

GEOSHOT NZ

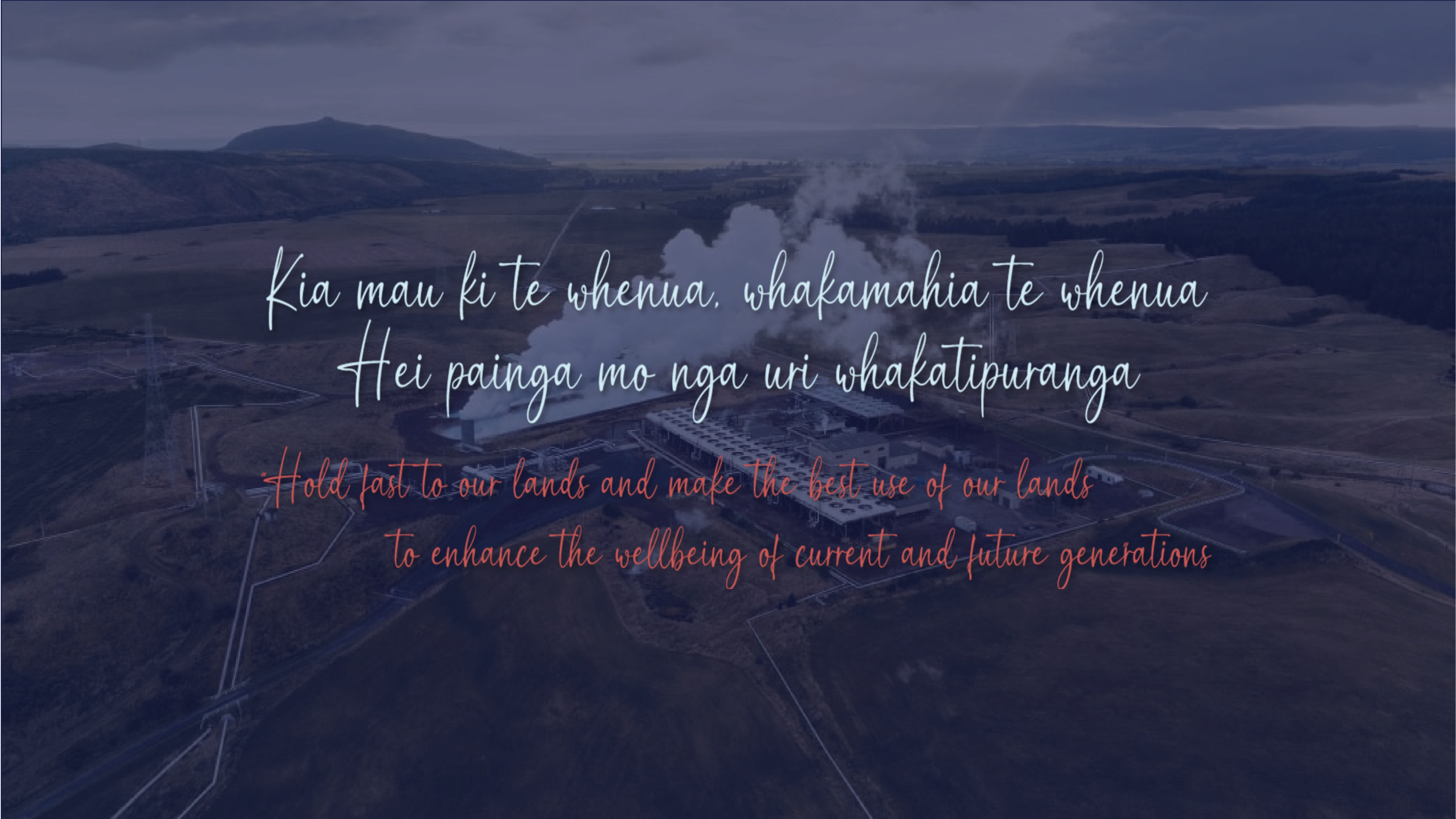
Harnessing the power beneath our feet



Kānoa
Regional Economic Development
& Investment Unit

Why superhot? Why now?

Hon. Tim Groser
Chair, GeoShot NZ Governance Group



Kia mau ki te whenua, whakamahia te whenua
Hei painga mo nga uri whakatipuranga

*"Hold fast to our lands and make the best use of our lands
to enhance the wellbeing of current and future generations"*



Robert Rankin
Project Director



Dr. Paul Siratovich
Geoscience Lead



Ralph Winmill
Well Design Lead

Geothermal Strategy

From the Ground Up: A strategy to unlock New Zealand's geothermal potential

Research

Next Generation Project
2019 - \$10.6m

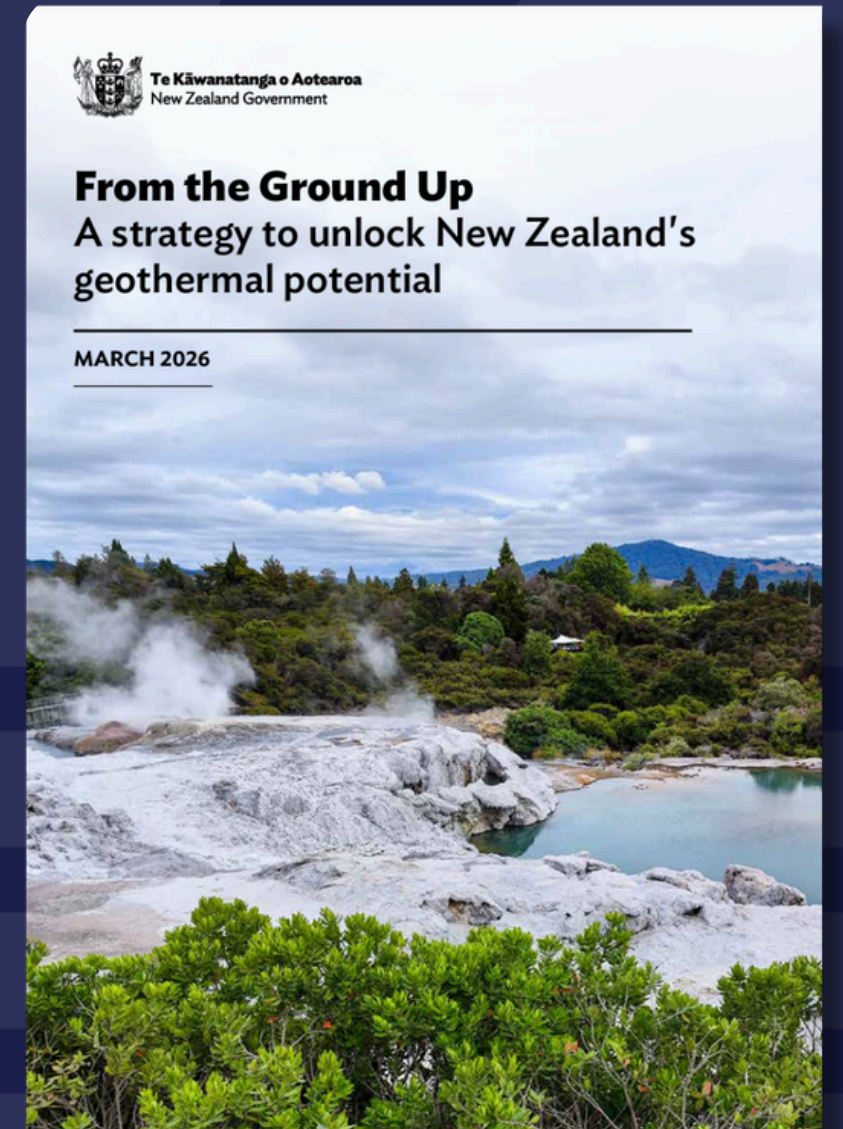
DeepHeat Project
2025 - \$10.69m

Delivery

GeoShot NZ Well 1
2024 - \$60m

Exploratory Well 2

Exploratory Well 3





**Drill safely to encounter
superhot geothermal
conditions.**



**Understand the
superhot geothermal
resource.**



**Understand the pathway to
commercialisation.**

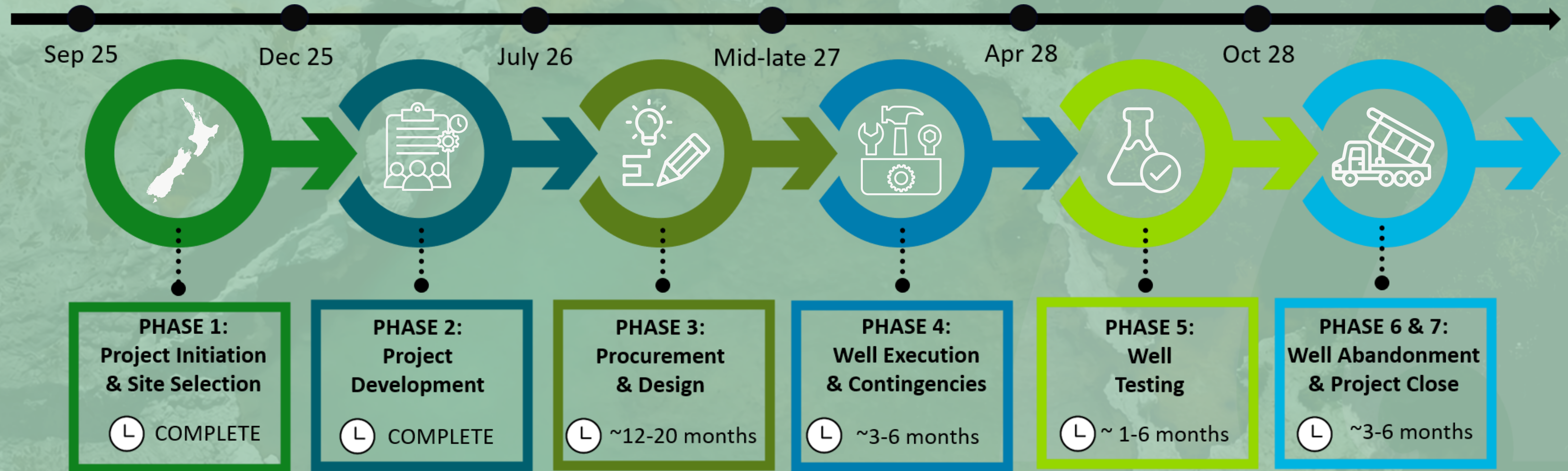


**Collaborate and
share learnings.**

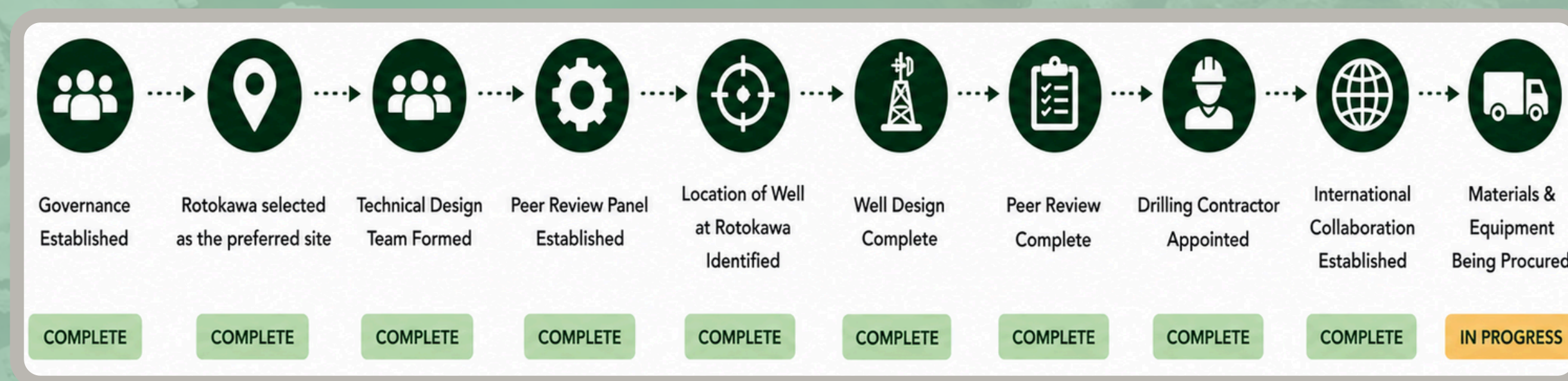


**Deliver the
project safely and
efficiently.**

Project Timeframe



MILESTONES COMPLETED



GOVERNANCE GROUP



Hon. Tim Groser



Dr. Charlotte Severne



Jason Hollingworth



Dr. Keith Turner

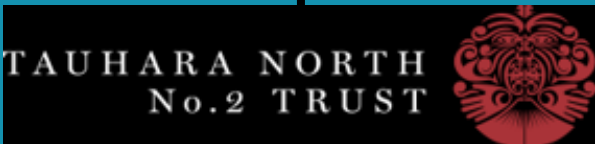


MINISTRY OF BUSINESS,
INNOVATION & EMPLOYMENT
HĪKINA WHAKATUTUKI

PROJECT PARTNERS



TECHNICAL TEAM



Science Advisor



Geoscience



Well Engineering



Lead Contractor



Well Testing

INTERNATIONAL PEER REVIEW PANEL



Chair - Prof.
Roland Horne



Darrell
Gallup



Kristinn
Ingason



Omar
Fridleifsson

DESIGN REVIEWS

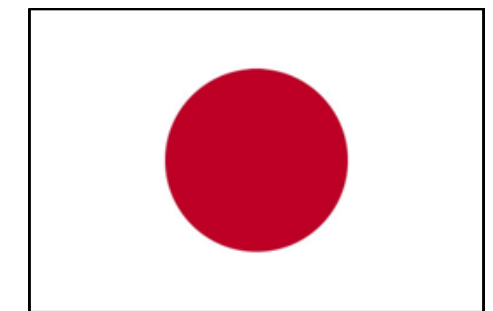


BOUR CONSULTING

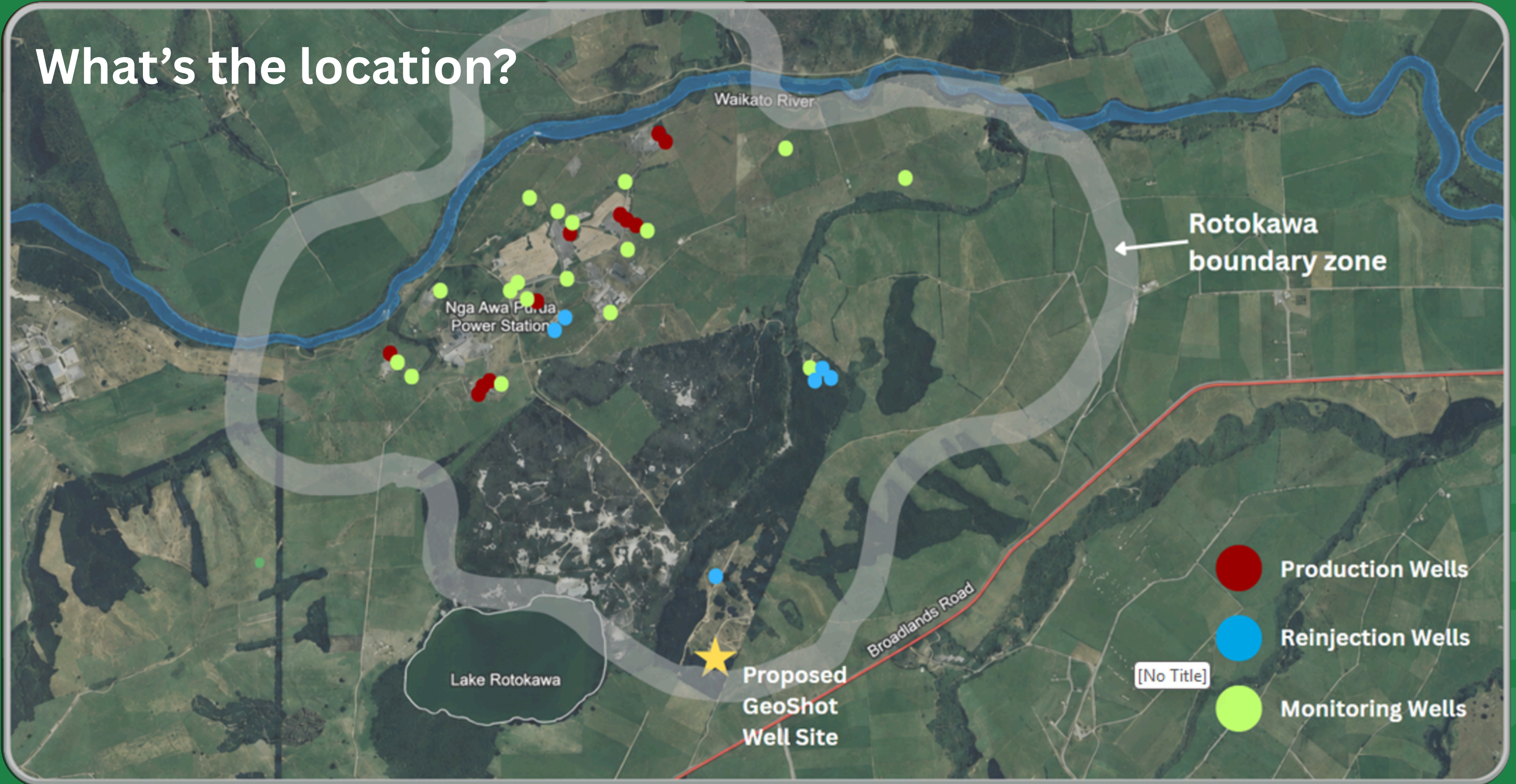
TECHNICAL COLLABORATION



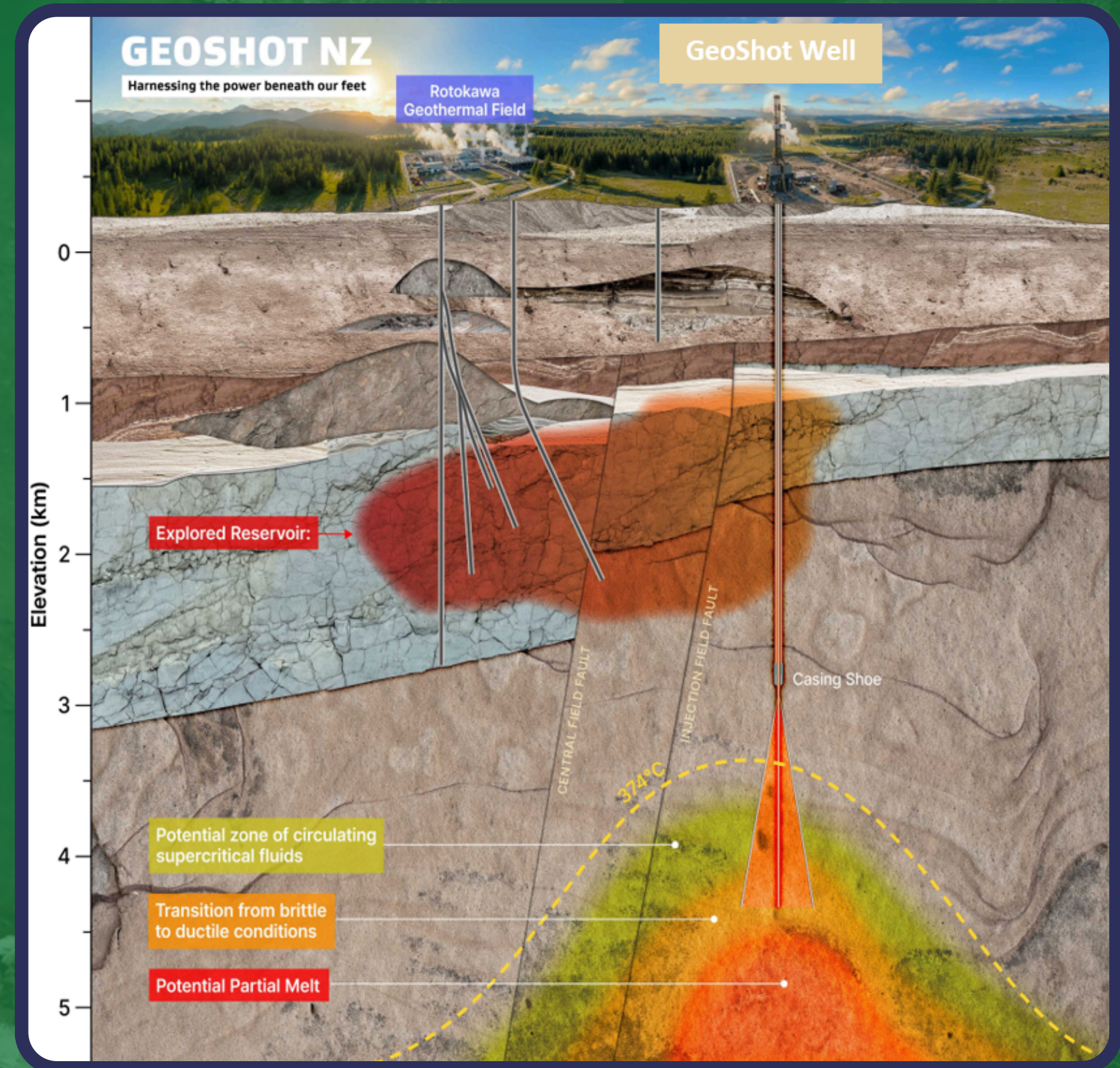
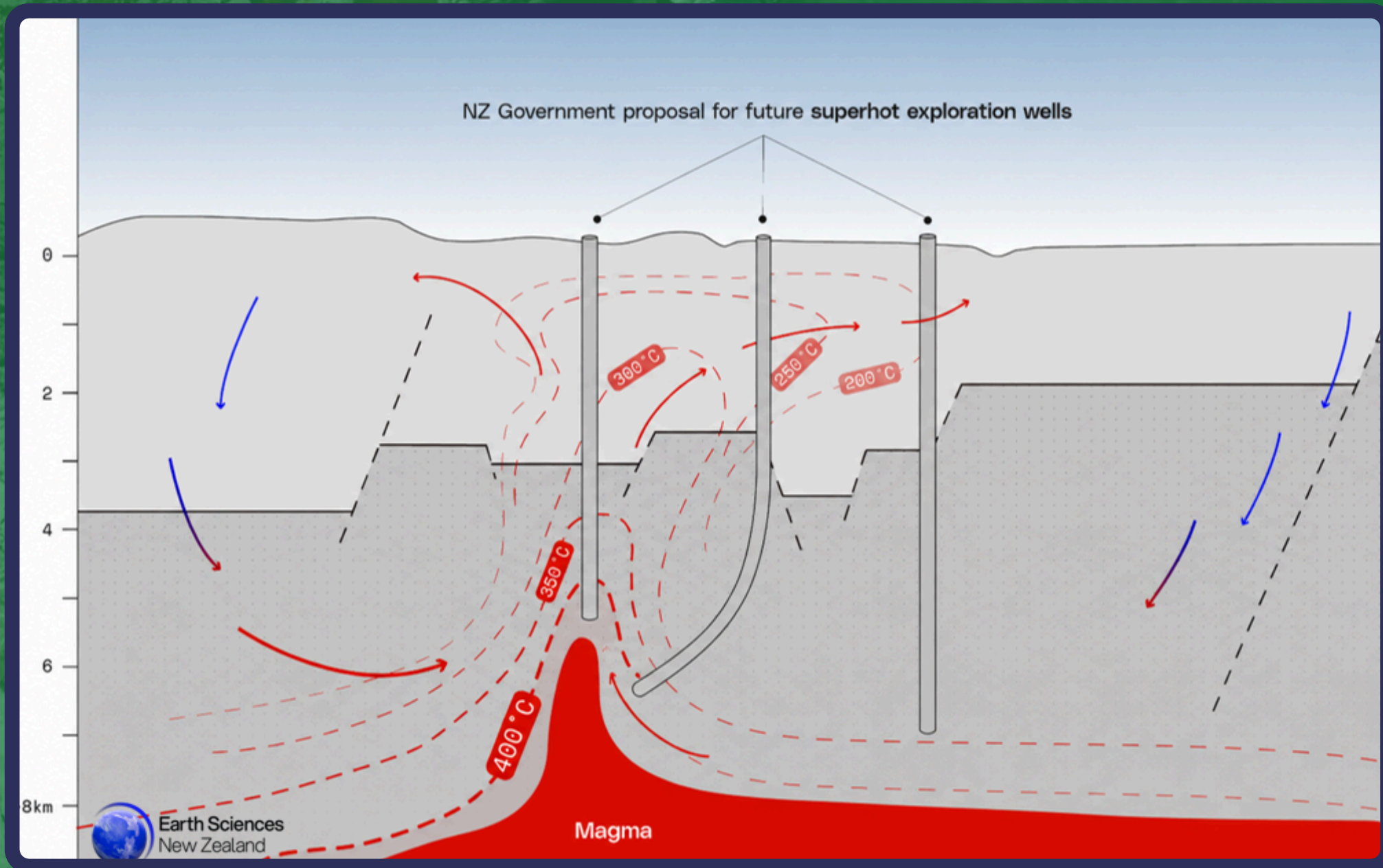
GOVERNMENT COLLABORATION



What's the location?



What are we trying to understand?



GeoShot Well Design

Engineered to safely access Earth's
supercritical energy at ~5 km depth



TARGET: SUPERCRITICAL FLUIDS

~5 km depth

>374°C



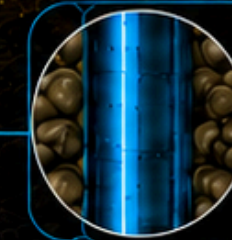
WELLHEAD SPECIFICATIONS

- Large, high-pressure valves
- 10,000 psi-rated
- Inconel-lined (NASA-level materials)
- Two master valves (for safety)
- 4 side outlets, 8 side valves (for safety and capability)
- A mix of gate valves and ball valves (new tech trial)

SURFACE

810m

INTERMEDIATE CASING

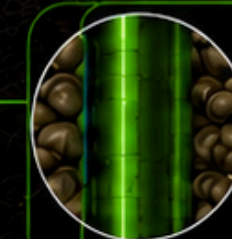


INTERMEDIATE CASING

18mm thick casing
Acid zone protection

1450m

ANCHOR CASING



ANCHOR CASING

20mm thick casing
Pressure containment /
Wellhead protection

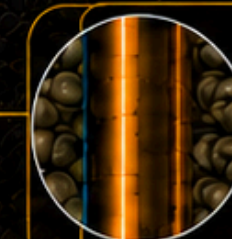
1500m – 3200m

ROKAWA RESERVOIR



3200m

INNER CASING



INNER CASING

14mm thick casing
Isolates existing reservoir
pressure and fluids

4000m – 5000m

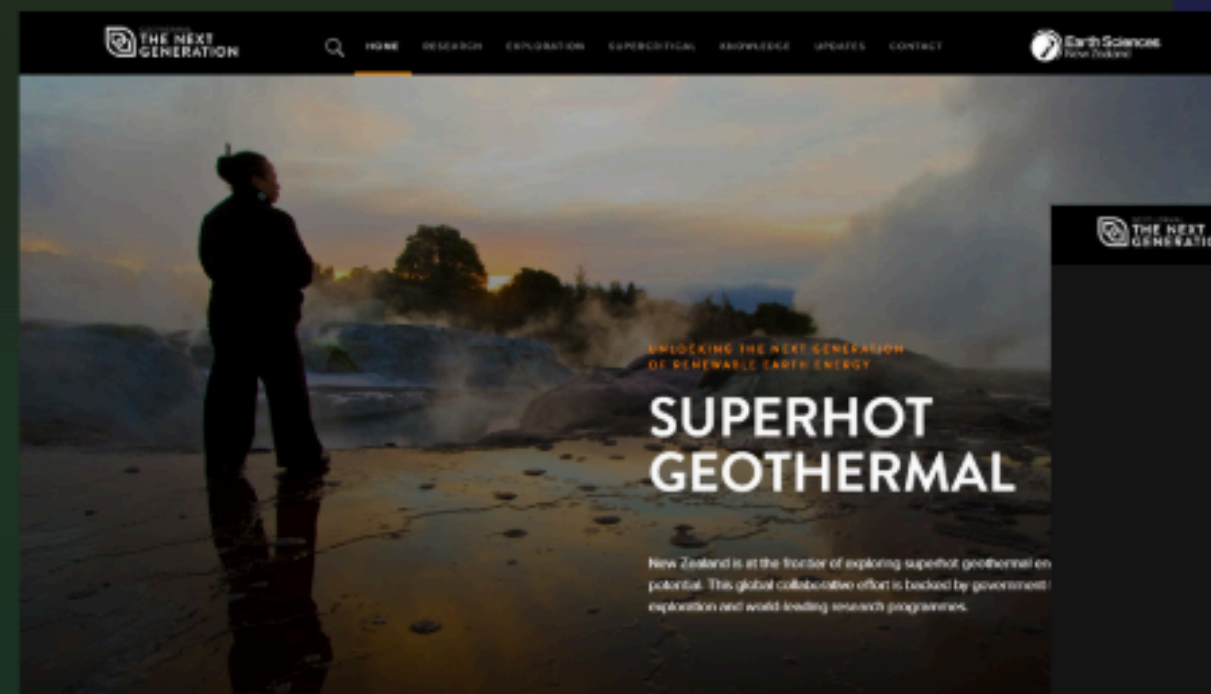
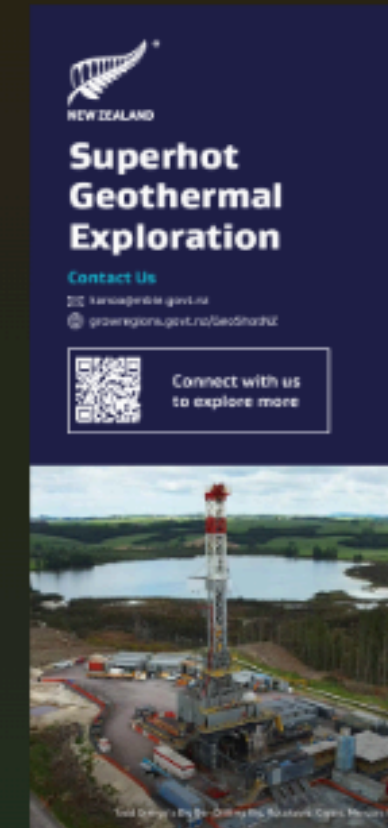
SUPERCRITICAL ZONE



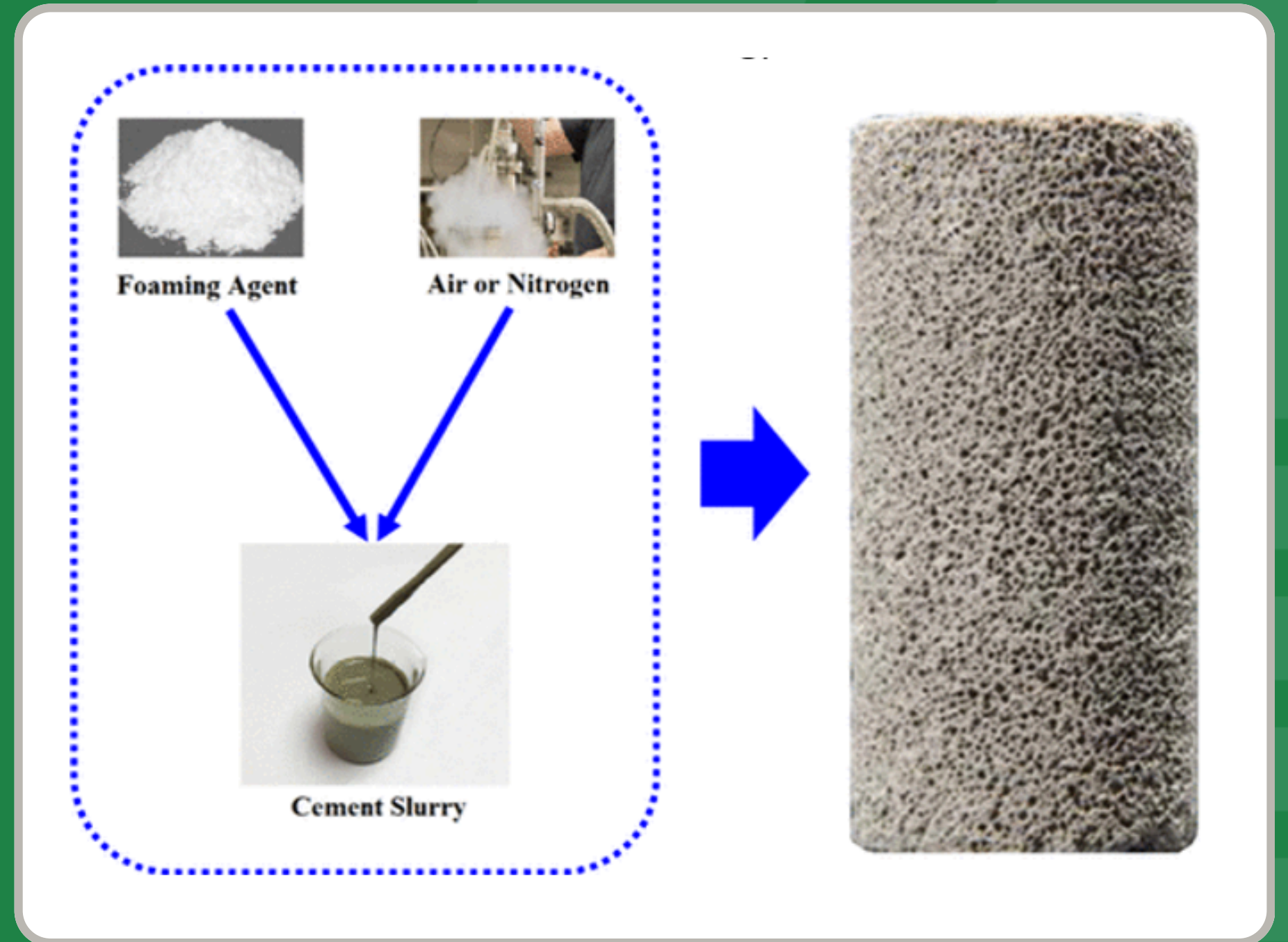
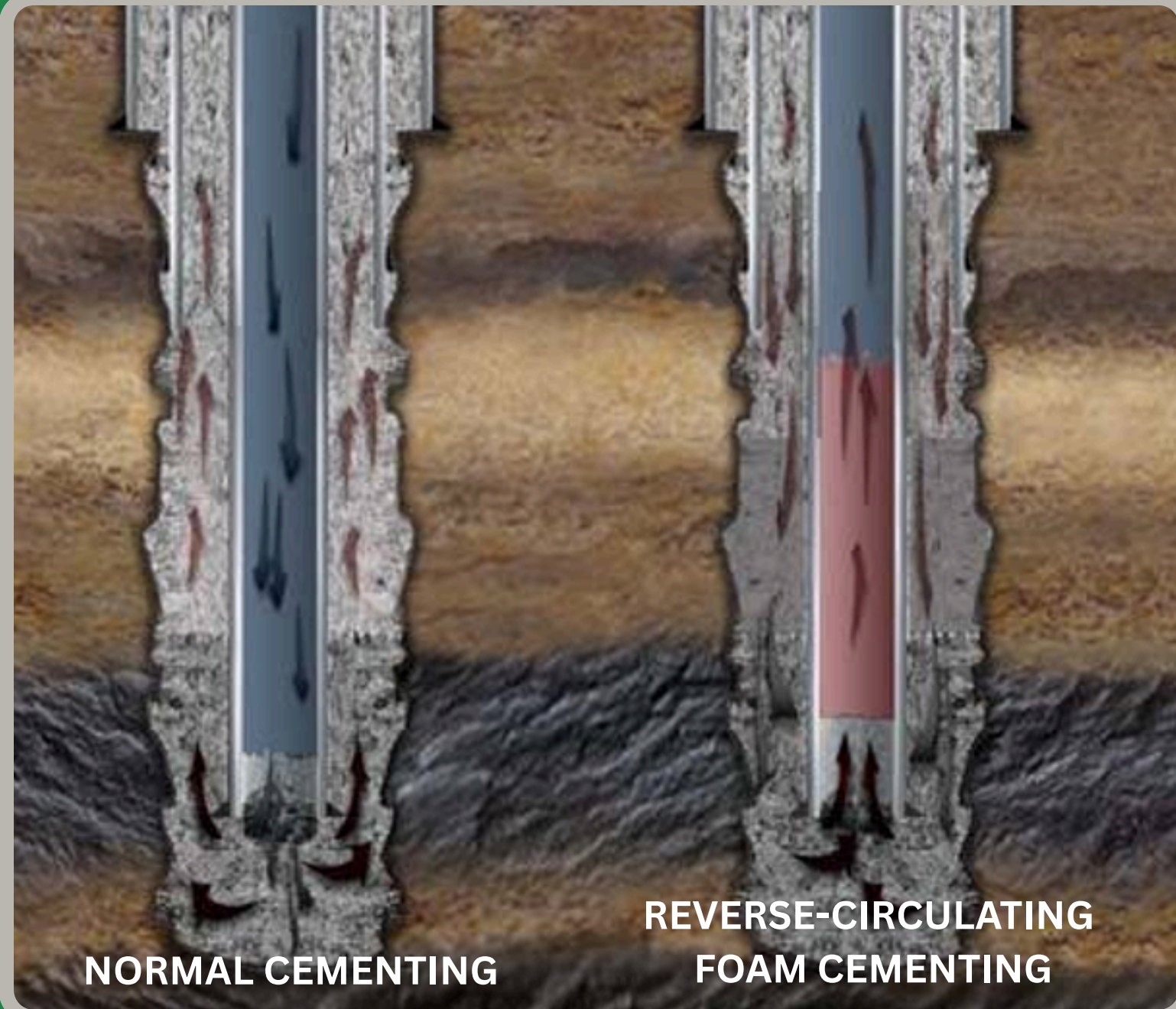
PERFORATED LINER

Keeps the well open across
the supercritical zone

COMMUNICATIONS



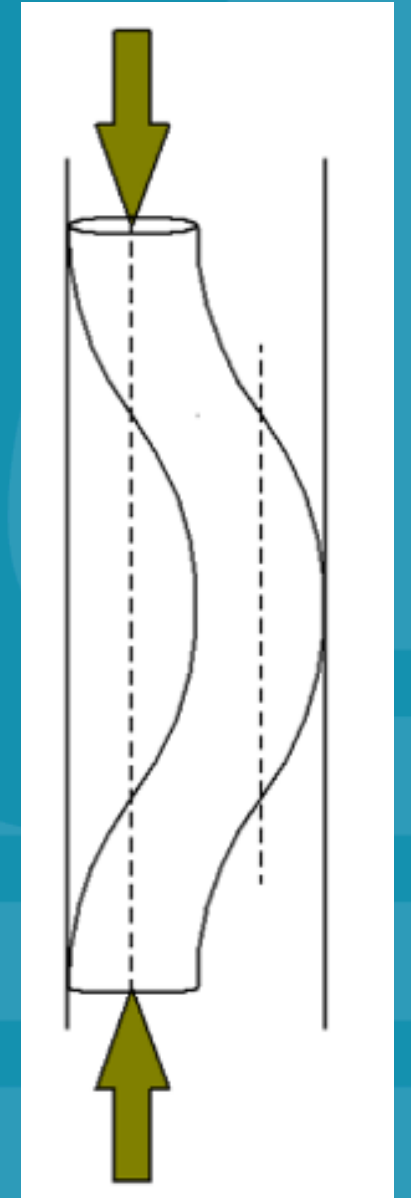
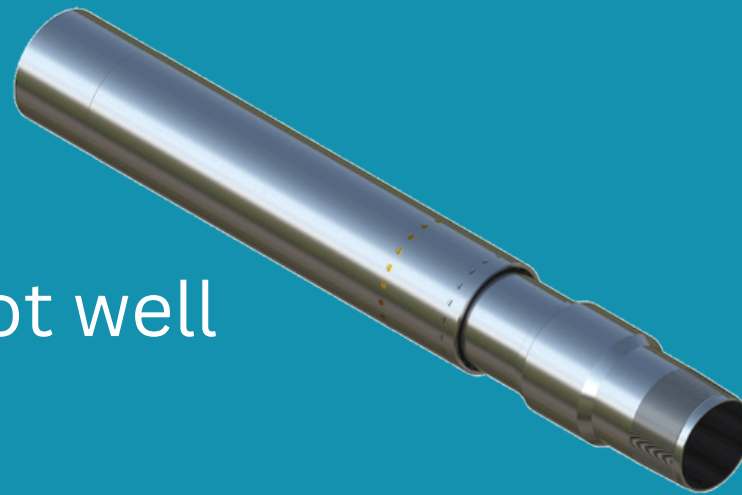
Well Design - Reverse Foam Cementing



Thermal Expanding Casing Collars

A Potential Game-Changer for Superhot Wells

- Thermal expansion creates major challenges
- Buckling risk in uncemented sections
- Integrated throughout the well
- World first for a geothermal superhot well
- Improves well integrity and longevity
- Global significance



Questions?

