

MINESAFE 2025

SAFE MINES,
HEALTHY LIVES,
AND SUSTAINABLE
FUTURES

The Step-change to Zero
Fatalities

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Minesafe Technical
Conference

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> What is the “Step-change” we need?



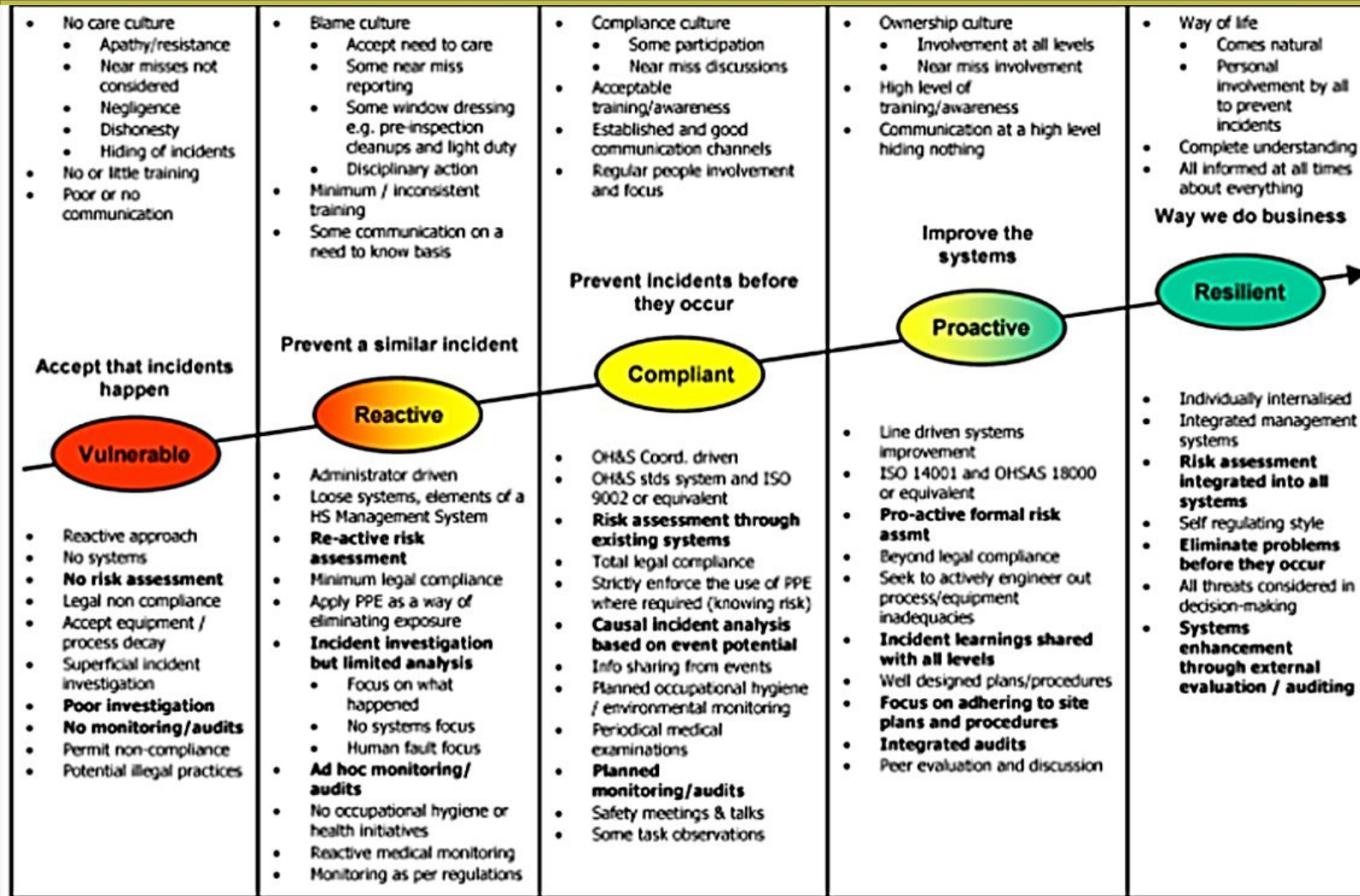
- The phrase “step-change” in safety often used to articulate the desire to reach the next maturity level on our journey to “Zero Harm.”
- Is it a step-change or the Rhythm of a Marathon Runner? Well-trained, Know the strategy, sustainable pace and refining the fundamentals?
- Operating experience has taught us that most of the hazards, risks, systemic factors (drivers for unwanted events), required controls, requisite behaviours, operating challenges, and even changes are well known and understood.
- Very few unknowns when all of the processes, systems and operating knowledge are applied consistently. Human decision making is however the most significant variable as highlighted by many professionals across industries.
- Industry’s processes and systems are sound. We just need consistency in execution.

STEP CHANGE TO ZERO HARM



SAFETY & RISK MATURITY

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MATURITY



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SAFETY/RISK INFORMATION

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- Foster an ethos of diligent and open reporting built on the foundation of a just-culture seeking to understand the reasons for failures without apportioning unjust blame.
- Act on weak-signals, near-misses, untreated hazards and high-potential incidents as a business imperative.
- Eradicate the “Watermelon effect” the phenomenon where safety performance appears excellent on the surface—green dashboards, zero incidents, full compliance - but hides serious underlying issues, the “red” inside, such as unreported hazards, unsafe behaviors, or a weak safety culture.
- Hit the “sweet spot” on leading and lagging safety indicators: Use leading indicators to predict and prevent (e.g. HPH, VFL feedback, near-misses, HPIs). Use lagging indicators to validate and benchmark (e.g., TRIFR, LTIFR, severity rates). Balance on leading indicators.

Hidden risks, under-reporting, known deficiencies, condonement of sub-standards



Green dashboards and gleaming reports



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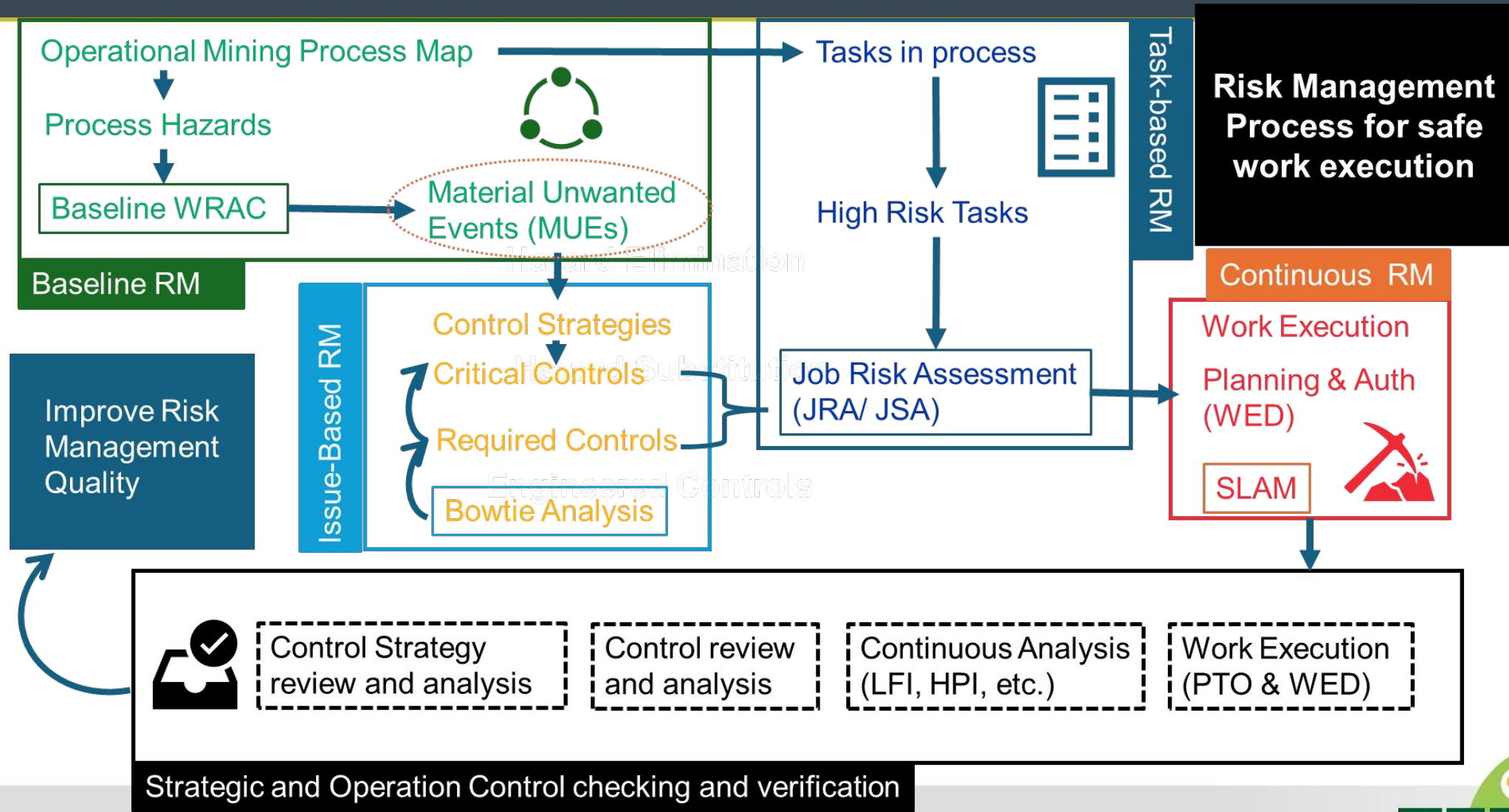


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RISK MANAGEMENT

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CONTROL MANAGEMENT

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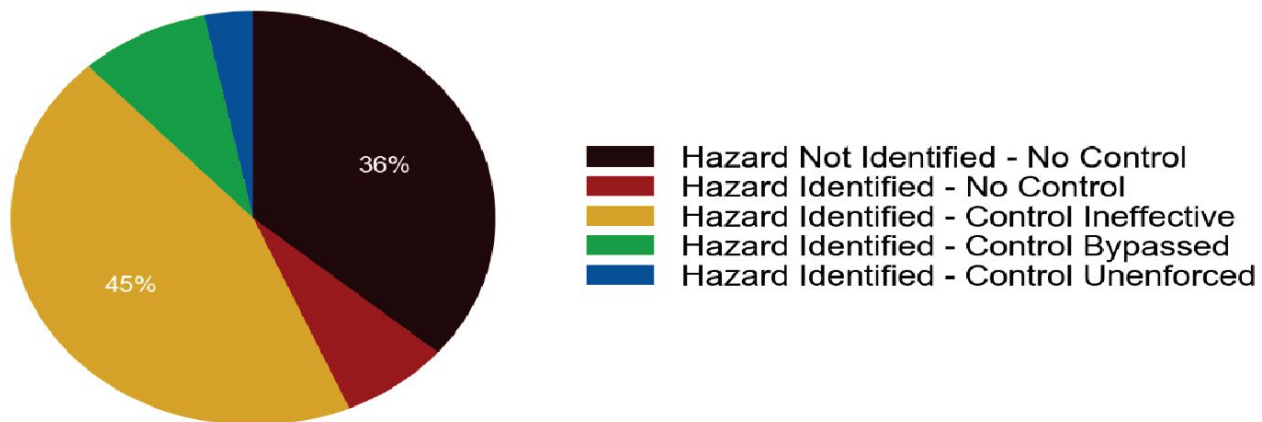
- The Brady Review analysed 47 fatal mining fatalities in Queensland between 2000 and 2019. These incidents reflect diverse causes, requiring multifaceted control solutions.
- Vehicle Accidents: 15 cases, mostly due to rollovers, collisions, and pedestrian strikes.
- Contact with Machinery: 12 cases, including entanglement and being struck.
- Rock Falls: 10 fatalities from roof/rib collapses.
- Falls from Height and Tyre Failures: 4 each.
- One fatality each from fire and irrespirable atmosphere exposure
- In 25 of 32 cases, required supervision was inadequate or absent
- 17 fatalities occurred without any human error by the deceased.
- 26 workers had insufficient task-specific training.
- 10 fatalities involved known, unresolved faults.
- 9 followed known near-misses that were not acted upon.



CONTROL MANAGEMENT

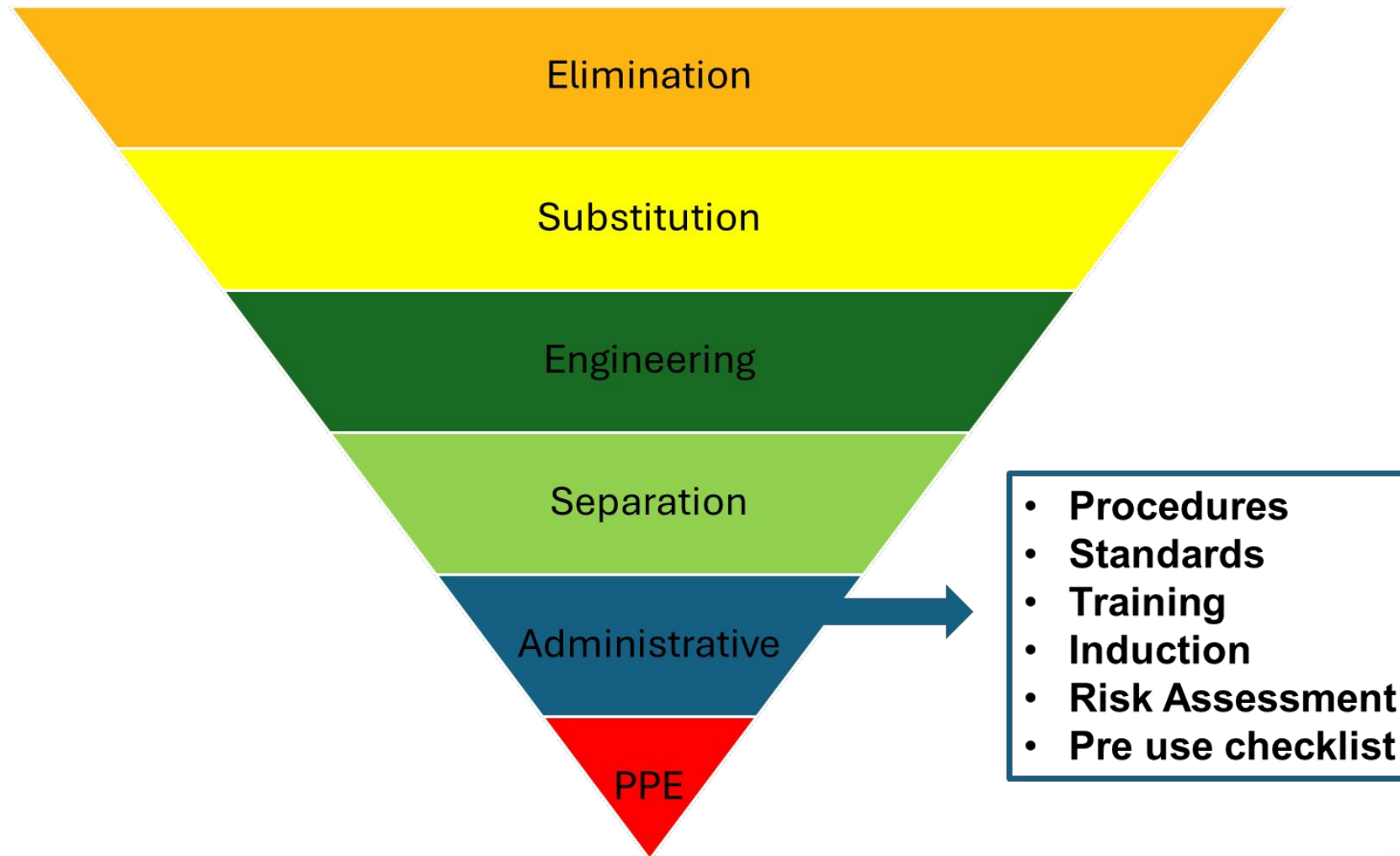
Control Failure Area	Key Learnings
Control Design	Prioritize engineering and elimination over admin controls
Supervision	Ensure competent, field-active supervisors
Training	Mandate role-specific, verified task training
Known Hazards	Act on known issues and near-miss warnings
Monitoring	Continuously verify control effectiveness

Absent or Failed Controls found in Serious Accidents for All Mines



RE-IMAGINE THE HIERARCHY OF CONTROLS

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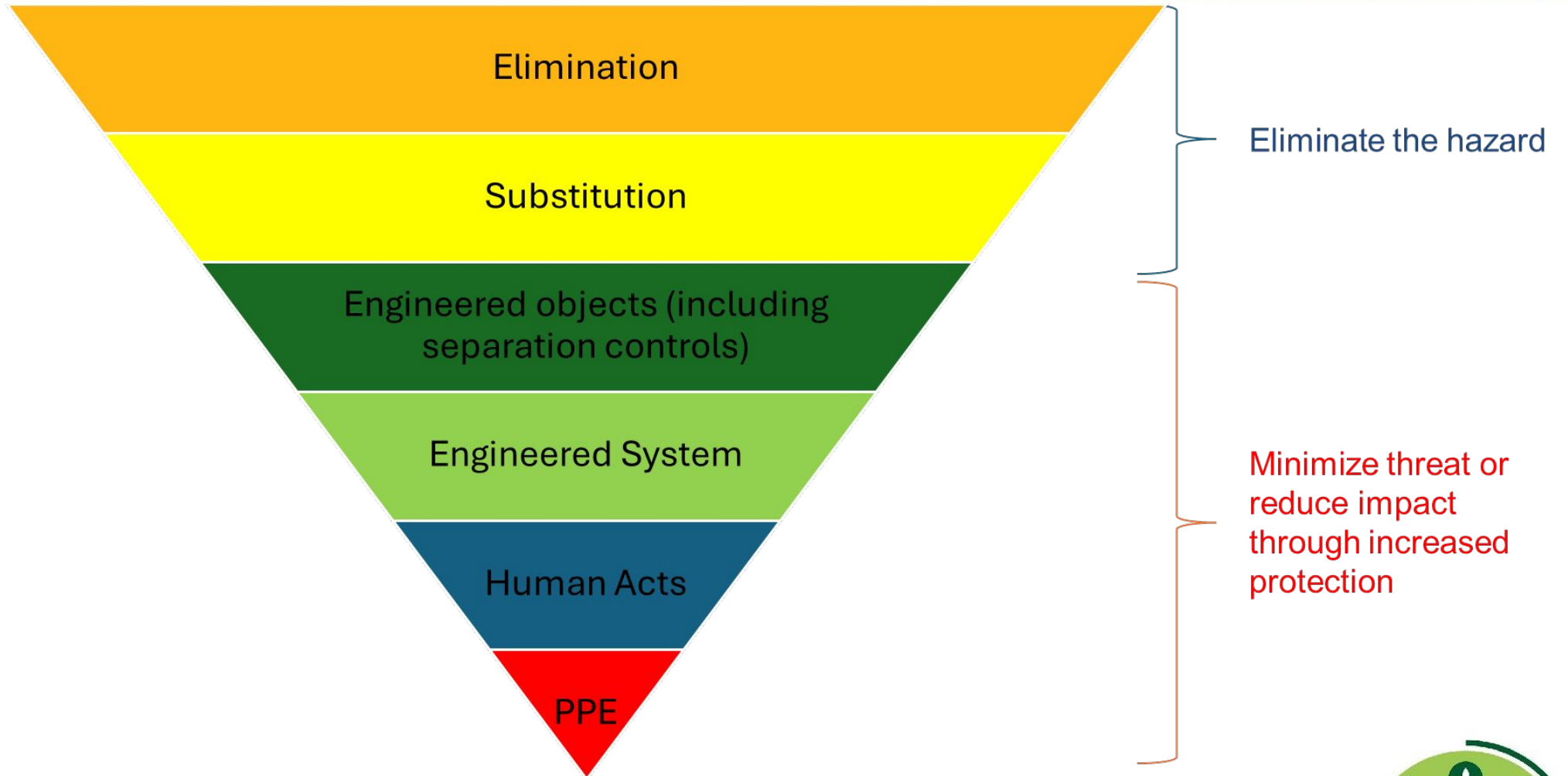


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RE-IMAGINE THE HIERARCHY OF CONTROLS

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RE-IMAGINE THE HIERARCHY OF CONTROLS

Control Dependency Type	Application
Procedure	Specifies and guides human acts as part of safe work execution.
Standard	Object or system specification
Training	Equips people with operational and task knowledge
Induction	Provide introductory knowledge and operating environment awareness
Risk Assessment	One verification mechanism to verify controls are in place and working (i.e SLAM)
Pre use checklist	Pre-work/ task verification often a list of objects and/or system controls that must be functional
Pre use check	Verification of control availability and functioning



THE HUMAN & SAFETY

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Old Paradigm

- People are seen as hazards, a threat, a liability
- People are the weakest link
- The less of them the better
- People need to be closely managed
- We need to protect the system from people
- Things sometimes go wrong
- Less thinking, more procedures
- People are told to "be careful out there"
- Investigations assign blame
- Investigations focus on the last person to touch the equipment
- Human behaviour is seen as binary - humans either fail, or they succeed
- Human errors and near-misses are often covered-up

- People create safety and success (in other words, things usually go right, because of people)
- *People adapt to imperfect systems & match conditions*
- *Human performance is not simply 'fail/succeed', but is variable*
- We need to support people and make their life easier
- Identifying 'human error' is just the start of an incident investigation – it's not seen as a cause, but a *symptom of deeper issues*
- Investigations aim to *understand why people behave (and think) the way they do*
- Investigations ask '*why things made sense*' to people at the time of an event
- Human performance may be influenced by people distant in time and space from the front line
- Human errors and near-misses are more likely to get reported

Realisation

Today's



THANK YOU

