# Resources Safety and Health Queensland Industry Leaders' Briefing 2023

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Simtars

Industry Leaders' Briefing

Resources Safety & Health Queensland

# Key messages

- Simtars 2022 update

- R&D at Simtars

  - New 5 Year Research Strategy

  - Current project highlights

  - Incident investigation tools

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# Simtars' role in industry

- We provide **contemporary testing, engineering, scientific** that enhance safety and health outcomes.

- We **collect, analyse and share data** for serious and designated accidents and incidents.

- We actively **support emergency preparedness and response.**

- We thoroughly **investigate all fatalities**, complaints and certain **serious accidents and high potential incidents**, in a timely manner.

- **Learnings** derived from **safety and health** data collection is **shared with stakeholders**, to manage risks.

- We sponsor and undertake **research.**

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# Simtars' 2022 update in numbers

1,420 support hours
(Camgas & Safegas)

1319 calibrations
(& 196 repairs)

287 hours - 3D
Scan Team Call-out

21,763 Roadway Dust
Samples Analysed

28 courses (704 participants)

5,970 Hygiene
Samples Analysed

64 audits conducted

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# Research and Development

Current and future

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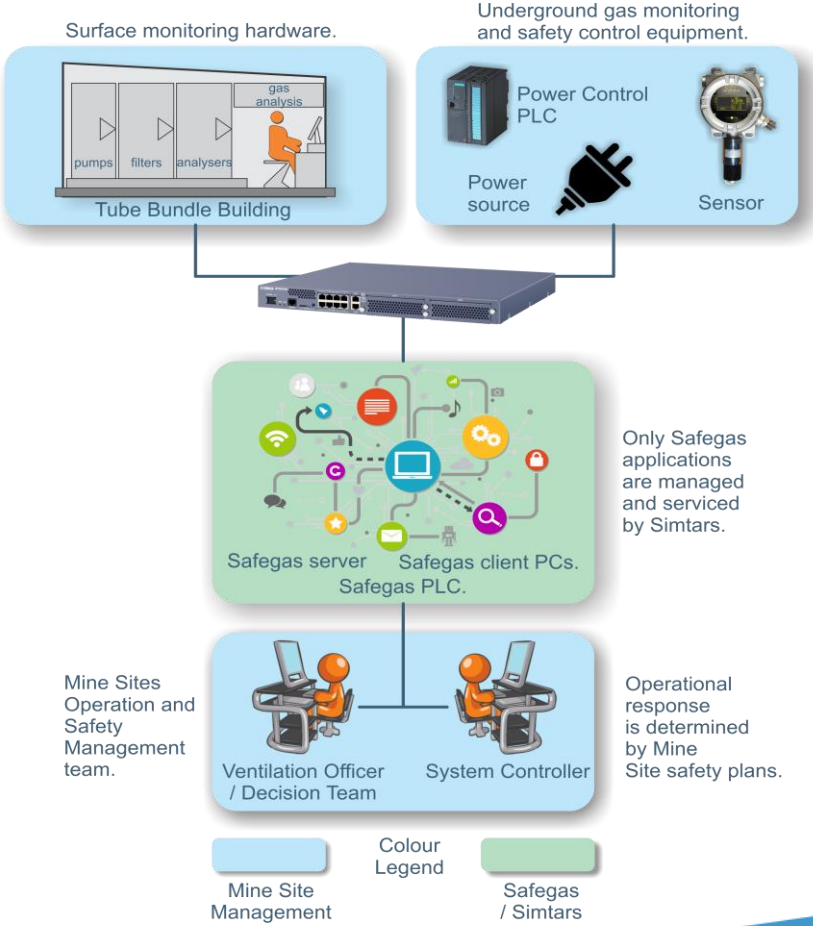Queensland

# 5-year Strategic Plan

1. Emergency preparedness and response.

2. Technology to operations or practice.

3. H&S priority issues as nominated by industry and the regulator .

4. Foresight and intelligence

    a. 2050 transition and adaptation

    b. global connections

    c. government connections.

5. Step change in organisational H&S systems.

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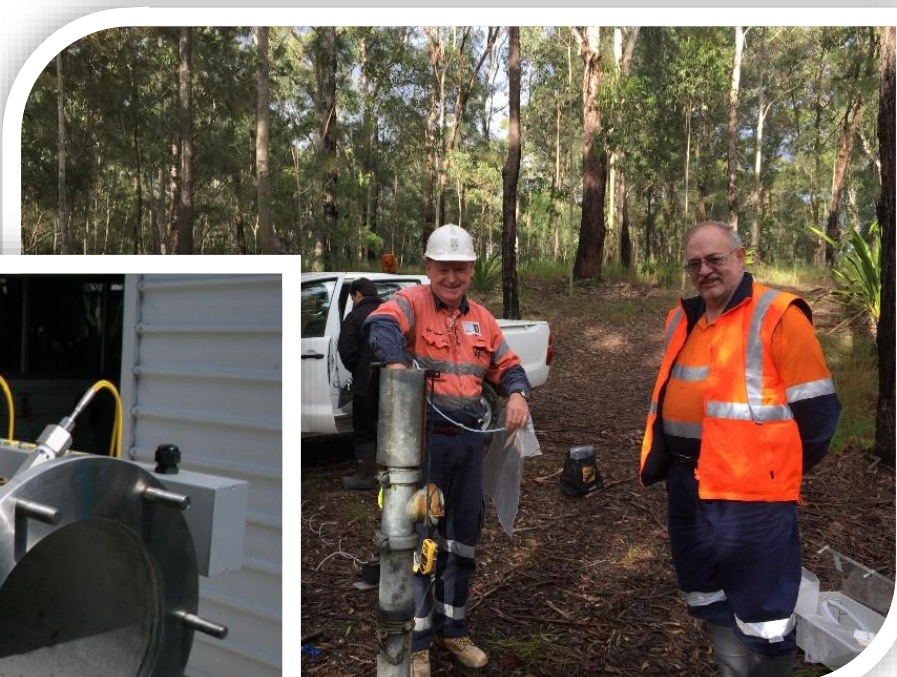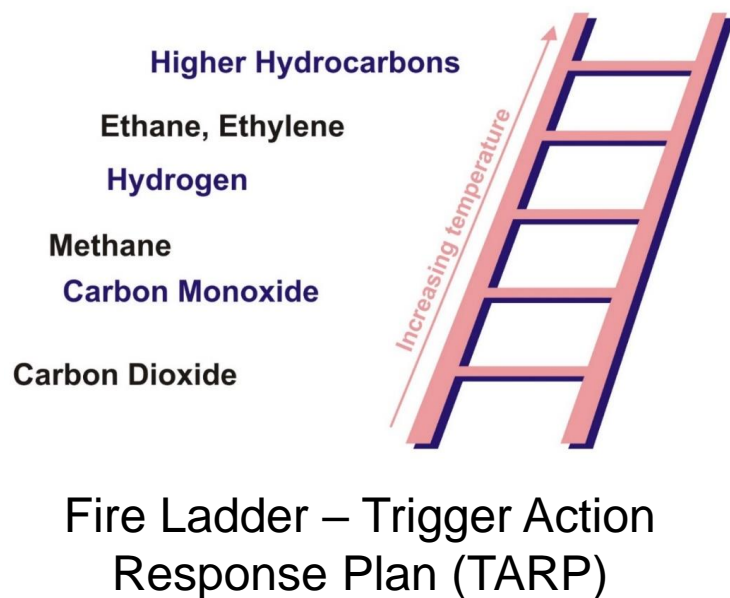Queensland

# Mine gas monitoring

- Emergency response

- Early spontaneous combustion detection

- Safegas Version 5

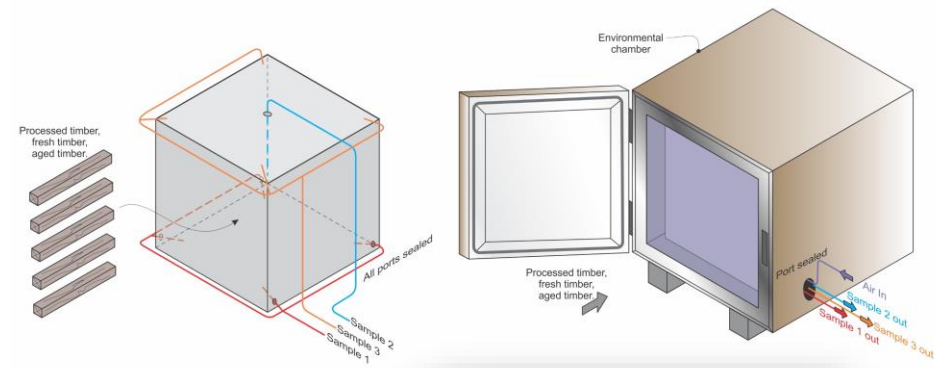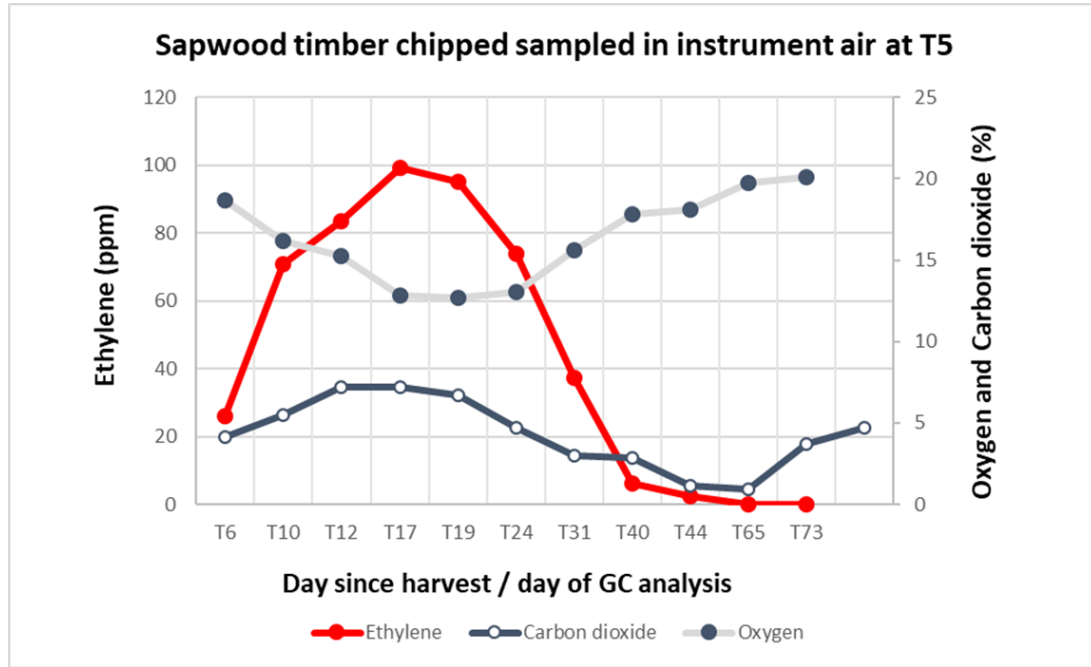- Development of an automated leak detection system

- Gas detector accuracy

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# Safegas Version 5 - Mine gas monitoring

# Spontaneous combustion research



Higher Hydrocarbons

Ethane, Ethylene

Hydrogen

Methane

Carbon Monoxide

Carbon Dioxide

Increasing temperature

Fire Ladder – Trigger Action Response Plan (TARP)

ACARP

Project C25072

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# Ethylene from wood



Sapwood timber chipped sampled in instrument air at T5



Project C29024

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# Investigation support

- 3D scanning technology

- Incident response tool

- Example incident sites

- Analytical tools

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# Simtars 3D scan utilisation

22 separate incidents since 2018:

- Underground mines

- Surface sites

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# Coal mine roadway scan

# VIDEO

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# Analysis tool

- Full engineering measurement (CAD based)
- Rendering
- Animation

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# Demonstration

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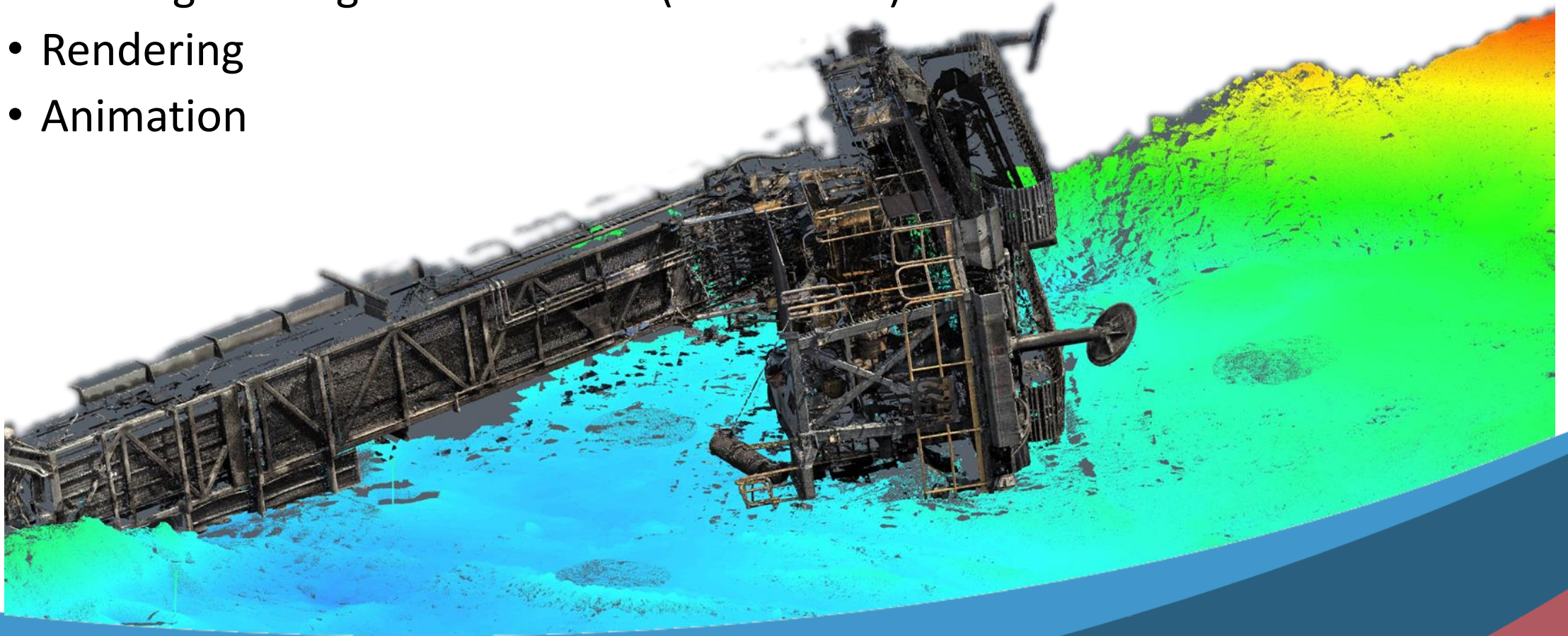
# Key advantages

- Rapid capture of an incident

- Investigator(s) can re-visit virtual scene at any time in the future

- Release of incident site quickly

- Future:

    - Virtual reality  - accident scene recreation e.g. industry sharing / training

    - Further research – rapidly growing technology sector



The Digital Twin is an exact 3D digital replica of actual physical assets or scenes.

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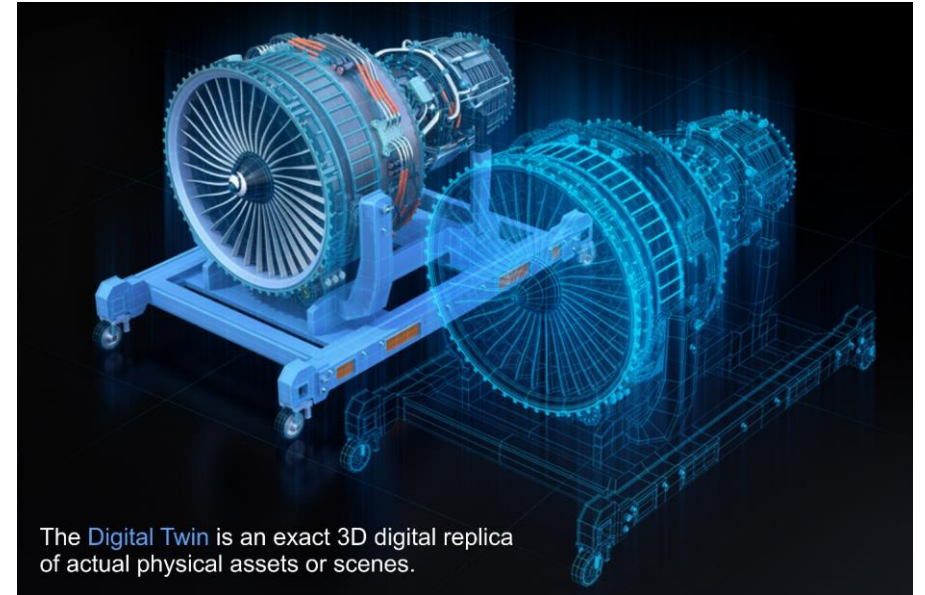
# Thank you

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