph. The temperatures are very similar to seabed temperatures of the Australian North-West Shelf.



Average seawater surface temperatures recorded in waters off Perth (Ref NOAA)

Local Services

A number of locally based ROV, diving and marine contractors are available for installation, inspection and retrieval of equipment. In addition, the testing sites are conveniently located close to Fremantle harbour where a range of vessels are available for hire.

Why A60N

A60N is focused on driving the continuous improvement of operations in the subsea oil and gas and wider marine industries.

Our personnel's depth of experience assists clients in the development, testing and qualification of new technologies in harsh Australian conditions.

A60N has substantial subsea material science and operational expertise. This helps develop superior technology and equipment reliability, applicable to all global regions.

A60N has an extensive network of subsea contacts which can be leveraged by clients should they wish to promote their equipment and technology.

Expressions of Interest - Subsea Materials Testing

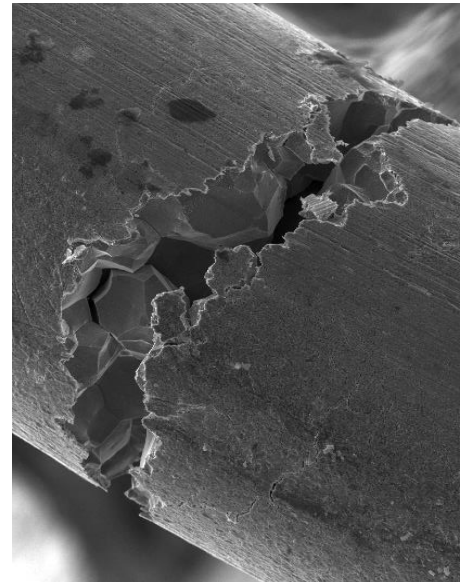
STAR Labs

Tracing any equipment failure back to its root cause, will reveal a material failing to perform under planned or unplanned conditions.

The boundaries of traditional engineering alloys, as well as our understanding of the underlying degradation mechanisms that lead to failure of these, is constantly being challenged by new and more demanding projects.

The STAR Labs provide opportunities for monitoring, measurement and inspection of materials, component and systems performance, under real life conditions in real time that cannot be replicated in an onshore laboratory.

STAR Labs testing helps eliminate the risks of costly offshore operational failures during commissioning, start-up and operations in a variety of conditions.



STAR Labs offers an extensive range of opportunities for materials testing, including but not limited to:

- External seawater corrosion of components
- Protective coating long term performance evaluations
- Subsea protective coatings application evaluations
- Internal corrosion due to wet parking, including exposure to corrosive microbial media
- Galvanic corrosion of material combinations exposed to raw seawater
- Environmental cracking of components exposed to seawater and stress (residual or applied), including hydrogen embrittlement of components exposed to excessive cathodic protection



Once testing has concluded, analysis can be conducted at world class local facilities or the material samples can be shipped to any chosen global test facility.

Expressions of Interest

A60N, as operator of the STAR Labs, would be pleased to hear from you to discuss your needs and address any questions. Email starlabs@a60n.com or contact the following personnel:

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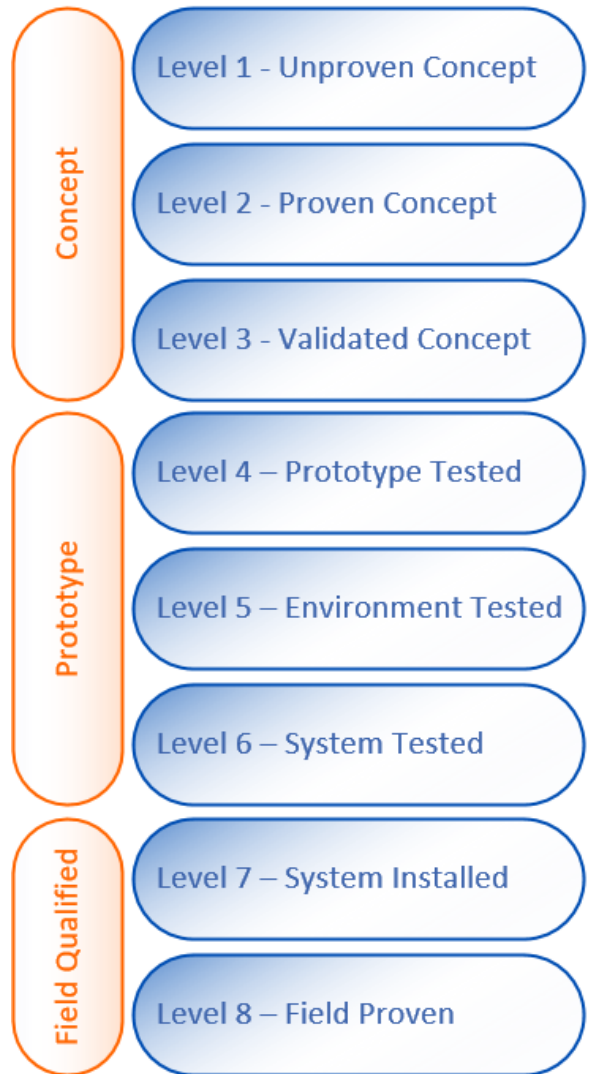
Expressions of Interest - Technology Testing and Qualification

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Technology Readiness Levels (TRL) are used to determine the maturity of a technology (see right). STAR Labs is ideally suited to assist new technologies advance through the prototype phase of the technology readiness levels by offering long term testing in real life subsea conditions with power and communications.



Due to the vast difference in subsea conditions found between traditional technology producing regions such as Northern Europe and GOM, field proven equipment has performed poorly and failed prematurely when used in Australia. By qualifying equipment in Perth, Australia, local to the oil and gas operators, technology vendors will be able to prove the reliability of their equipment and actively demonstrate this to potential clients.



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