

# AUS02 Urban Search and Rescue (USAR) Exercise

## Exercise need

Fire and Rescue NSW (FRNSW) are primarily responsible for maintaining an International Search and Rescue Advisory Group (INSARAG) Heavy classified USAR team, designated under the Olympic code AUS02. A Heavy USAR Team comprises 5 components required by INSARAG Guidelines (Management, Logistics, Search, Rescue and Medical). Heavy USAR Teams have the operational capability for complex technical search and rescue operations in collapsed or failed structures that require the ability to cut, break and breach steel reinforced concrete structures, as well as delayer these structures using lifting and rigging techniques. INSARAG classification requires demonstration of operational minimum standard for international USAR operations while in preparation, response, and rehabilitation phases. An INSARAG External Reclassification (IER) is a demanding process. It requires administrative, financial, and operational commitment of FRNSW, the USAR Team, its Mentor Col Keng Tok Chew (Singapore Civil Defence Force) as well as external stakeholders including Department of Foreign Affairs and trade (DFAT), National Emergency Management Agency (NEMA), NSW Police Force, NSW Ambulance and NSW Public Works.

IER is a peer review program conducted every 5 years during the team’s active classification to ensure the team meet all criteria required by INSARAG guidelines. AUS02 must fulfill

INSARAG minimum standard for USAR operations involving a comprehensive checklist of 208-line items comprised of:

1. Team Management
2. Search
3. Rescue
4. Medical
5. Logistics

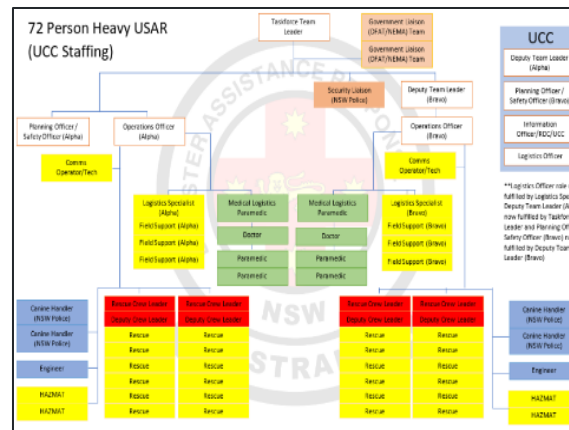


Figure 1 Team organogram.

An annual field exercise provides an opportunity for FRNSW and the wider AUS02 team to maintain and augment skills acquisition and build on teamwork across multi agency, multi-jurisdictional approach to an all-hazards incident. Furthermore, the exercise allowed the team to review procedures in preparation for IER in October 2024 with specific focus on:

- Training assessment: allowed FRNSW to assess readiness and capabilities of the AUS02 team. By simulating realistic

scenarios, evaluators were able to gauge how well the team performed in various situations, identifying strengths and areas for improvement.

- Skill development: provided valuable hands-on experience for team members. They were able to practice techniques, use specialised equipment, and refine their coordination and communication skills in a controlled environment.
- Procedure refinement: identified procedural gaps or inefficiencies in the response process. This included issues such as communication protocols, command structure, and logistical challenges.
- Interagency cooperation: AUS02 operations involve collaboration between multiple agencies, including federal partners, Engineers, medical personnel, and emergency management. The field exercise offered an opportunity for AUS02 to work together, build relationships, and understand each other's roles and capabilities.
- Equipment testing: allowance for the testing of specialised equipment and tools under realistic conditions within the USAR cache 5. This ensures that equipment functions properly and that responders know how to use it effectively during actual emergencies.
- Leadership development: provided leadership opportunities for team members to practice decision-making and coordination skills under pressure. Evaluators were able to observe and provide feedback to help leaders improve their performance.

## Exercise aim

The exercise aim was two-fold. It provided the mentor from Singapore Civil Defence Force the opportunity to witness a deployment of the team, and officially comment to INSARAG if the team can proceed with IER go/no go status. The second aim was to internally review the performance of the team against the minimum standard checklist to determine adjustments, procedural changes, skill deficiencies and areas of success for preparedness towards IER 2024. This extended to the exercise control team combining exercise managing and writing.



Figure 2 USAR operations hot cut to access a casualty.

## Exercise objectives

Exercise objectives were in accordance with INSARAG guidelines to demonstrate a heavy USAR deployment to an international sudden onset earthquake. The AUS02 team were required to:

- Operate according to the methodology and Minimum Standards prescribed by the INSARAG Guidelines.

- Demonstrate a rapid deployment in shortest possible timeframe following a disaster to maximise positive impact on the affected community (6 hrs from mobilisation to departure point).
- Demonstrate a comprehensive understanding and comply with the roles and responsibilities regarding the set-up, operation and staffing of a Reception Departure Centre (RDC), USAR Coordination Cell (UCC).
- Demonstrate an understanding of roles and responsibilities of the Local Emergency Management Agency (LEMA) and be able to integrate effectively with the response for a coordinated and coherent rescue effort in support of the LEMA priorities.
- Compliment the national response effort.

Furthermore, the team were required to practice:

- Rapid mobilisation.
- Be self-sufficient.
- Perform life-saving operations professionally and safely.
- Coordinate activities based on the priorities established by the Local Emergency Management Authority (LEMA) (or National Disaster Management Authority (NDMA)).
- Assist the UN with the USAR Coordination Cell (UCC), Sector Coordination Cell (SCC), Reception/Departure Centre (RDC) and operations.
- Coordinates efforts with other international responders and augments national resources.

- Not be a burden to the affected country (notional).
- Adopt internationally accepted coordination mechanisms established on-site.
- Ensure linkage to the Early Relief phase of an incident to support wider humanitarian response efforts.



Figure 3 Heavy lift to access a casualty coupled with medical intervention.

## Exercise outcomes

Over the 36 hrs of continuous operations the team demonstrated:

- Pre-mobilisation, mobilisation, airport crossing and engagement with the local authorities to provide insight regarding USAR operations, display of sensitivity post major disaster and establish coordination mechanisms.
- Establishment of a Base of Operations for provision of command, logistics, medical and rehabilitation.

- Ability to have equipment and people to work at a heavy technical capability at 2 separate worksites simultaneously. A separate worksite is defined as any area of work that requires a USAR Team to re-assign staff and equipment to a different location all of which will require separate logistical support.
- Demonstration of both a search dog and technical search capability.
- Practical demonstration of technical capability to cut structural steel and concrete typically used for construction and reinforcement in multi-storey structures.
- Adequately staffed and logistically sufficient to allow for 24-hour operations at two independent sites for 30 hours of USAR operations. (Note a Heavy team requirement is 10 days self-sufficiency).
- Practical evolution of medical care of team members, search dogs, and casualties.

Medical intervention included:

1. Triage
2. Patient Assessment
3. Patient monitoring
4. Airway management
5. Ventilatory support
6. Haemorrhage control
7. Immobilisation of fractures
8. Gain vascular access
9. Administration of analgesia and sedation

10. Fluid therapy/hydration
11. Antibiotic administration
12. Procedural sedation
13. Amputation with appropriate analgesia, sedation, and anaesthesia
14. Protection from environment
15. Spinal immobilisation/patient packaging for extrication
16. Management of crush syndrome
17. Management of burns



Figure 4 Team briefing during mobilisation



Figure 5 Construction of shoring props.



Figure 6 Rescue operations for a heavy lift to recover deceased casualties.

## Exercise evaluation

Evaluation was in accordance with the AIDR Lessons Management Handbook. Observations were processed following the Observation, Insight, Lessons Identified, Lessons Learned (OILL) process. Data collection was predominantly via participant survey – QR code, and a team of evaluators observing operations and conducting interviews. Debriefs were conducted to provide an opportunity for participants to proffer less formal observations. A mentor review/AAR was conducted and incorporated into the evaluation report. The insights below focus on strategic issues.



Figure 7 Participant survey



Insight/Lesson	
Incorporating gender, equality, diversity, and social inclusion (GEDSI) principles into casualty scenarios.	Sustain
Multi agency exercising to build literacy and relationship building	Sustain
Agility of exercise control staff to adapt and better manage scenarios when represented by multi agency cohort.	Sustain
Incorporating role players from external agencies to decrease sterility of the exercise.	Sustain
Establishment of cameras to facilitate remote viewing options.	Sustain
International INSARAG focused exercises build state-based capability for major structural collapse.	Sustain
Balance of exercise scenario against realistic timeframes and urgency.	Improve
Exercise control script and role players need further time investment to reduce ambiguity and clarify exercise outcomes	Improve
Extensive briefings requiring team focus for extended periods of time and impacting timelines of exercise.	Improve
Designating team members as per shift or functional role	Improve
Avoid the use of acronyms when engaging with external stakeholders and role players	Improve

## Recommendations

1. Continue to incorporate and actively enhance GEDSI scenarios in USAR operations. Disasters and emergencies affect everyone regardless of gender ethnicity or social status. Incorporating GEDSI principles ensures that rescue operations are tailored to meet the specific needs of diverse populations, including women, children, elderly individuals, and marginalized communities.
2. Continue to drive opportunities for collaboration in multi-agency exercises which foster networking and relationship building among responders and agencies. Developing strong partnerships and mutual trust enhances inter-agency cooperation and communication, facilitating a more cohesive and effective response to emergencies. USAR field exercises drain significant time, people and fiscal resources. Develop tabletop discussion exercises to promote continued multi agency participation.
3. Maintain a multi-agency Excon team with SMEs in each discipline to provide better control and adapt to cross cutting issues that are generated by exercise evolution.
4. The use of RAAF role players for airport clearance demonstrated the stringent requirements for procedural outgoing requirements, cargo manifest -dangerous goods, schedule medications, non-Australian passport holders, etc.
5. Multiple cameras were installed within the rescue environment providing opportunity for remote observations. This sterile observation

point provides clarity of observations and can be used to support observer program and be used to bolster other exercises. Furthermore, all critical meetings between the affected country and the AUS02 team management were recorded on teams again allowing for remote viewing options. This also provides opportunity to review and reflect on performances against the exercise outcomes.

6. USAR exercises build capacity and are in accordance with the NSW Structural collapse sub plan. Numerous stakeholders are involved in both domestic and international response facilitating strengthening of team cohesiveness, multi-agency skill maintenance and deeper understanding of roles and responsibilities.
7. Imparting a sense of urgency to an exercise scenario is difficult. Observed behaviour did not reflect operational tempo and negatively distorted the exercise timeline. Recommend installing shock clock concept during the mobilisation phase to guide participants and clearly articulate time period for specific taskings to inject increased cadence of work. Team decisions did not always align with exercise control outcomes highlighting possible discrepancies between exercise script against pragmatic exercise operations and tacit knowledge of the Incident Management team. Further refinement of the exercise script is required with the consideration of review by individuals outside of exercise participants.
8. Condense briefings in accordance with checklist items. Consider use of a single

individual to deliver briefings to reduce possible duplication of information and focus on brevity. Awareness that team participants are standing for prolonged periods during briefings provided added incentive for reduction in briefing times.

9. Consider the use of arm bands or similar to designate shift or functional roles. Equally consider functional informational pack to Rescue team leaders and IMT to provide further information that is difficult to brief given time considerations including wellbeing, fatigue management, country context, etc.
10. The INSARAG landscape has a comprehensive list of acronyms that provide clarity to individuals through common nomenclature. This language is however unfamiliar with individuals outside of this structure. Participants to avoid the use of acronyms and remain cognizant to the familiarisation external participants may have.

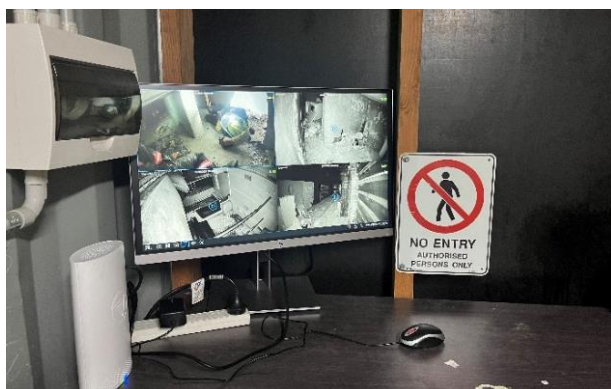


Figure 8 Remote cameras established for operations



Figure 9 Pancake collapse with heavy lift for access.

## Conclusion

The USAR field exercise served as a valuable learning experience to enhance preparedness for real-life emergencies. The conclusion of the exercise marks the beginning of a continuous improvement cycle, where lessons identified are integrated into future training and response.

FRNSW are indebted to the professionalism of the deploying team, exercise control staff and mobilisation staff. Thank you to our external working sites:

- Sydney International Shooting Centre
- Defence Facility Orchid Hills



Figure 9 Establishment of Base of Operations Sydney International Shooting Centre (SISC).



Figure 10 Aerial view establishment of BoO SISC



Figure 11 Constructed BoO