

Emerging trends and Data from the BARS For RPAS Program

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BARS ®
BASIC AVIATION
RISK STANDARD

FLIGHT
SAFETY 
FOUNDATION

BARS history with RPAS

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*Standards,
Audit Outcomes
and
Accident Data*

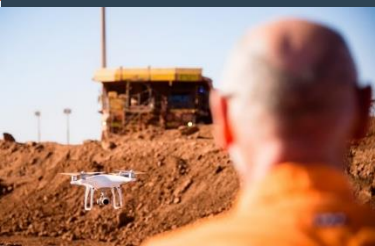


The BARS Program

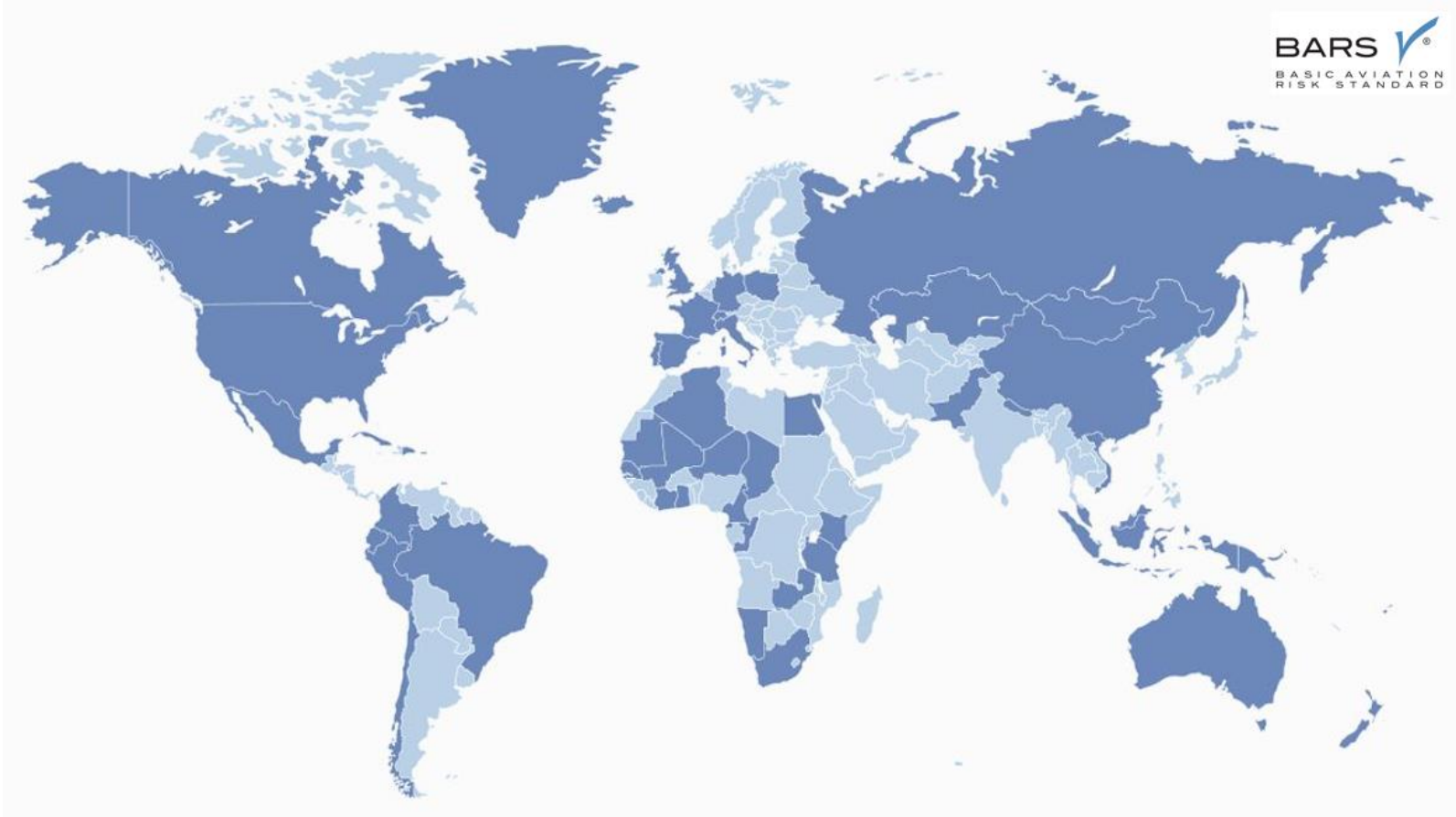


Contract Aviation covers a wide range of activities

- ✓ *Fixed Wing pax/cgo*
- ✓ *Rotary Wing ops*
- ✓ *Medevac/Casevac*
- ✓ *Offshore RW*
- ✓ *Humanitarian*
- ✓ *Animal Management*
- ✓ *Geophysical*
- ✓ *External Load*
- ✓ *RPAS*



The BARS Program is now Global



The BARS Suite of Standards

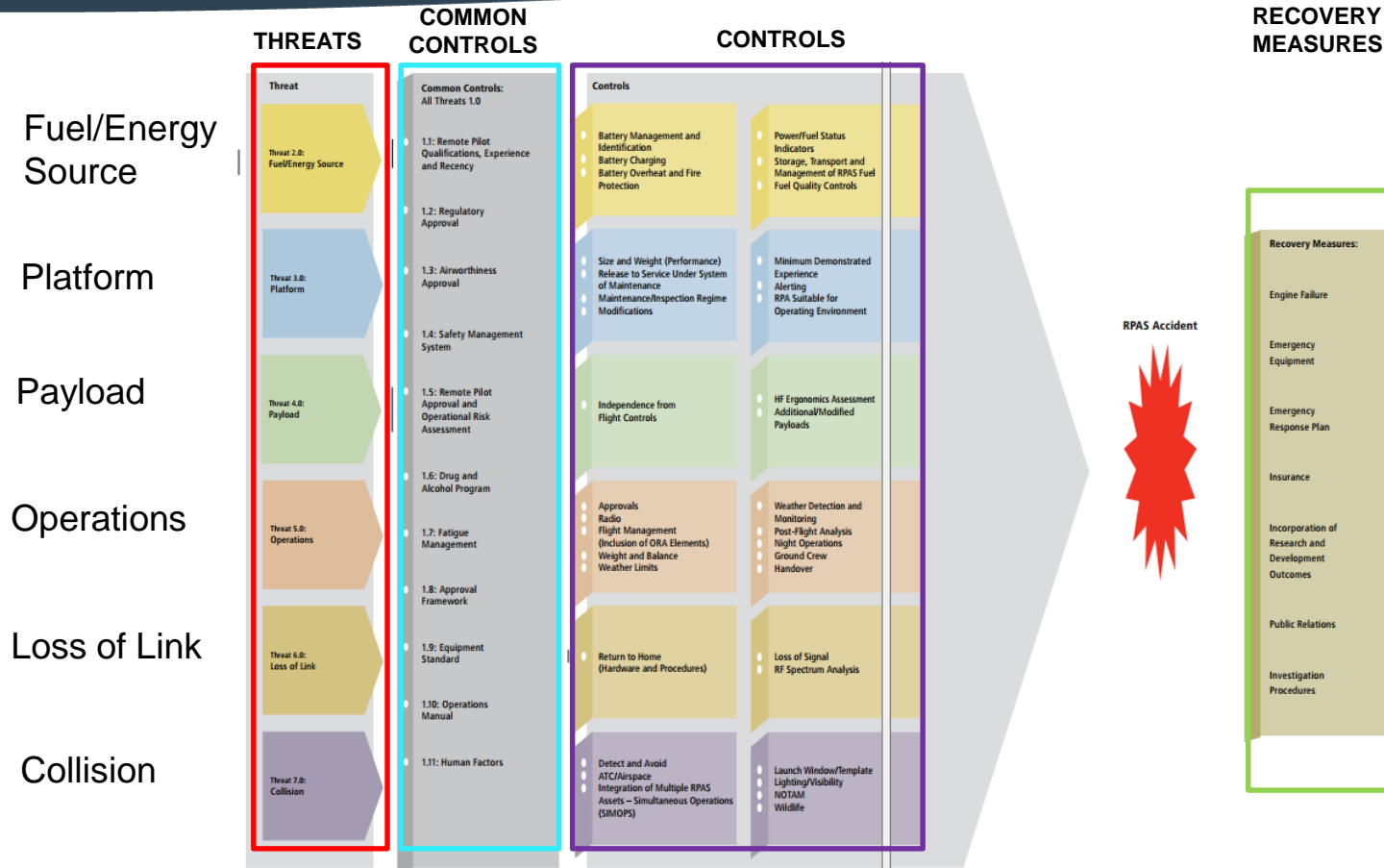


BARS  [®] *for* RPAS

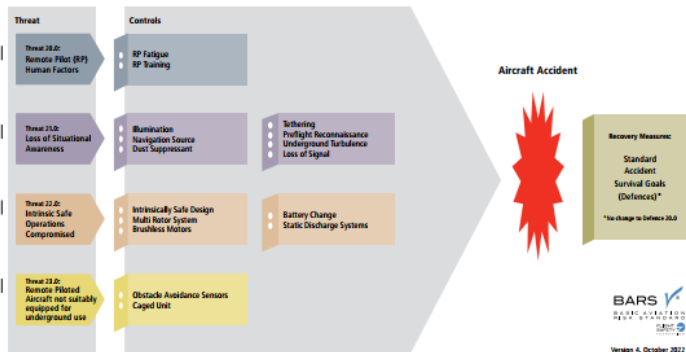
Material Risk Appetite for Resource Companies in regards RPAS

- 1. A drone flies into, or falls on, an individual resulting in a single fatality*
- 2. A drone flies into an aircraft resulting in loss of the aircraft and multiple fatalities.*
- 3. A drone operating BVLOS departs the original flight plan and flies uncontrolled into a populous environment.*
- 4. A drone operating underground or confined area is not adequate or intrinsically safe and causes static discharge and is ignition source*
- 5. Cargo carried by a drone is jettisoned or dropped*
- 6. A drone flies into critical infrastructure and causes a material loss / loss of production*
- 7. Reputational risk from breaches or regulations or an incident*

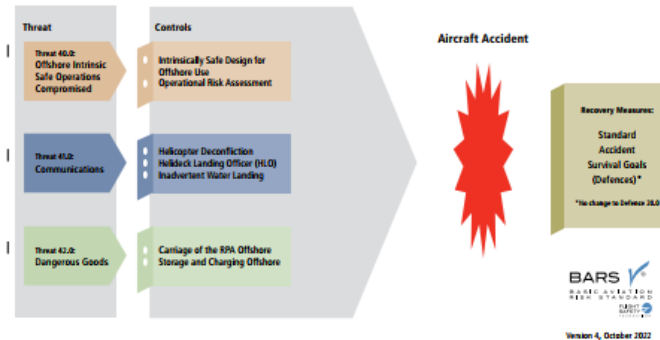
BARS for RPAS Bow-tie



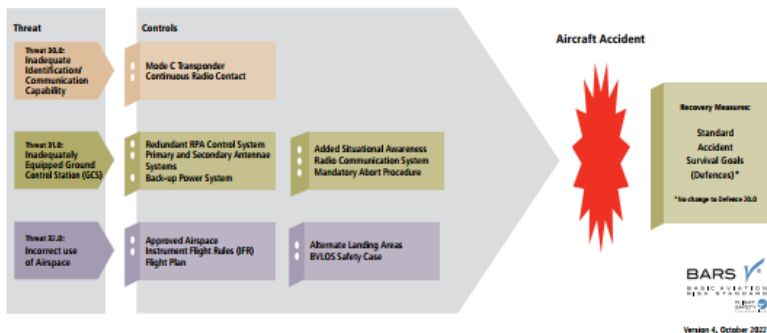
Underground/Confined Spaces



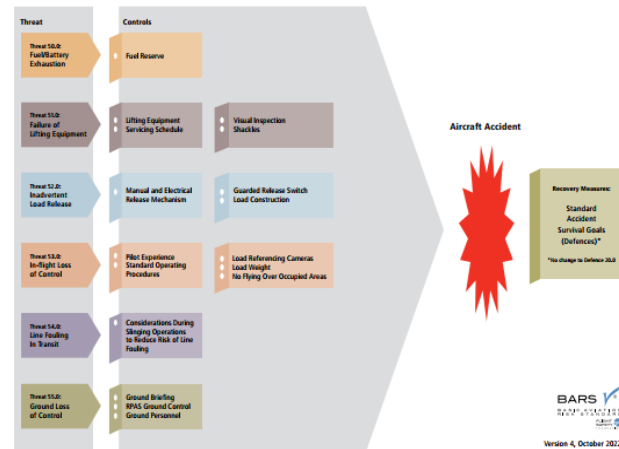
Offshore/Maritime



BVLOS/Controlled Airspace



RPAS External Loads





Mining Sector Exposure to RPAS Operations

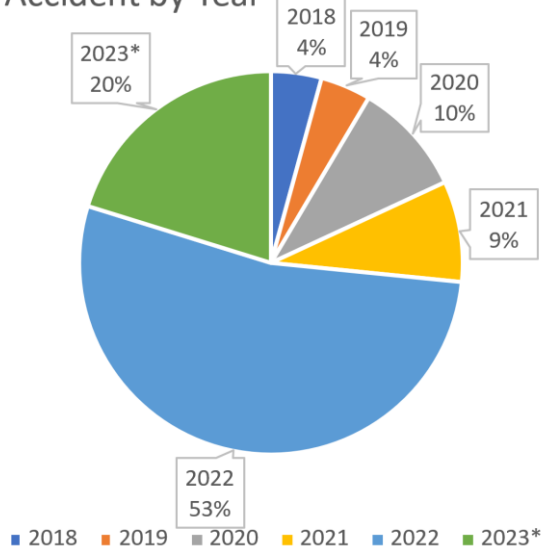
- *5 large Mining Companies:*
- *1800 RPAS pilots*
- *900 RPAS vehicles*
- *20 different national RPAS Operating Certificates*
- *> 50 000 missions each year*

Current RPAS Audited Operations

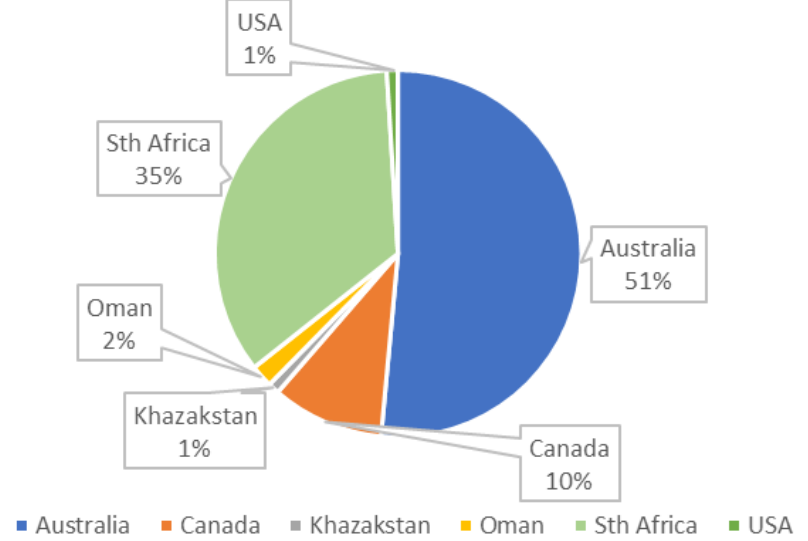
- *Australia*
- *Canada*
- *USA*
- *Kazakhstan*
- *South Africa*

BARS Program RPAS Accident Data

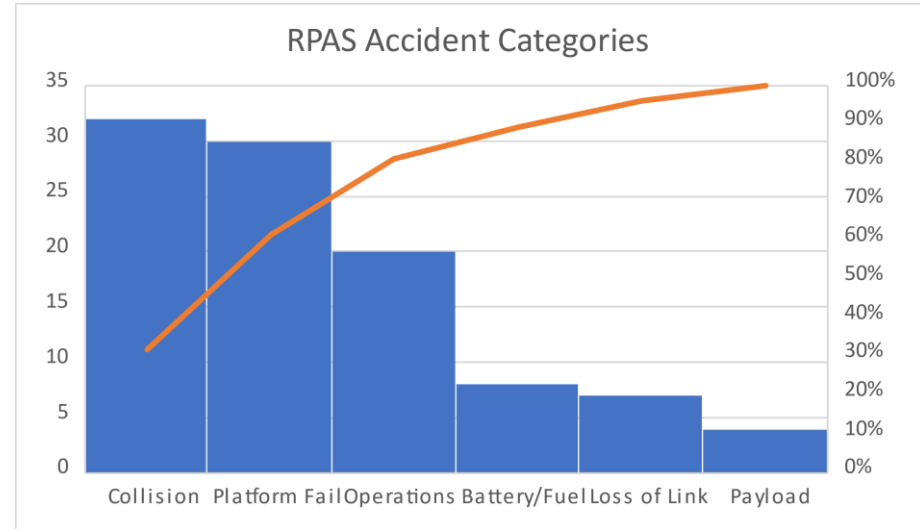
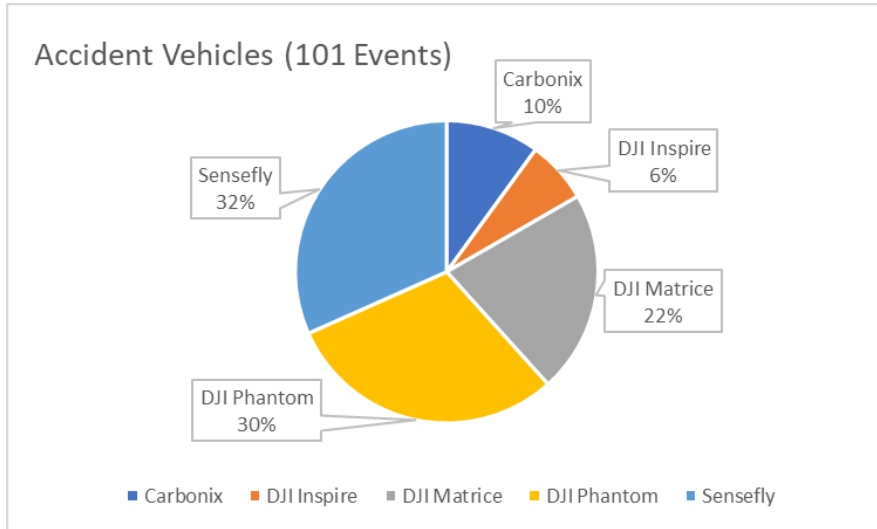
RPAS Accident by Year



RPAS Accident Location (101 Events)



101 Events from 16 Operators



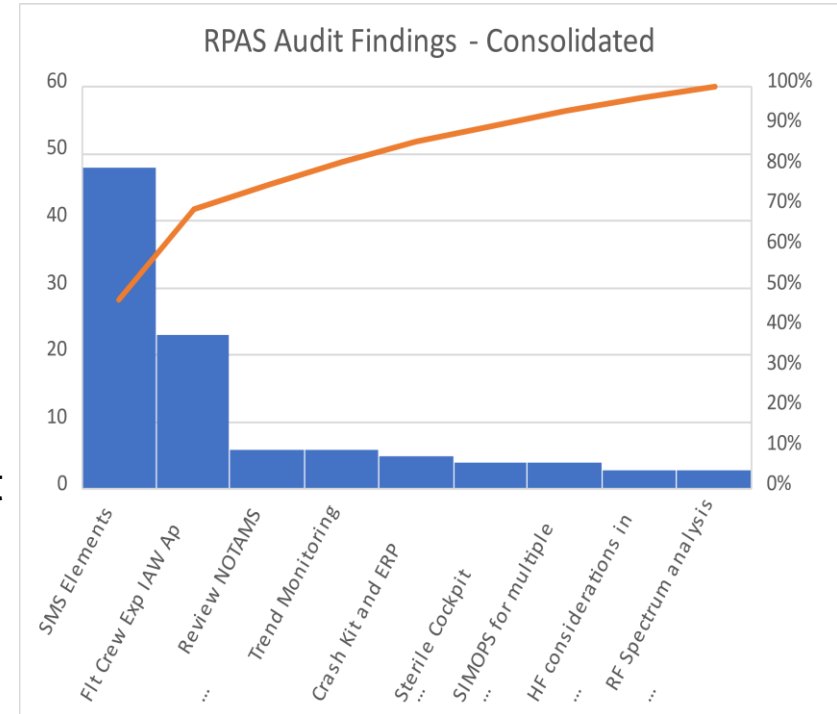


RPAS Audit Data Collection

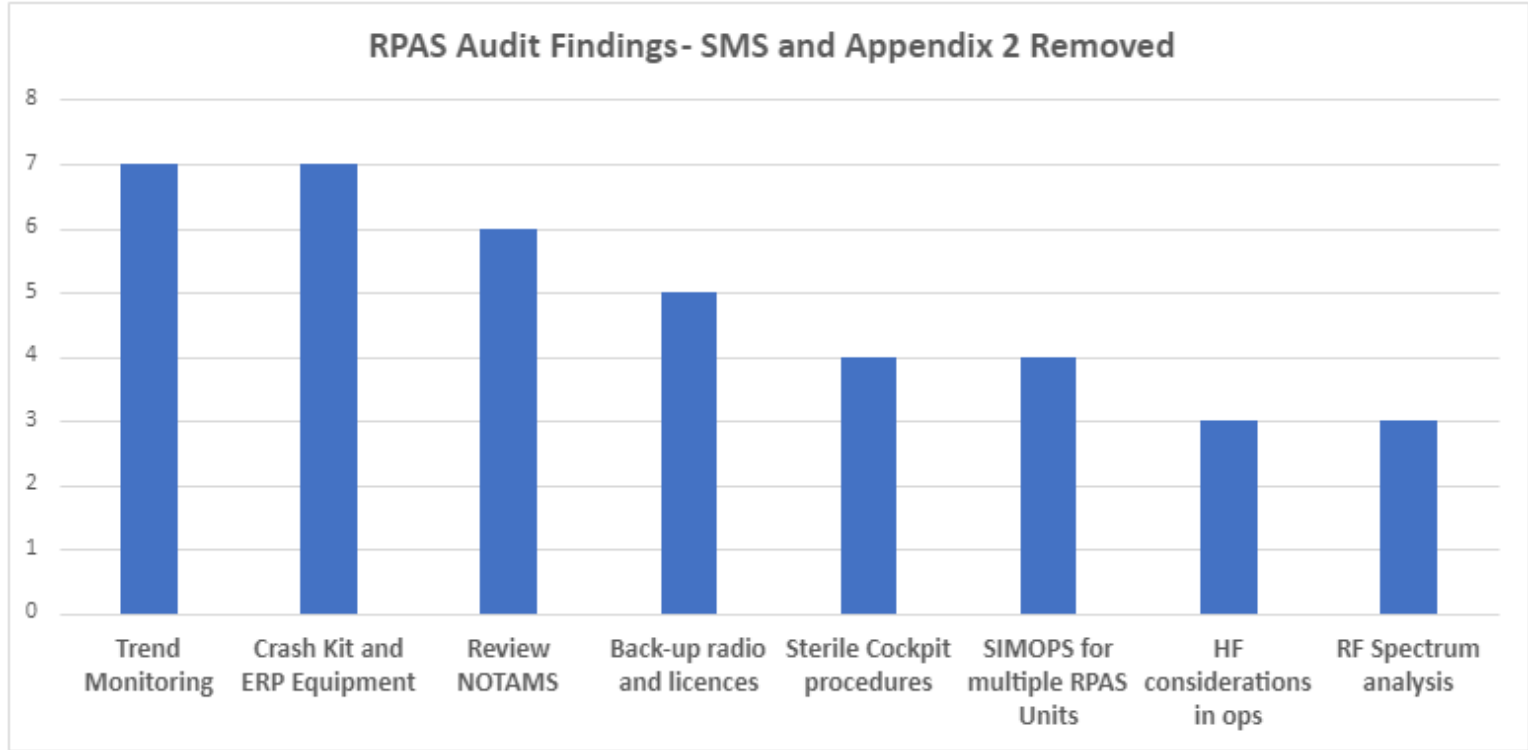
BARS Program RPAS Audit Data

- 31% relate to SMS provisions
- 15% relate to Flight Crew quals and Experience
- 4% relate to checking NOTAMS
- 4% relate to trend monitoring of equipment and batteries
- 3% relate to emergency response equipment and PPE

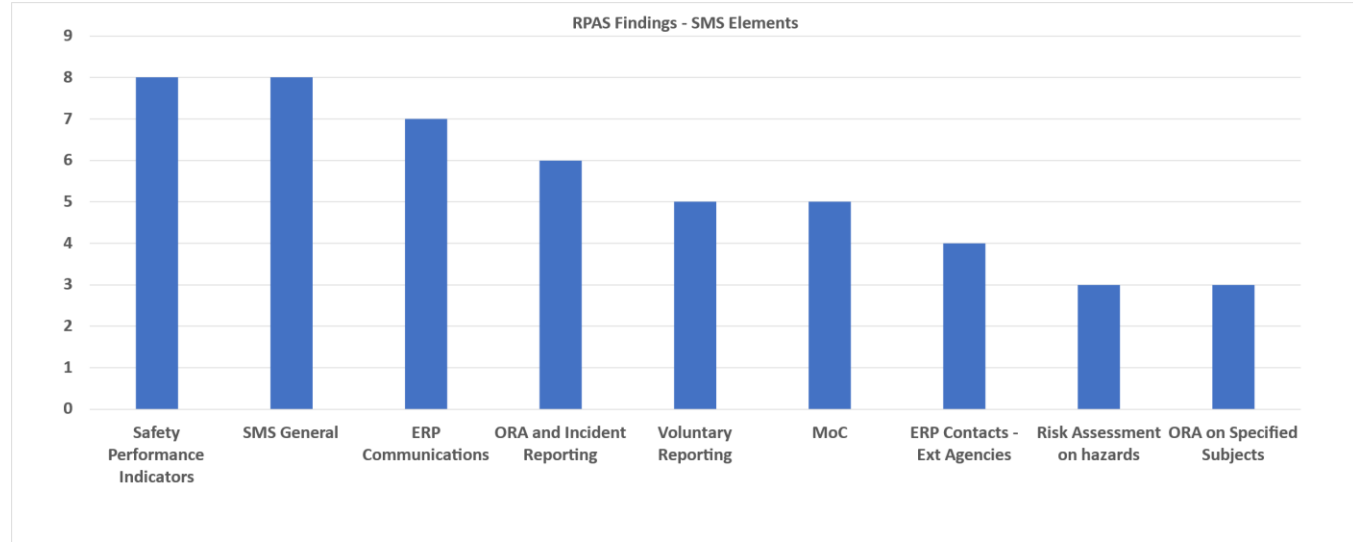
13 Audit Events generating 153 Findings
Australia, Kazakhstan and South Africa



Operational controls that are deficient



SMS Findings across the RPAS Operators are as expected and similar to conventional aviation SMS findings



Next Steps

- *RPAS Accident*

Taxonomy

- *Alignment to BARS*

Bowtie

- *RPAS Operatr Education*



Thankyou

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