

Exercise Evaluation Report

Tasman Avalanche SAREX 2022

Location: St Arnaud, Nelson Lakes

Date: August 7-9 2022

Report version: FINAL

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Executive Summary

A Police-led avalanche SAREX was conducted at Rainbow Ski field, adjacent to the Nelson Lakes National Park from 7 – 9 August 2022.

The exercise was designed by Andrew Hobman (Avalanche NZ) and attended by Nelson Bays and Marlborough Police SAR Squad members, Department of Conservation and Rainbow Ski field staff, Tasman LandSAR and AREC volunteers, with support from local helicopter operators.

The exercise included a theory and refresher session that led into a full practical exercise the following day.

The field was set up the day prior with final set-up the morning of SAREX; the call out was made from the field; the SAREX ran in real time until completion.

The aim of the exercise was to practically and safely test and evaluate the Tasman District Policing avalanche response plans, and the readiness and response of participating agencies.

The IMT and Field teams were tested in a realistic setting where they were able to learn and develop their skills and abilities in a remote challenging environment.

Some improvements have been summarised in the Recommendations.

1. Recommendations

- Conduct real-time exercises covering the immediate response with the personnel that are most likely to be first responders. Introduce Police responders and the IMT at a realistic time into the first operational period.
- Ensure the Response Plan contains all available options for two-way communication including Cellphone, radio, satellite calling and messaging.
- Identify what challenges might be faced in certain geographic locations and how communications out of and into an avalanche site can be gained as early on as possible in the operation.

2. Introduction

The NZSAR funded Avalanche SAREX has become an annual event over recent years with exercises being run in the North and South Islands involving a large scale multi agency response in real time.

Nelson and Marlborough Police have the prime responsibility to respond to Avalanche Incidents within their policing boundaries including the popular recreation areas of Nelson Lakes National Park, the Wharepapa/Arthur Range and the Rainbow Ski Area.

The immediate SAR response to an avalanche at Rainbow is generally undertaken by ski area staff and DOC, whose primary role of is to provide a rapid response to the event to preserve life.

Police will assist the immediate response in accordance with the Avalanche Response Plan and establish an IMT to manage and support the ongoing response.

The Tasman Avalanche SAREX was planned by Tasman Police and local operators with specialist input and guidance from Andrew Hobman (Avalanche NZ).

The event was hosted by Nelson Bays Area Police with support from the Nelson Bays and Marlborough SAR squads.

The intent of the exercise was to test the response of ground teams and IMT in real time for an avalanche event. This was a realistic exercise designed to test the Response Plan, and to increase the level of experience and proficiency of response agencies including their ability to work together.

The site was established at the Rainbow Ski Field; the IMT was based at Rotoiti Lodge in St Arnaud Village with communication via radio to field teams.

3. Background

3.1. Background to the Exercise

The top of the South Island is a popular winter destination for walkers, climbers, hunters and skiers with many activities taking place above the 'snow line'. There is a well-documented history of very large natural avalanches crossing easy access walking tracks and involvements from human triggered events particularly in the Nelson Lakes region.

There is an increasing likelihood of an avalanche incident involving multiple burials due to increasing use of backcountry terrain and large weather events.

An Avalanche SAR incident is a time critical, medical emergency that requires highly skilled teams to assess and manage the response in a high-risk environment involving multiple helicopters.

The Rainbow Ski Field provided a realistic Avalanche Site. The exercise provided an opportunity for responders to work together.

3.2. Dates, location, organising agency(s), key people

DATE:	August 7-9 2022
LOCATIONS:	ICP – Rotoiti Lodge, St Arnaud; Search area – Rainbow Ski Field
ORGANISING AGENCIES:	NZ Police, Avalanche NZ
KEY PEOPLE:	Sgt Jonny Evans, Andrew Hobman, Leanne MacDonald, Aimee MacDonald, Matt Wilkinson

3.3. Participating organisations

- NZ Police – Nelson & Marlborough SAR Squad
- Avalanche NZ
- LandSAR including IMT & Field personnel
- Department of Conservation St Arnaud
- Rainbow Ski Patrollers
- Murchison Helicopters
- Helicharter Nelson Helicopters
- Garden City Helicopters
- NZSAR

3.4. Exercise aim

To practically test and evaluate the Tasman District Policing avalanche response plans, and the readiness and response of participating agencies.

3.5. Key Exercise objectives

Test the Tasman District Policing avalanche response plans;

Refresh and test the Incident Management Team (IMT) response using Nelson Bays and Marlborough personnel;

Refresh and test the field response with a focus on patient care;

Develop interoperability between Policing Areas and Avalanche First Responders.

3.6. Exercise Scenario

A number of hikers/skiers were involved in an avalanche on the Rainbow Ski field, with partial and full burial. The actual number of people, their level of preparedness and condition was unknown.

The exercise included six burials (4 with avalanche transceivers and 2 without) and was run in 'real time'.

The SAR operation was initiated via a report to the Nelson Police SAR Duty officer and conducted as per the local response plan. The exercise concluded when the final victim had been evacuated and the rescue teams stood down by the Exercise Controller.

A debrief was conducted immediately after the exercise at St Arnaud.

4. Evaluation Methodology

4.1. The agreed outcomes of the evaluation activity

Carry out observation of the IMT and its function in a real-time scenario.

Observe actions of field teams and its function in a real-time scenario.

A report to be written outlining observations of the SAREX in relation to the stated objectives and the KPIs.

Recommendations to be made based on those observations.

Evaluation scope

To observe the Incident Management Team at the ICP and report on performance that included ability to function, manage communications and achieve the objectives set for the exercise.

To observe operations in the field and report on performance.

Aspects of the exercise observed, what was not observed

All aspects of the exercise were observed.

The process followed in preparing and submitting the report

Consultation was made with the Tasman District SAR Assistant coordinator approximately 4 weeks before the SAREX. There was no interaction with the Exercise planners (scenario) prior to the SAREX.

The initial Plan was supplied; Objectives and Key Performance Indicators were developed by Sgt Evans.

The evaluators attended the SAREX from Sunday night through to Tuesday afternoon including the Hot Debrief immediately after the exercise.

Evidence was collected by observations and notes taken at the time.

5. Findings

EXERCISE PLANNING

The exercise was planned and managed by the Exercise Coordination team, led by the Exercise Director (Sgt Jonny Evans). The Exercise Coordination team facilitated the various scenarios with input from Andrew Hobman (Course Facilitator) and was responsible for:

- Setting up the scenario;
- Initiating the exercise;
- Coordinating the use of role players;
- Managing the safety of the monitors, role players, media and interested bystanders;
- Monitoring and evaluating the performance of the responding teams and providing guidance and or tuition on operational matters when required;
- Managing the overall safety of the exercise including monitoring for any safety related issues and halting all activities if any arise.

EXERCISE CONDUCT

The exercise was conducted over 3 days:

Sunday August 7th

Personnel assembled at Rotoiti Lodge; some refresher training on probe lines and general field work at an Avalanche site was carried out.

Monday August 8th

A Theory introduction & refresher session was followed by a desktop exercise. The field was set up at the Rainbow Ski field.

Tuesday August 9th

Helicopter and other health and safety briefings were held; Rainbow Staff went directly to the scene.

The exercise proper commenced at 1138 hrs.

Field teams deployed by helicopter to the training incident site, Rainbow Ski field

The Incident Control Point (ICP) was established at Rotoiti Lodge; a full Incident Management Team (IMT) was set up.

Information Collection Planning continued with requests for information delivered by EXCON.

Operational logs were established and maintained.

Regular IMT meetings were held

EXERCISE EVALUATION AGAINST OBJECTIVES / KPIs (refer Appendix 7)

The SAREX was evaluated against Objectives and KPIs developed by the Nelson Police SAR coordinator.

KPIs were

- Achieved
- Partly achieved
- Not achieved

6. Conclusions

The exercise was primarily successful and the key objectives were achieved.

The Plan was tested adequately, but is still being reworked and updated in line with NZSAR Avalanche Response Guidelines. Some improvements to the Response Plan have been included in the Recommendations.

The presentation from Andrew Hobman on avalanche behaviour and characteristics, survivability and search techniques delivered 3 weeks prior to the SAREX was particularly useful to help participants extract maximum value from the exercise.

The desktop exercise the day before the live exercise was a particularly useful introduction to the scenario and urgency required. A number of points were raised, including:

- The role of the IMT is to throw as much resource at the scene as possible;
- Send as many Air Assets to the scene as you can for patient handling;
- Think about a suitable evacuation point – e.g. West Bay;
- Be really clear about how many people are missing;
- Get a qualified person on site who can triage;
- Think also about how you are going to evacuate rescuers;

The response of the Incident Management Teams was well tested, and provided a good opportunity for Nelson Bays and Marlborough Police SAR personnel to work together. The IC demonstrated a good awareness of resources available.

The exercise also helped to develop interoperability between Policing Areas and Avalanche First Responders.

Communication between the ICP and the Avalanche Site was problematic due to black spots in radio coverage via DoC Channel 1. A portable repeater was set up in an attempt to address this, but Rainbow staff commented that *“the biggest issue for was the lack of Comms – it was chaos when the 3rd helicopter load arrived”*.

“Floppy Jim” aerials were available for portable SAR radios but not issued.

The Avalanche Scene Controller will have obtained valuable experience from this training exercise. There was a period of confusion on avalanche site taskings with a number of willing rescuers arriving by helicopter on site.

Medical triage and evacuation planning lagged due to the external communication problem and knowledge of who was arriving on site.

Sourcing the equipment cache containing marking flags/wands would assist management of a multiple burial incident.

Appendix A

Key Performance Indicators

Test the Tasman District Policing avalanche response plans

KPI	Achieved?	Comments
Response plan contains accurate and adequate information	Partly Achieved	The exercise uncovered some gaps in the Plan, which is currently being reviewed and updated in line with NZSAR Avalanche Response Guidelines. Some improvements to the Response Plan have been included in the Recommendations.
Response plan contains correct and sufficient resources	Partly Achieved	Response plans should be reviewed annually as a minimum. Evaluate the plan keeping the document succinct, to enable a response manager to use easily.
Response plan aligns with Health and Safety requirements	Achieved	All planning documents support health and safety best practice

Refresh and test the IMT response using Nelson Bays and Marlborough personnel

KPI	Achieved?	Comments
Response plan was followed	Achieved	The IMT accessed and implemented the Plan and requested appropriate assets in an appropriate time frame.
Briefings, communication, and planning completed	Partly Achieved	A comprehensive GSMEAC briefing was prepared prior to the Exercise and delivered to all participating personnel by Sgt Jonny Evans Communication between the IMT and the ASC was problematic.
Management of resources and time is in accordance with CIMS	Achieved	The IMT structure was in accordance with CIMS (membership of the IMT and role assignment was predetermined) IMT roles and responsibilities were in accordance with CIMS.
Event log maintained	Achieved	Actions & decisions were logged by the IC. Radio messages were logged in SARTrack
Situational awareness gained and maintained	Achieved	The IC held regular meetings that included updates on actions achieved and decisions determined. The IMT was aware of the location and status of all deployed personnel at all times. Resource tracking was carried out on whiteboards. The IMT was continuously aware of the progress, welfare and activities of resources
Manage and assess intelligence reports	Achieved	Requests for Information were timely and appropriate to the scenario. Information received by the IMT was analysed and communicated within the IMT. Information was effectively managed during the exercise.
Health and safety and welfare monitored	Achieved	Appropriately trained and experienced people were deployed to the site Operational risks were analysed appropriately Risk management systems and processes were defined and communicated Briefings appropriately addressed identified risks
End of incident and debrief	Partly Achieved	A Hot debrief held at the conclusion of the event after all personnel were out of the field. The date for the formal debrief is yet to set

Refresh and test the field response with a focus on patient care

KPI	Achieved?	Comments
Response plan followed	Achieved	Field responders were deployed as planned; Rainbow staff first on scene commenced searching with other responders being helicoptered to site, first loads arriving at 12:05 and all responders on site by 12:20
Timely and appropriate action	Achieved	Exercise start call was made at 11:38 and all buried subjects were located and fully dugout by 12:40. 62 minutes duration of intense searching and recovery work by the teams participating.
Correct and adequate resources and skills	Achieved	Rainbow ski field staff professionally searched the debris field visually and with transceivers and had located 4 subjects by 12:06 – 28 minutes after the exercise start, the remaining 2 subjects not wearing transceivers located by probing
Communication	Partially Achieved	The ski field radios only had internal rainbow field channels; direct radio communications were only achieved once a member of the helicoptered response team linked up with the Avalanche Scene Controller. <i>“The biggest issue for Rainbow staff on the ski field was the lack of Comms – it was chaos when the 3rd helicopter load arrived”</i>
Patient management and processing	Partially Achieved	The Initial rainbow response team were few in number; the first partially buried subject recovered had injuries requiring triage management; initially no plan in place for rapid evacuation of injured by helicopter. Once additional rescuers arrived on scene, improved medical triage was observed and CPR being performed when the subject notes indicated.
Site clearance and debrief	Achieved	ASC confirmed all subjects had been recovered and the avalanche operation was concluded at 13:05 and evacuation flights commenced back to West Bay.

Develop interoperability between Policing Areas and Avalanche First Response Teams

KPI	Achieved?	Comments
Good briefing	Achieved	The Exercise Director delivered a GSMEAC briefing to all participating personnel prior to commencement of the Field exercise
Communication and common terminology	Partially Achieved	The Exercise exposed a radio communication gap in the Rainbow Ski field area. Work is required in partnership with Police SAR and DOC across avalanche probability locations to understand which communications systems work. Transceivers were used very efficiently at the field exercise to locate buried subjects.
Coordinated and consistent response	Achieved	Field responders were deployed in coordinated teams as planned; the majority were transported by helicopter to the scene, being directed once on site by the Avalanche Scene Controller.
Managing and sharing resources	Achieved	The Avalanche Exercise, both the training and field response days achieved the outcome of sharing knowledge and resources from all contributing agencies working in the Search and Rescue sector.
Collaboration	Achieved	Response personnel in both IMT and Field Response blended and worked effectively in collaboration which achieved the principal exercise outcomes.
Share lessons learned and final report with SAR sector		This evaluation report will be published on the NZSAR website

Appendix B

Field Exercise Timeline

Time	Action Observed
11.38	Exercise started – Phone call to Rotoiti IMT by Avalanche Witness
11.40	Rainbow Ski Field staff observed approaching the Avalanche area
11.42	Avalanche Scene Controller appraises the situation. Voiced safety issues to responders, “No Hangfire.”
	Interviewing the Avalanche witness, ASC giving direction to initial response team
11.47	1 st subject, partially buried being dug out, 2 nd subject site located by transceiver
11.48	2 nd subject, probe confirmation, digging out commenced
11.50	Digging 2 nd subject continuing, 1 st subject extracted, provided insulation and primary assessment
11.55	3 rd subject site located by transceiver, confirmed by probe. Glove location probed, no success
11.56	2 nd subject dug out, triage of medical status
11:59	1 st subject, medical triage continuing, management of injuries
12.02	3 rd subject located by transceiver and being probed
12.05	First loads of helicopter response teams from West Bay arrive
12.06	4 th subject located by transceiver - extraction digging commencing for both 3 rd & 4 th subjects
12.10	ASC calls for more diggers at 3 rd & 4 th extraction sites
12.12	ASC challenged with site communication and coordination – apparent no radio communication with Rotoiti IMT
12.20	Second loads of helicopter response teams from West Bay arrive on site
12.22	3 rd & 4 th subjects extracted, medical triage.
12.23	Probing in areas identified where missing 5 th – 6 th subjects could be
12.25	5 th subject located by probe, extraction digging underway
12.28	6 th subject strike, conveyor extraction dig commenced.
12.35	5 th subject extracted, medical triage, CPR commenced
12.40	6 th subject extracted, medical triage, CPR commenced
12.42	ASC meeting with key field members on vantage point
12.48	6 th subject on stretcher, CPR continuing
12.50	ASC – patient extraction being planned & directions
13.05	Field Exercise ended, field teams regrouped and prepared for helicopter extraction flights

Appendix C: Field Exercise Photos



Rainbow Ski Field Rescuers digging out 1st Subject and Transceiver Searching



Rainbow Ski Field Rescuers – Digging out 2nd & 3rd Subjects



First load of Rescuers arriving at the Helicopter Pad



Combined Rescue Teams digging & extracting subjects 4 & 5



Avalanche Scene Controller tasking new rescuers



Rescuers conveyer dig extraction of 6th subject



Rescuers delivering CPR to 6th subject