

Assure[®]

Pump-down, Fast Acting, Impermeable, Self-Healing Barriers.

Resolute Energy Solutions

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An NZTC TechX Pioneer

Assure[®] EPG



Carrier/Spacer Fluid



Polymer



Reaction Fluid

Assure[®] EPG: Expanding Polymer Grain

Pump-down barrier solutions

Expanding, non-shrinking, pressure resistant

Fast Acting - Practically Instant.

- Deployed as “Dry” particles in Carrier Fluid.
- Impermeable to Oils, Waters & Gases.
- Small Footprint, and same material for primary and backup
- Seal spaces from small pathway to full bore diameter.
- Flexible, firm & self healing once activated.
- Can swell to 400 times size in reaction fluid.
- 200°C+ temperature capability.
- Environmentally friendly and non-toxic.
- Works in horizontals (700m isolated successfully).
- Proven in wells onshore and offshore



Tubing Seal

EPG particles and liquids set to form rubberised, flexible and self-healing seal sections, filled to their constraints.



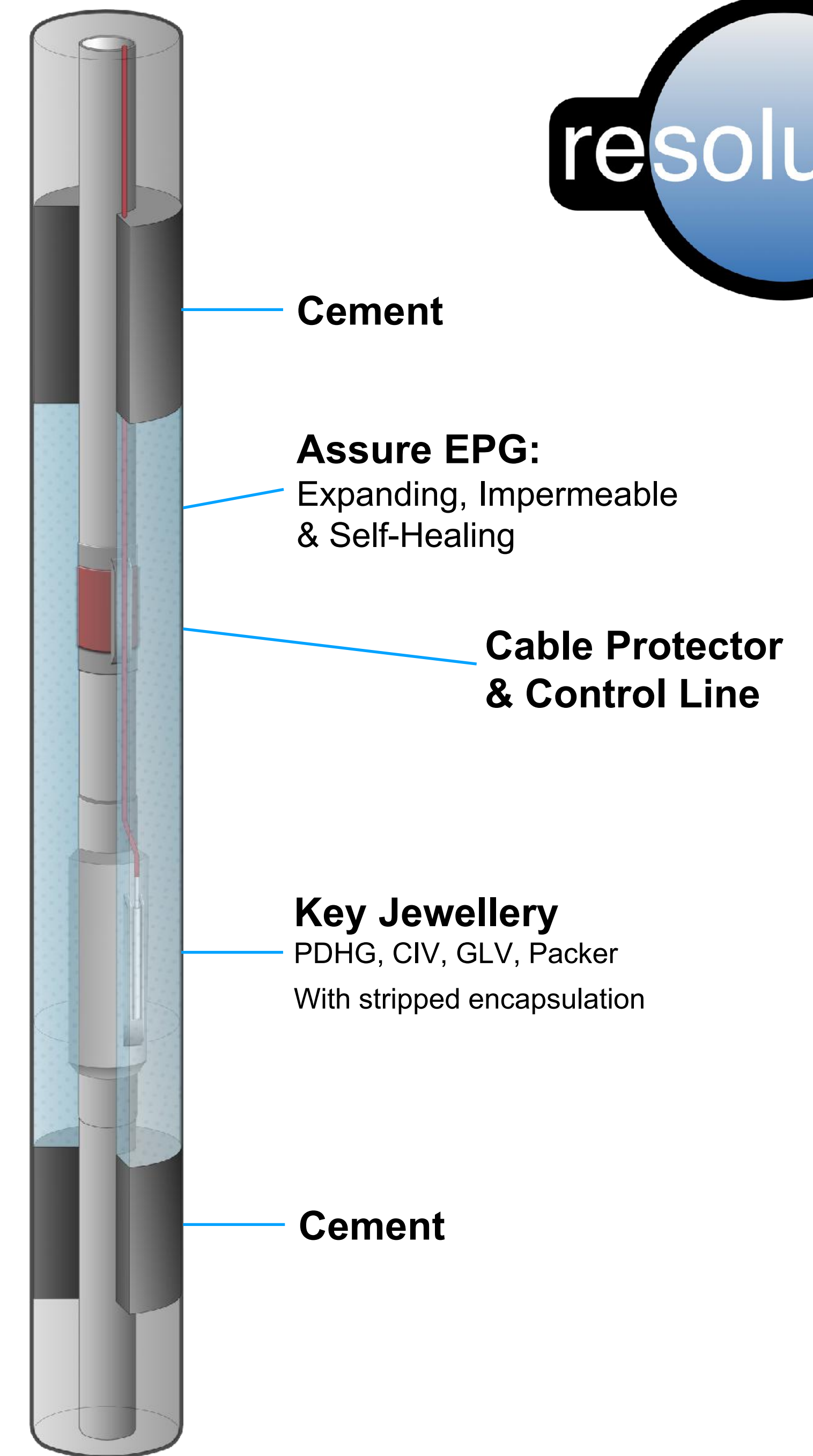
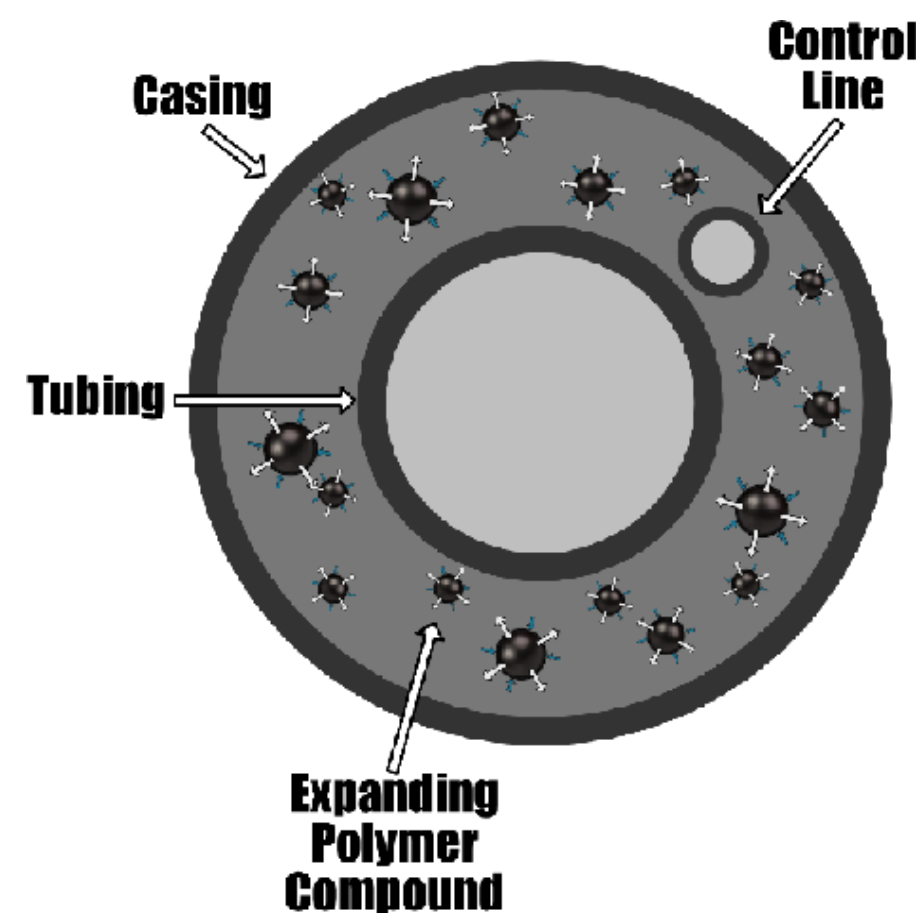
Annular Seal

Development: Control Line Sealing

Full Annular Isolation - Leave Tubulars In Place

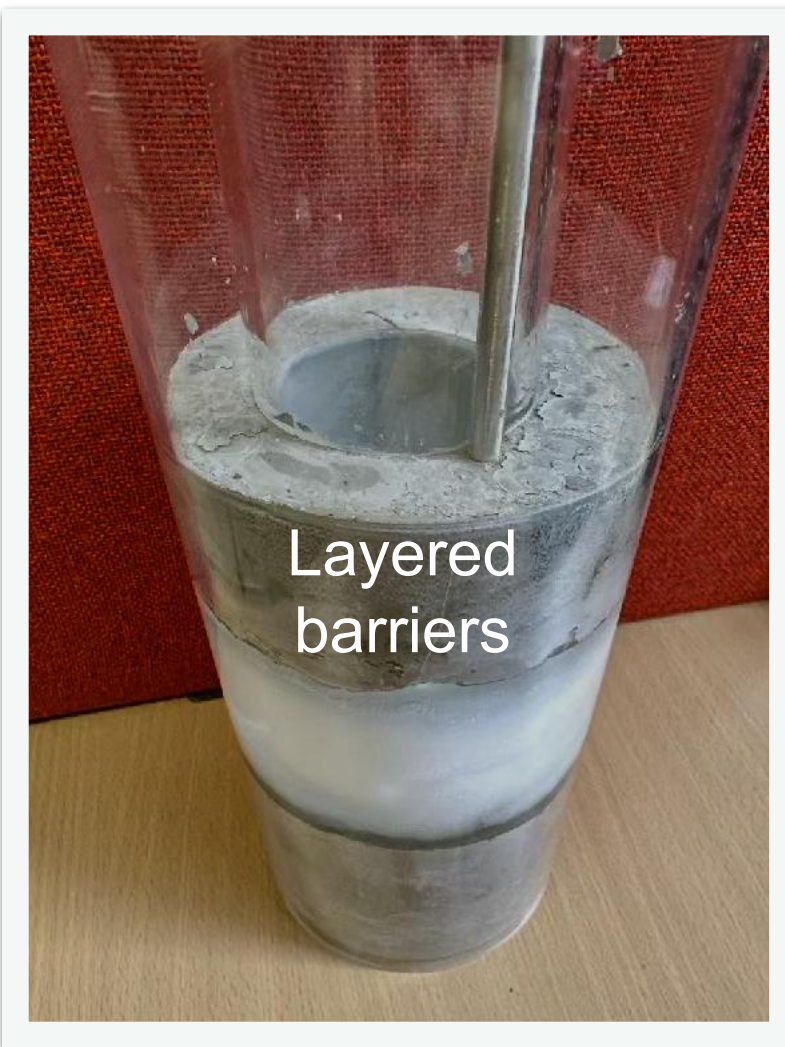
Layered sections of EPG and cement to provide a 'best of both worlds' seal around control lines and clamps.

The solid, strong nature of cement, with the dynamic, highly expanding & impermeable nature of EPG.



Development: Control Line Sealing

Full Annular Isolation - Leave Tubulars In Place



Advantages:

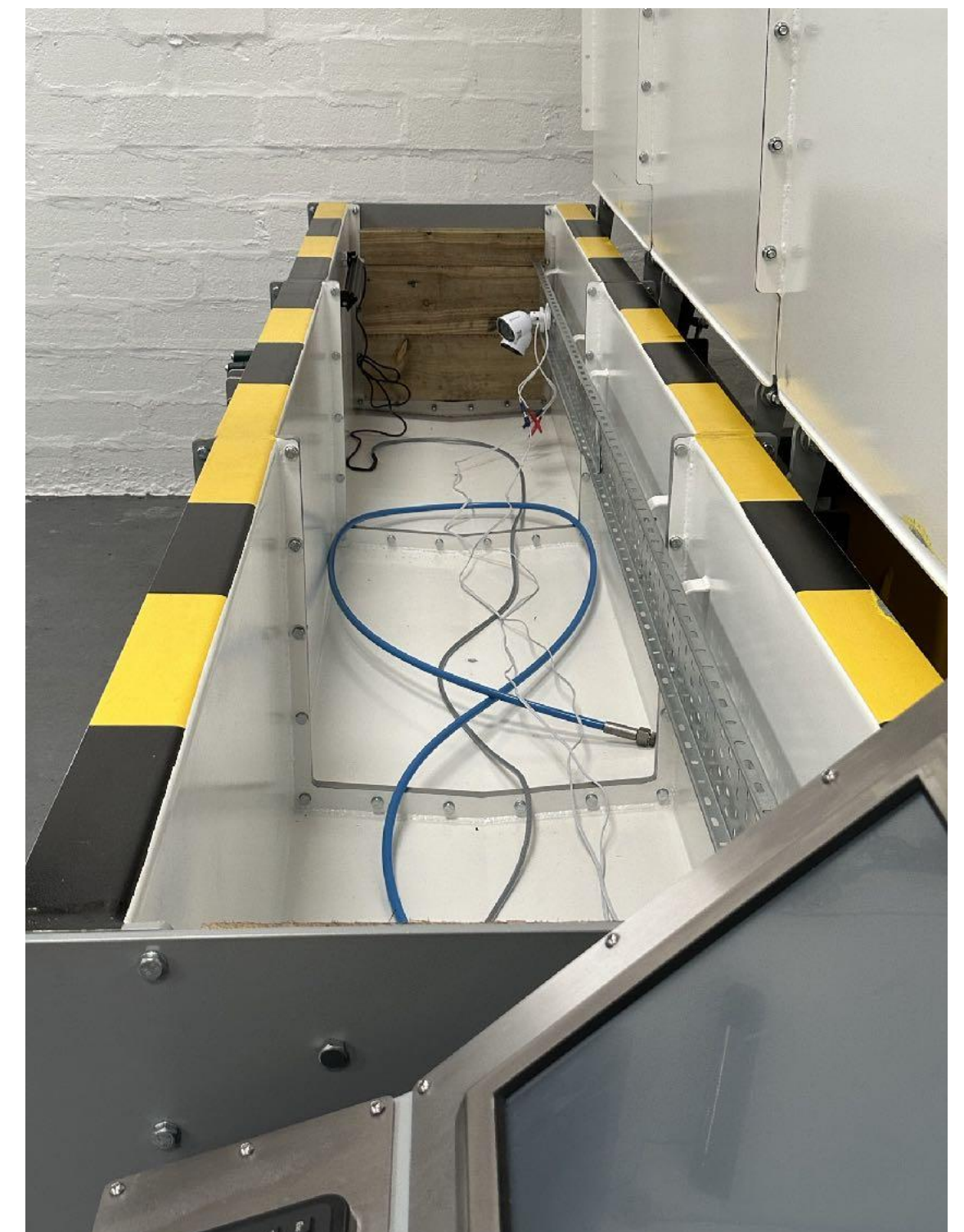
- Tandem solid state/dynamic barrier
- EPG layer is super-expanding, and contained between solid layers
- Seal around control lines, cable protectors
- Leave tubulars in-situ
- Cut known rig time by days - save \$m's
- Remove uncertainty over days (e.g. no milling out packers)
- Cut emissions by 30,000 to 50,000 litres of diesel use per day saved for MODU wells

5 days of rig fuel = taking >300 cars off the road for a year

In-house Barrier Test System

For R&D and field simulation works.

- 10,000psi pressure testing.
- High temperature capability.
- Fast test - adapt - repeat capability in house.
- New technology development: TRL level pathway in-house.
- Onshore simulation of P&A before field deployments.



Thank You

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