



“Time is money” – Reducing Cost in Locating Seabed Assets



Subsea Asset Location Technologies Limited (SALT)

Whether installing new equipment, making a repair, or completing routine maintenance, working on the seabed is rarely a low cost exercise. When the programme requires the hiring of surface working platforms or submersibles, then time becomes money. This pressure, to deliver in a timely fashion, increases markedly when shut-in production is involved.

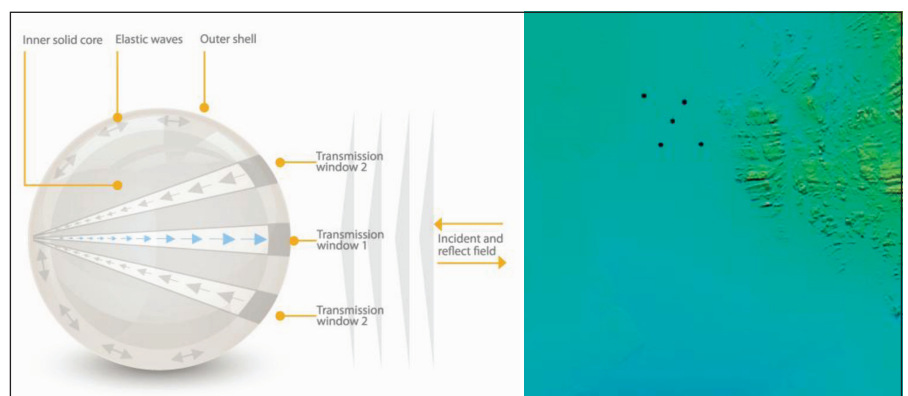
There are many factors which determine the cost of underwater operations; engineering complexity, weather conditions, and water depth included. Over the years, offshore engineers have delivered remarkable results, the previously impossible becoming the norm; however, wind and weather remain factors outside their control.

Advances in transponder technology, and high accuracy GPS / Inertial Navigation have all contributed to improvements in offshore capability, but it remains a fact that as the water gets deeper, the more difficult the task of finding the right asset or location becomes. All technology has its positive and negative aspects; transponders provide a wealth of possibilities, but require battery replacement over time, a GPS / Inertial Navigation system provides a good solution when the dive is short-lived, but accuracy can drift over time. As a result, the industry is a natural starting place for complementary new technology, a trend encouraged by bodies such as the Industry Technology Facilitator (ITF).

There is now another product option to add to the mix: the ‘SonarBell™’ Passive Sonar Reflector.

THE SCIENCE

The technology was developed by the UK MOD, and subsequently licensed to SALT for further development; it is currently the subject of interest from a



number Navies around the world, but has widespread applicability throughout the sub-surface arena.

The SonarBell™ operates by focusing and re-radiating sound energy, much as a lens or mirror can focus light, and just like a lens or mirror, SonarBell™ is a completely passive device.

By focusing and re-radiating the sound energy back in the direction from where it came, a 200mm SonarBell™ can deliver the same sonar target strength as a 2m diameter metal sphere, whilst being light in weight, and easy to handle and attach.

However, unlike other technologies used for asset location, SonarBell™ does not suffer from either the “now you see it, now you don’t” of corner reflectors, nor does it require the battery replacement cycle of transponders.

SonarBell™ - The Facts:

- Omni-directional, non-magnetic and completely passive device
- Delivers long-life with no routine battery replacement
- Can be made to have, Single, Multiple or Broadband optimised sonar response from 50 to 900kHz
- Visible at up to 2km, dependant on:
 - sonar frequency (higher frequency - shorter range)

5 SonarBells in a pattern in 130m of water

- size of SonarBell™ (Ø50 to 200mm currently available)
- sonar power
- Anti-fouling can be applied for shallow water operation
- Easily deployed and recovered (technology currently limited to 2500 metres)
- Individually calibrated

The technology is compatible with all types of sonar, from hull mounted mine-hunting and side-scan devices at one end of the scale, to fish-finders and echosounders at the other. It works equally well with AUV/UUV and hand-held sonar for work done at close ranges.

VALUE PROPOSITION

Currently if an asset is sufficiently valuable to mark with a transponder, then the organisation simply has to accept the Capital Expenditure (CapEx) of typically \$8k to \$40k, and an Operational Expenditure (OpEx) to cover battery replacement as part of the continuing overhead for that application.

SonarBell™ provides a substantially lower Total Cost of Ownership (TCO)



alternative, a viable position marker that does not require battery replacement. Lowering the TCO moves the economic argument for marking assets or locations substantially in favour of more widespread application.

This presents the industry with a new and exciting opportunity to review current practices, and deliver long term savings to its client base.

“Improved intervention times, reduced asset loss and better asset surveillance can all result in reduced cost”

In short, whilst the SonarBell™ cannot replace the transponders as a tool within the engineers “kit bag”, particularly where the transponder signal carries additional technical data, it does open up opportunities to save cost in areas where a transponder may be, ‘over engineered’ for the job in hand. SonarBell™ can even be used in conjunction with a transponder to extend the operational cycle between battery replacements.

USAGE

SonarBell™ is a simple technology with wide ranging applicability; to date, SALT has had enquiries from engineers and operators ranging across the whole offshore life-cycle including:

- Site work-up
 - Seismic survey - Streamer tracking and recovery
 - Landing zone marking
 - Boundary / sector marking
 - Sonar survey enabling - side scan sonar
 - Equipment landing site marking
 - S / J lay marking for pipelines / cables
- Site maintenance, intervention and monitoring
 - UAV monitoring, operational and servicing
 - Riser and hot pipe monitoring
 - Pipe and cable (burial depth, un-buried and undercut monitoring)
- Site Decommissioning
 - Full equipment recovery

- Long-term decommissioned well marking

“Statistics show that whilst marine traffic accounts for only 14 per cent of pipeline failures (most being corrosion), it accounts for 95 per cent of the resultant pollution”.

With increased environmental sensitivity will come increased pressure to make the active marking of marine hazards mandatory; at that point, passive devices such as SonarBell™ will be uniquely positioned to deliver the required solution.

FUTURE DEVELOPMENT

SALT continues to develop the SonarBell™ technology; why not look at what the latest defence-derived technology can do to help your business save time and money. ■



Pioneers of the SonarBell™

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SonarBell™

A new and exciting opportunity to review current practices and deliver long term savings to your clients



- ➔ Omni-directional passive device
- ➔ Long-term asset location with no battery required
- ➔ Visible at up to 2km dependant on sonar frequency, size of SonarBell™ and sonar power
- ➔ Anti-fouling applicable

- ➔ Easily deployed and recovered max 2500m depth
- ➔ Compatible with all types of sonar from side-scan to fish finder
- ➔ Single, Multiple or Broadband optimised sonar response from 50 to 900kHz

Asset Location Has Never Been Easier

Improved intervention times, reduced asset loss and better asset surveillance can all result in reduced cost



A technology developed by UK MOD and licensed to SALT

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