ROCKSOLID™ THERMITE-BASED BARRIER

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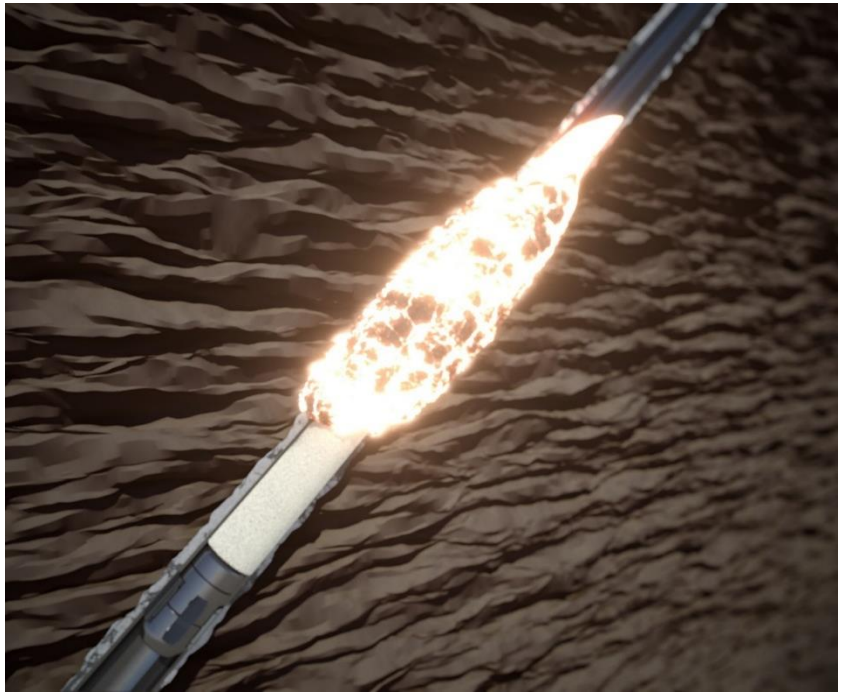
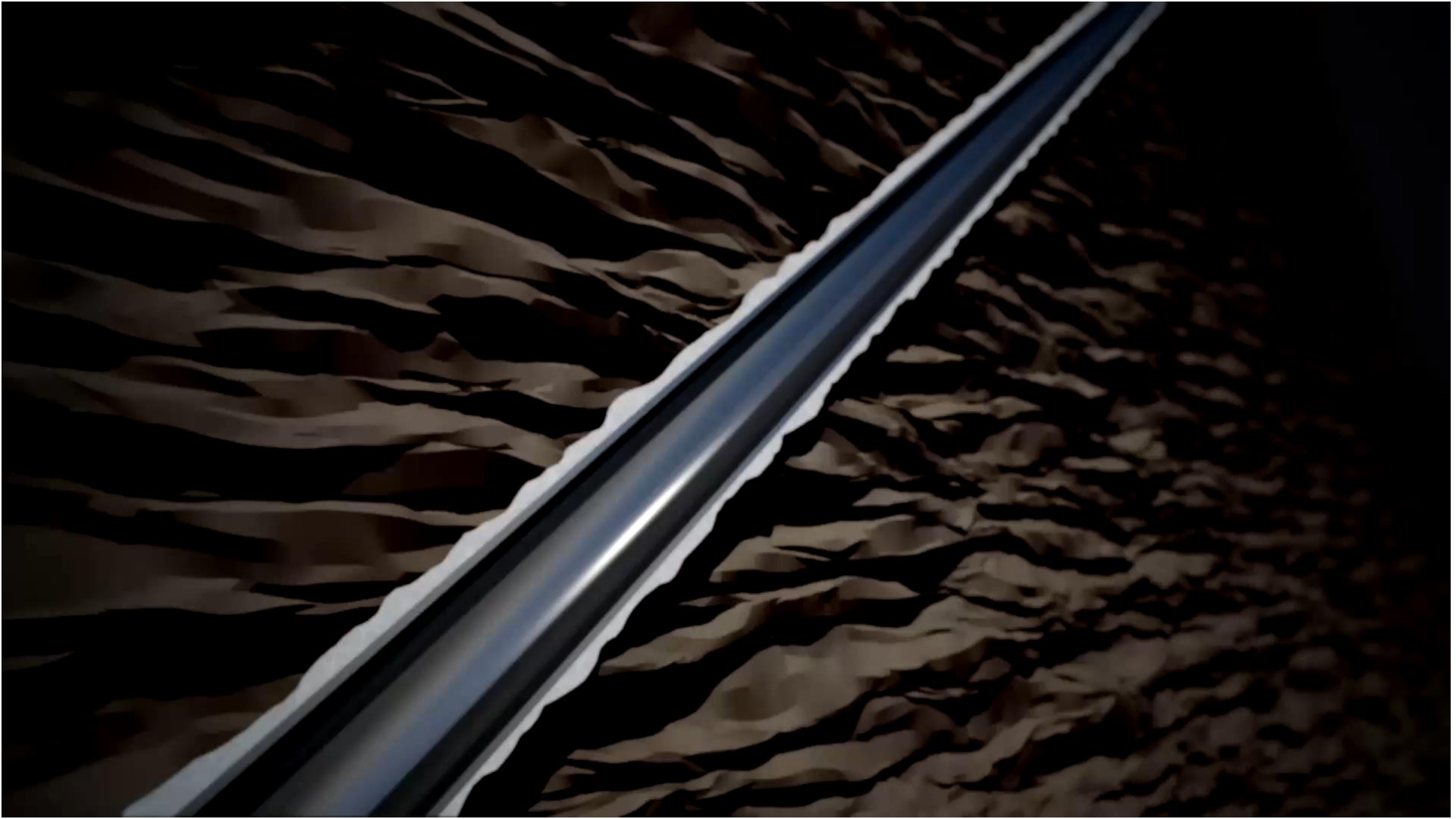
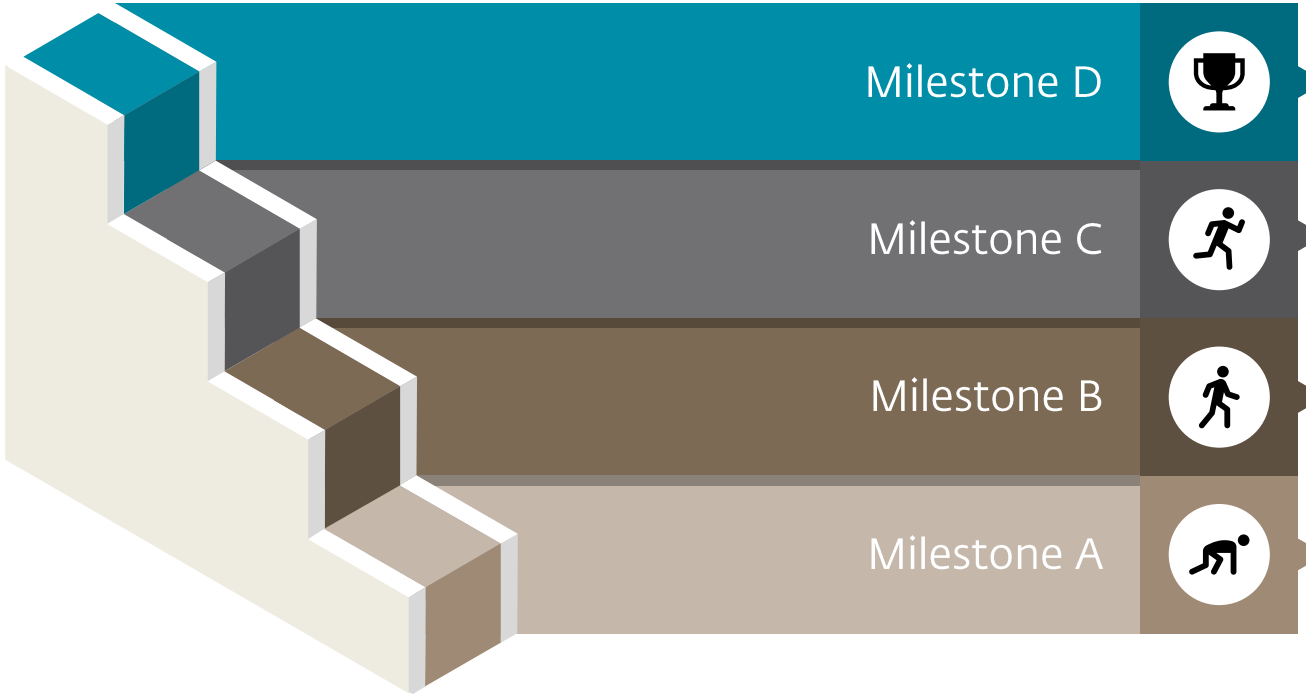
INTERWELL P&A CONCEPT - RockSolid™

- Our vision is to reinstate caprock integrity permanently across the well cross section, sealing vertically and horizontally, independent of well design, application and formation type; first time, every time.
- The targeted and controlled exothermic reaction acts like magma: melting surrounding well elements, flowing and then solidifying back to solid rock again.
- Ongoing rig-less deployments have confirmed its potential to be more cost effective, sustainable and safer than P&A methods available today.
- The cap rock formation is again restored to its original integrity.





RockSolid™; technology staircase



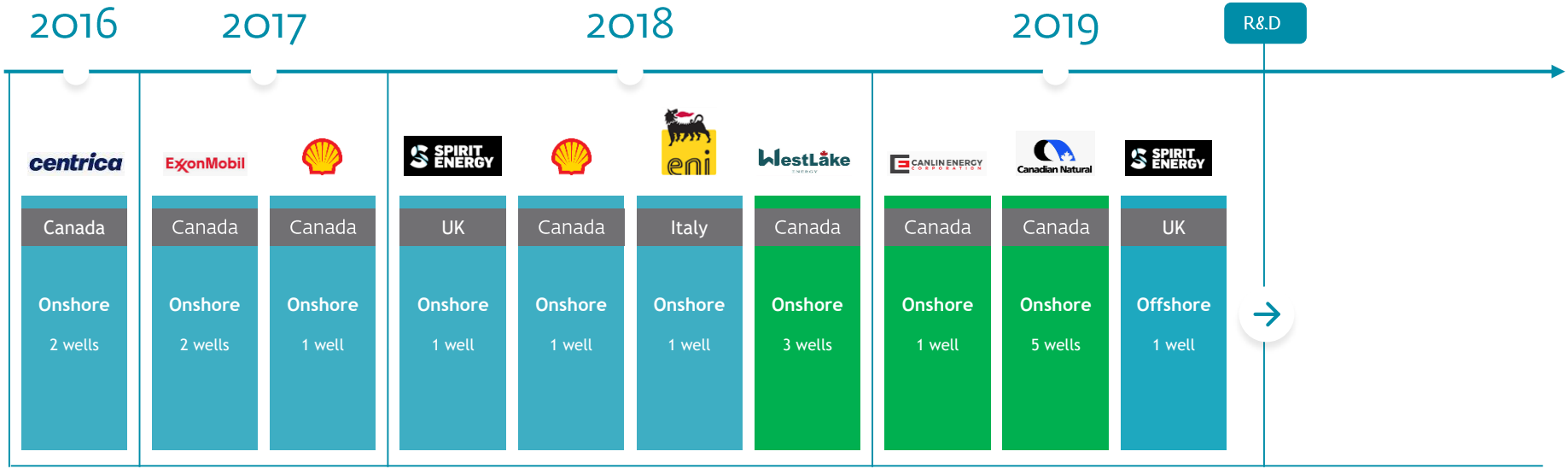
Qualified & efficient for all applications

Increase setting range:
- Thru-tubing/ multistring
- True rig-less P&A on wireline
- CCS applicability

Qualify deep-set barrier
Proven alternative to:
- Section milling
- Perf-Wash-Cement
- Punch & Squeeze

SCVF trials to verify host rock bond & qualify technology

Completed field trials



1. No safety issues
2. Proven ability to melt casing
3. Proven ability to seal off the reservoir

SCVF/ SCP applications

Field trial results so far

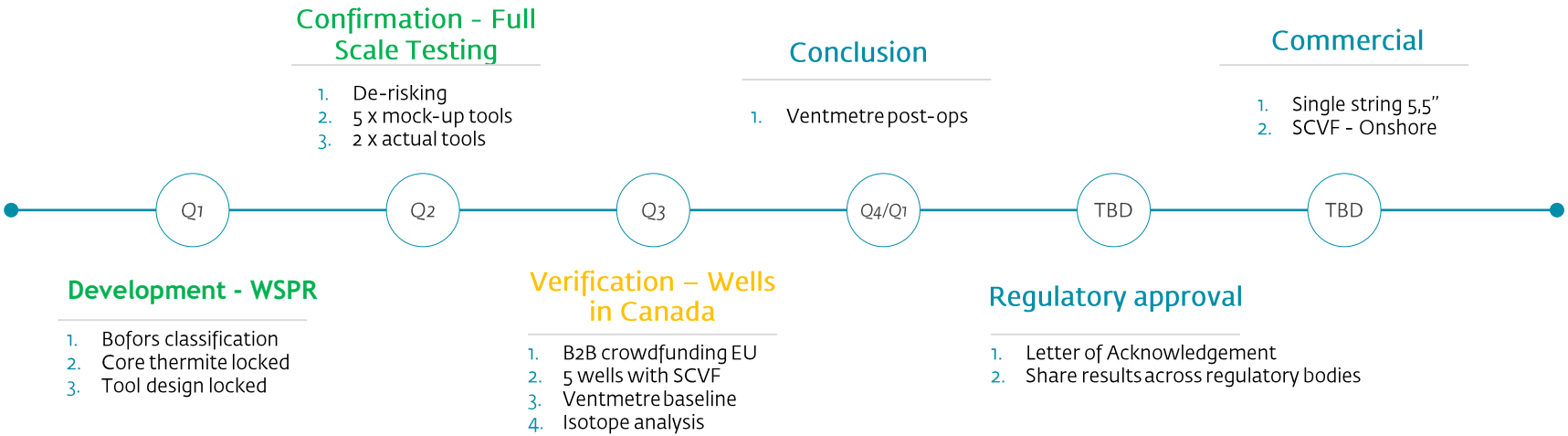
- 18 wells done to date with Well Thermite

- 9 reservoir barriers
  - 100% success in shutting of the reservoir
  - Mainly due to the iron part welding to the casing from below
  - Does not speak to the sealing properties towards the caprock

- 9 wells with Surface Casing Vent Flow
  - 2 wells with 100% reduction (cut & cap)
  - 3 with 99% reduction in flow; bubble test to be done
  - 1 with 67% reduction
  - 1 with 50% reduction
  - 2 with 0% reduction

- Viable concept, but not robust enough

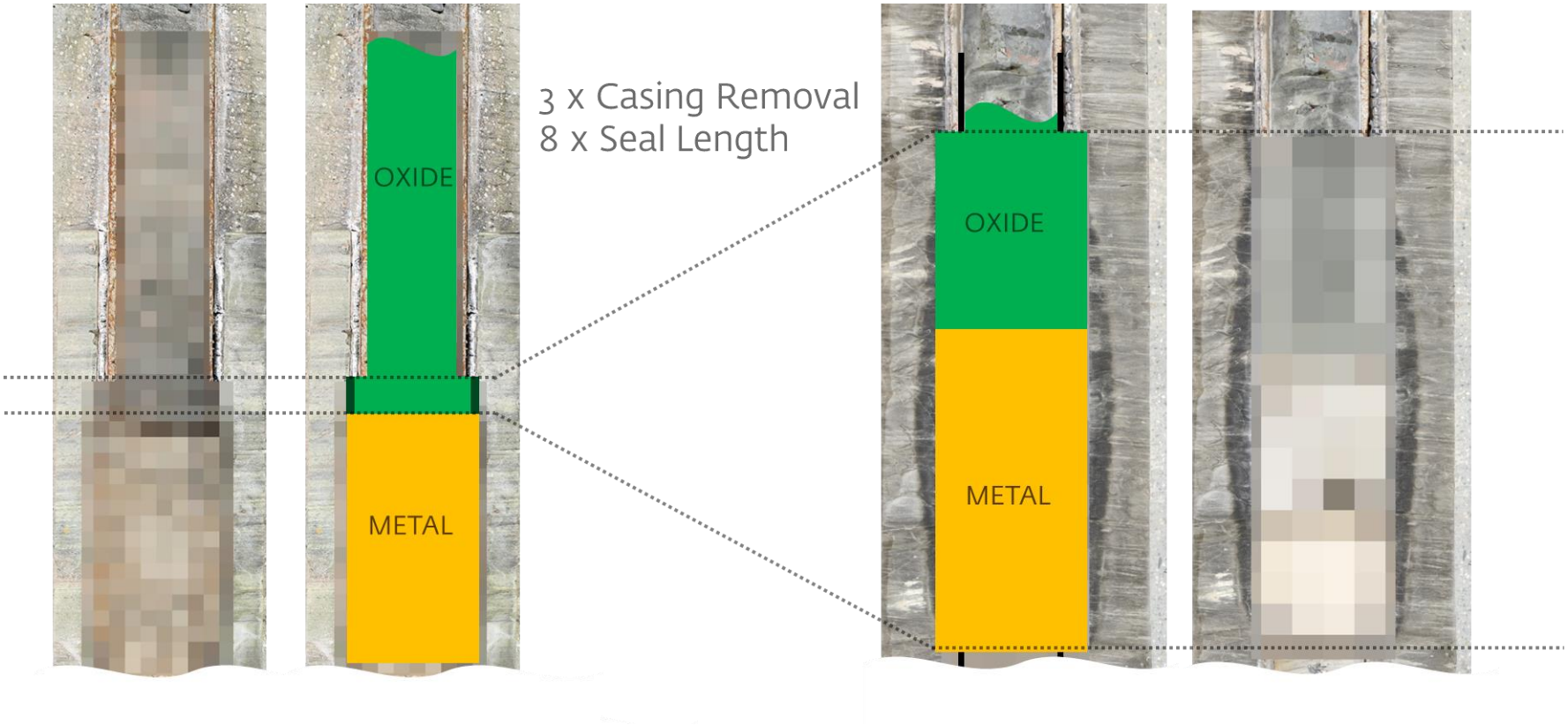
Milestone A – sub-levels 2020



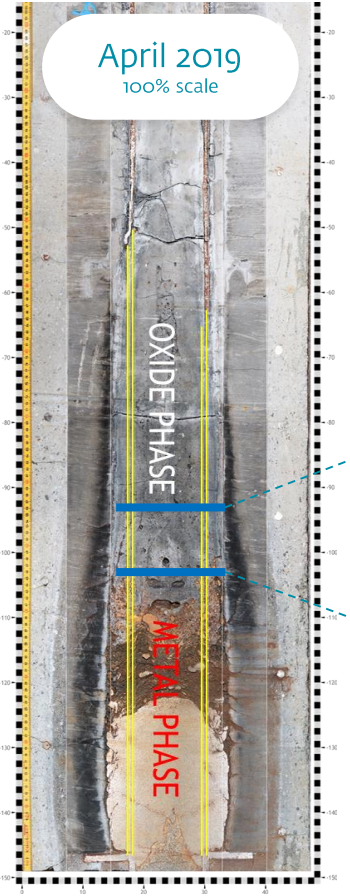
Successful milestone A leads to:

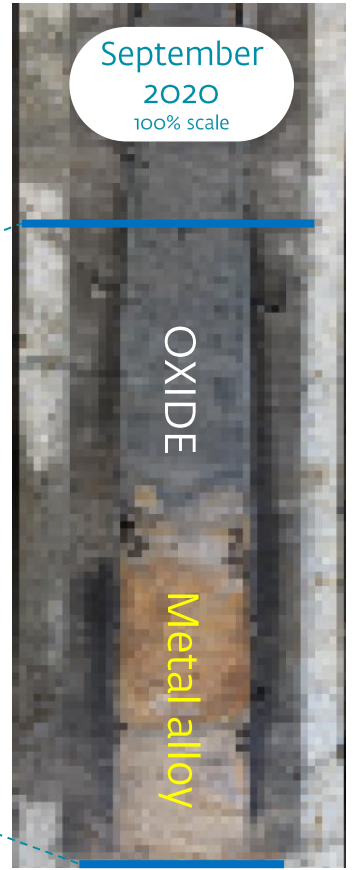
- Increase development envelope
- Commecial deployments single string

TRL 5 testing 2018 -19

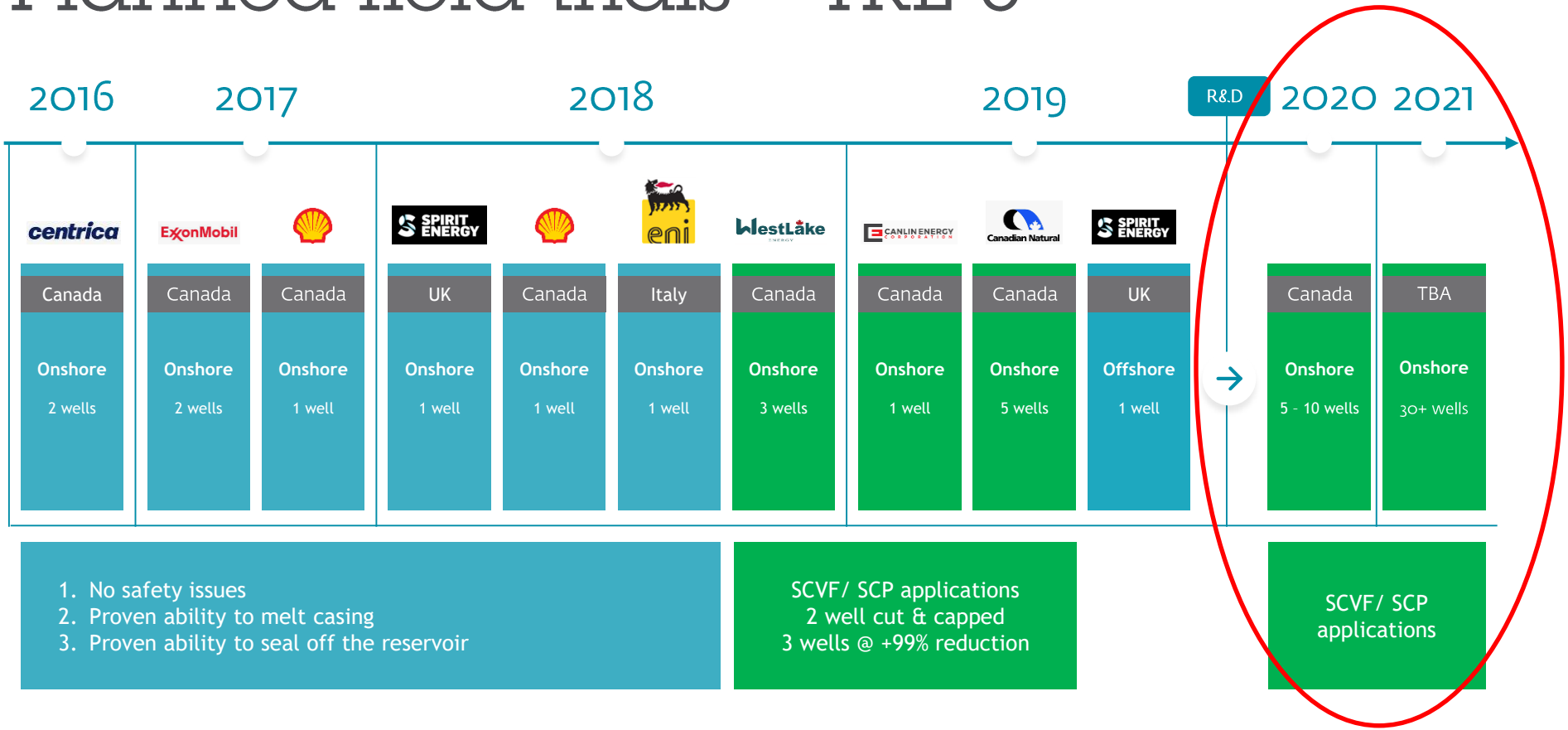


TRL 6/7 testing 2019 -20





Planned field trials – TRL 8



Suitability towards CCS

We have initiated a joint project to quantify the barrier properties beyond the current context.

The caprock effect
- Reduce uncertainty about how the thermite barrier affects, or can be affected by caprocks of different realistic mineralogical compositions and geomechanical properties.

Verify the sealing effect
- Verify and qualify the gas seal efficiency of the thermite barrier under a series of simulated expected well conditions.

Barrier stability and durability
- Characterize and qualify the temporal chemical and mechanical stability of barrier elements against a number of expected well fluids, as well as probable geomechanical load.

Verification and qualification for and in well operations
- Develop methods, processes and results for use in verification and qualification of barrier application in well operations.


THANK YOU!