The next generation of ground consolidation technology
Acrylic Resin Emulsion injection

Non-Hazardous

Non-DG

Low exothermic temperature

STRATALOCK

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Stratalock Pty Ltd commenced in 2018, established by two industry recognised, long standing and innovative companies

BMS STRATA SYSTEMS

Strata LININGS

STRATALOCK

- Eliminates health risks associated with PUR, Urea Silicate and Phenol/ Formaldehyde hazardous chemicals
- Stratalock is not a polymeric chemical
- There is no polymerisation reaction resulting in heat generation
- Stratalock is a non-hazardous acrylic resin emulsion

NSW Polymeric Chemical Licencing & QLD RS16

- Polymeric Licence MLA 0016121 issued 25th October 2022
- NSW Resources determined Stratalock is not a Polymeric Chemical 14th March 2025.
- Polymeric Licence surrendered 14th March 2025
- Polymerisation does not occur (low reaction temperature 39 - 42.4 °C)
- NSW Licence and QLD Recognised Standard 16 requirements do not apply

Product Objectives

- Meet the geotechnical performance requirements for ground consolidation
- Eliminate the current health risks to coal mine workers using hazardous chemicals
- Provide new opportunities for productivity improvements (simultaneous parallel tasking) to minimise costs

Stratalock key safety improvements

- Not classified as hazardous or as Dangerous Goods (PPE)
- Eliminates carcinogenic and respiratory sensitisation concerns of current polymeric resins
- Eliminates QLD RS16 biological and atmospheric monitoring tests
- Stratalock hoses are flushed with water
- Sulphuric/ sulphonic acid catalysts are not required
- Low exothermic reaction temperature minimises mine fire risk (Simtars QLD 39 °C, NSW Resources TRG 3608 42.4 °C)

Productivity improvements

- Injection volume is unrestricted (low exothermic reaction temperature)
- Geotechnical plan flexibility (injection hole spacing, depths and packer positions)
- Eliminates NSW Polymeric Licence & RS16 return side Restricted Access Zone (RAZ)
- Drilling injection holes on the return side of the injection point while pumping
- Multiple injection points pumped simultaneously
- Pre-consolidation using long hole injection
- Pumped outbye of the LW with no impact to LW production

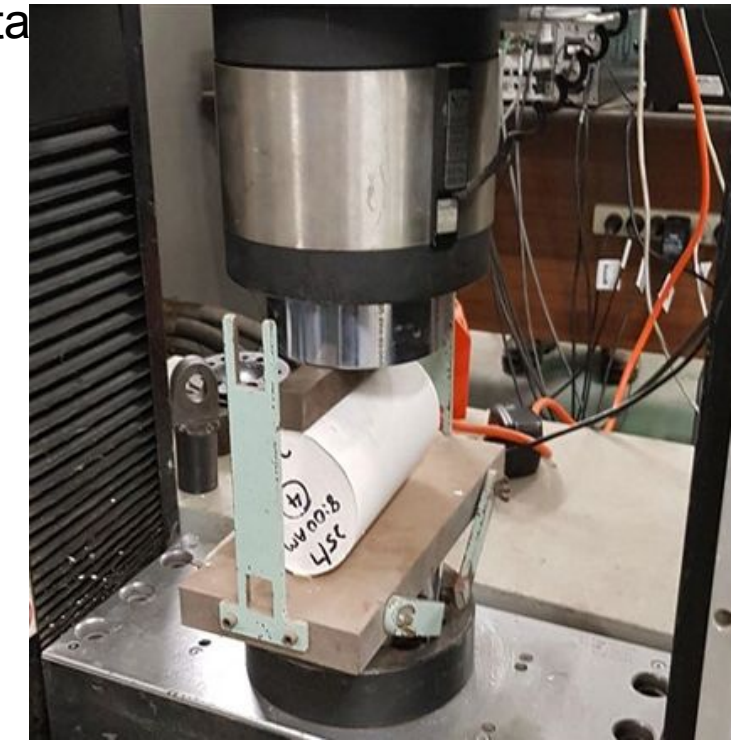
Key cost considerations

- Minimal re-training. Practical to use with current industry skill set and uses existing injection consumables – packers, lances, hoses
- Reduced cost of road transport (Stratalock has no Dangerous Goods Classification)
- Eliminates refrigerated chemical transport and refrigerated storage costs
- Non-hazardous waste disposal reduces costs and minimises environmental impact
- Eliminates the costs for underground biological and atmospheric monitoring
- Eliminates requirements for managing coal mine workers chemical exposure

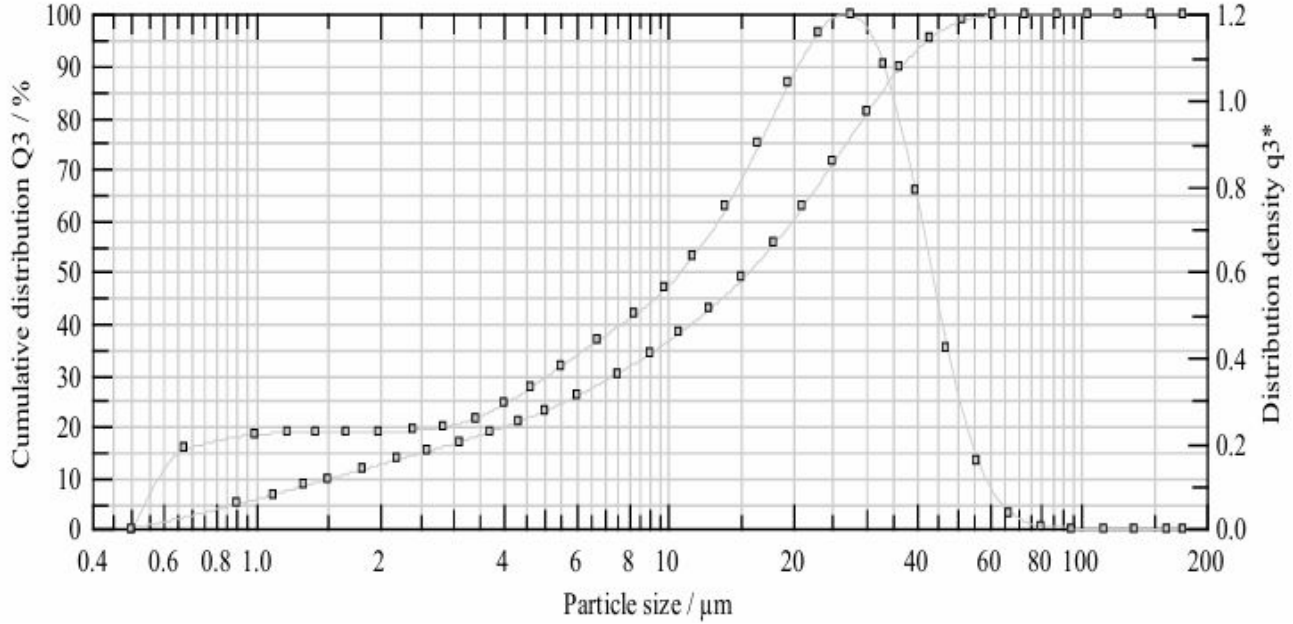
Geotechnical Properties

- Material properties are targeted for consolidation of soft rock strata
- Compressive Strength (UCS) 12 MPa.
- Flexural Strength 2.5 MPa.
- Standard gel time approx. 4 mins (Variable for application)
- Adhesive strength greater than point of coal failure

Cure Time	Compressive Strength
0.5 hrs	9 MPa
1.0 hrs	10 MPa
2.5 hrs	12 MPa



Geotechnical Properties



- Stratalock is a microfine product (85% of the particle size distribution is <0.032mm)

Stratalock LW Face consolidation - Fitzroy Resources

Health and Safety

- Independent Assessment by Occupational Hygiene Consulting Pty Ltd
- Health assessment based on raw materials analysis
- Micro hood XRF (X-ray Fluorescence) testing was completed
- Personal exposure monitoring was completed during product trials
- Testing conducted by NATA accredited Test Facility
- Classified as Non-hazardous (Safe Work Australia)
- Safety data sheets are available on ChemAlert
- PPE requirements are goggles, gloves and overalls

Stratalock QDS Pump Pod

Manufacturing and Quality Assurance

- Stratalock is manufactured in NSW Australia
- Stratalock Pty Ltd is a Quality Certified Company
- Manufacturing is undertaken under the ISO 9001 Quality Management System
- Stratalock has a 12-month shelf life when stored in accordance with requirements
- Minimal environmental risk from manufacturing, transport, storage and container disposal (Non-hazardous chemical classification)

Applications completed

- LW Face strata consolidation after significant roof falls
- Ground consolidation in roof, rib and floor around ventilation devices
- Faulted ground consolidation on a LW install face to prevent strata deterioration and deformation
- Pre-consolidation of the ribs in LW pre-driven recovery road and chute road (Return side belt and VCD installation)
- Rib consolidation in faulted ground in the TG roadway to improve stability in front of the LW face.
- Pre-consolidation of faulted ground using long hole injection (126m x 96mm borehole)

Consolidation of LW install face in faulted ground

- 9.0m wide install face completed from 2 passes
- Rapid movement in faulted ground
- Stratalock injected using a series of rib and roof holes
- Ground was stabilised with no additional strata support required
- Stratalock injection completed simultaneously with pan line, TG drive and cable work occurring on the pre-install

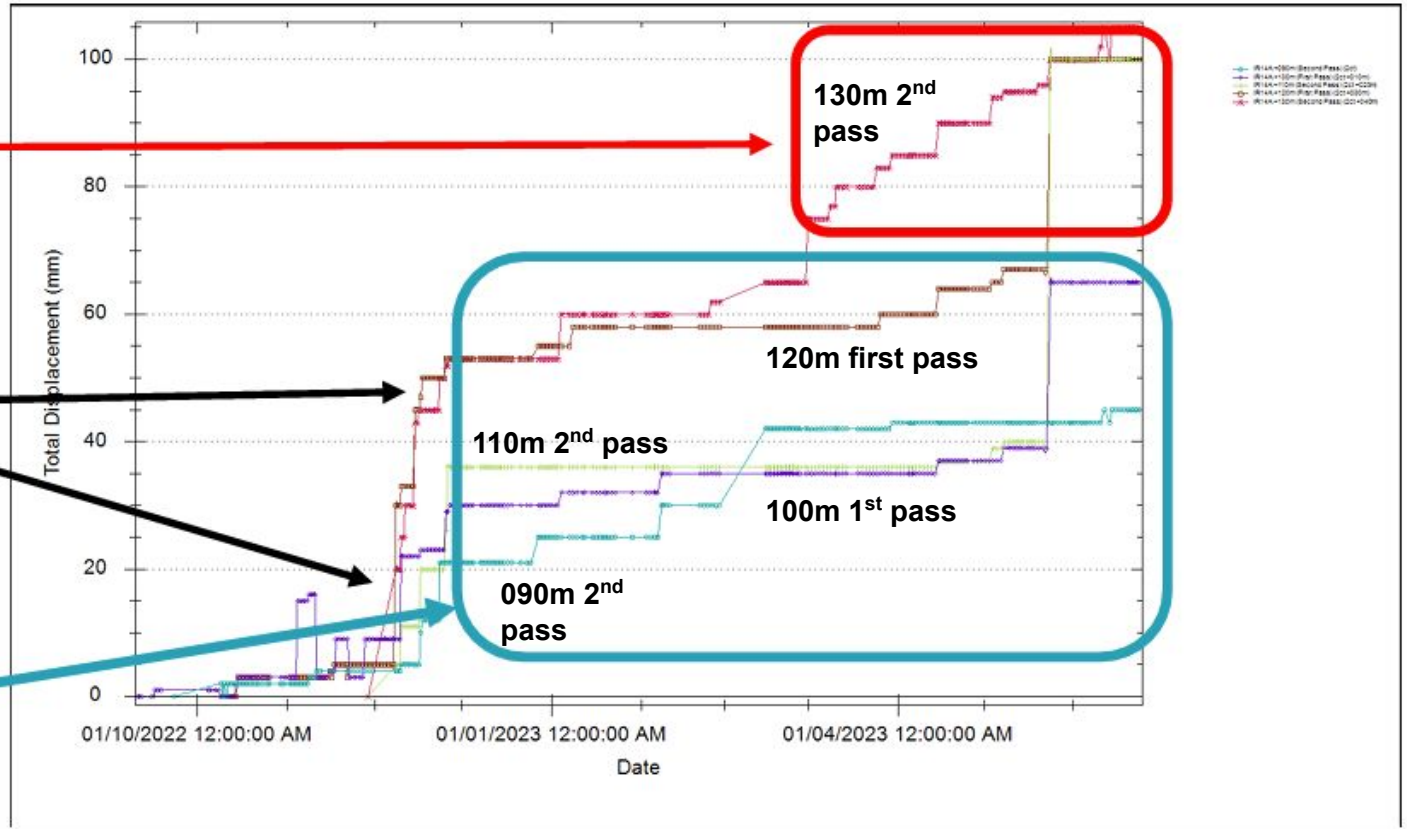
STRATALOCK

Tell tale data (2 ct Install Face)

The one area we did not pump – kept moving, needed additional cables installed

Pumped at this trigger point
Never like to see this acceleration of movement on an install face

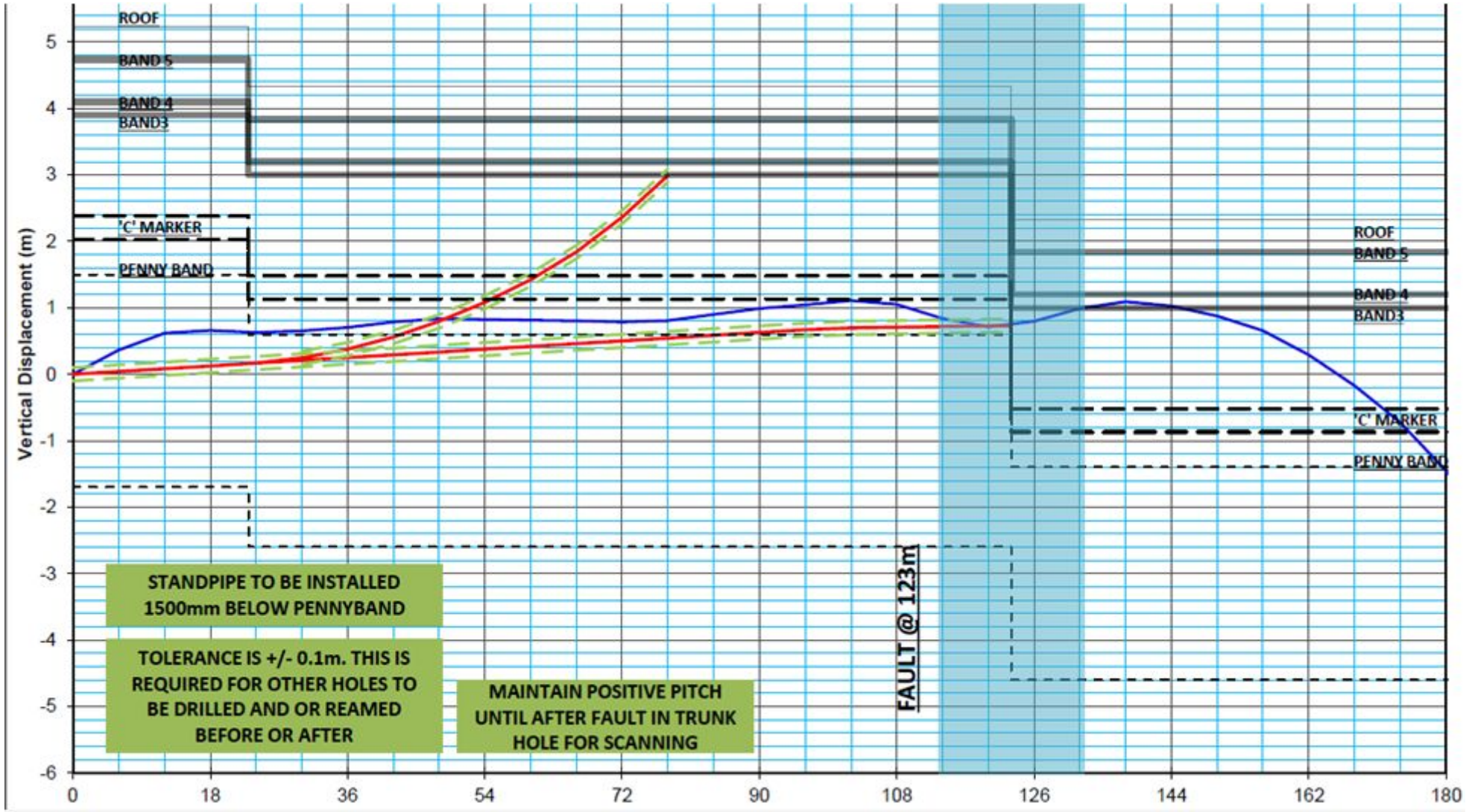
The area we pumped – stabilised
No further support needed



Long hole pre-consolidation

Note: Hole only injection volume 130L (less volume dowels)

- Injection hole shown in green (126m x 96mm borehole diameter)
- Oversized packer and GRP dowels positioned at 108m (18m injection zone)
- Blue line adjacent hole 4m to right of injection borehole used for Lugeon testing
- Lugeon testing located fault at 123m
- Inbye/past the fault from 126m broken strata resulted in water bypassing the packer



Borehole Depth (m)

Long hole Injection data

- Completed gel time modifications (catalyst concentration) and surface simulation
- Injection rate @500 Kg/hr and total injection quantity 1000Kg
- Pressure at mixing gun 130 Bar at completion
- Post injection Lugeon testing completed and reported as positive
- Improvements to method (disconnect the lance series from packer)

Conclusion

- Further flexibility is now available for customising geotechnical plans for ground consolidation
- New productivity opportunities are available for simultaneous multi-tasking during production and LW face recovery
- Sets a new benchmark for Coal Mine Worker chemical safety