

Initial Response Plan for volcanic activity in Tongariro National Park



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Conservation
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**INITIAL RESPONSE PLAN
FOR VOLCANIC ACTIVITY IN TONGARIRO NATIONAL PARK**

Table 1. Document Control

DOC-1193248

Department of Conservation – Tongariro District Operations

Revision	Date	Description of changes	Author
14	June 2022	Contact numbers updated for Police, Uenuku, RAL and Tukino Ski Field.	██████████
15	June 2022	Removed references to ERLAWS as it has been decommissioned. A new system is now operated by Genesis Energy and Horizons Regional Council.	██████████
16	August 2022	Formatting changes to improve usability of the Volcanic Ranger reflex tasks and callout lists. Removed conference call and replaced with MS Teams call at E+45 mins. Updated Hillary Outdoors contacts.	██████████
17	August 2022	Formatting and wording changes to improve the usability and clarity of confirmed eruption reflex actions for Volcanic Rangers and DOC Operations Manager. Added more notes/tips to the Volcanic Ranger reflex actions for VAN activations.	██████████
18	January 2023	Updated cover page. Made minor corrections to Volcanic Ranger reflex tasks. Updated contacts to reflect personnel changes.	██████████

Earlier versions of this document can be found in DOCCM.

This plan should be reviewed annually in April in conjunction with the Guidelines for DOC volcanic risk management in Tongariro National Park – [DOC-1130183](#).

This plan supersedes all previous eruption response plans for Tongariro National Park.

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1. Initial Response Plan purpose

The **Initial Response Plan** (IRP) is one of two documents used to guide the Department of Conservation (DOC) Tongariro District Office's approach to volcanic risk management and response. The IRP addresses the initial response to an eruption in Tongariro National Park (TNP), while the **Guidelines for DOC volcanic risk management in Tongariro National Park** (Guidelines) address the escalation and de-escalation of volcanic unrest and the associated management actions that accompany the changing volcanic climate. The Guidelines also cover DOC's roles such as coordination with GNS Science (GNS), NZ Police, iwi, hapu and other agencies, as well as decisions and actions by DOC and general readiness – including use of the Coordinated Incident Management System (CIMS).

This plan outlines the initial (approximately first hour) response by DOC to volcanic eruptions in TNP at Ruapehu, Tongariro or Ngāuruhoe volcanoes. It covers eruptions and lahars at Ruapehu, and eruptions at Ngāuruhoe and Tongariro, but not other secondary events that may occur as a result of, or independent to, an eruption.

The IRP has lists of reflex tasks intended as initial response tools and checklists to be used until the Incident Management Team (IMT) and Coordinated Incident Management System (CIMS) structure is established. Most of the actions in the IRP are delivered by the DOC Volcanic Ranger, which is a rostered role – 24/7 – 365.

Eruption response is likely to be triggered by an activation of the Tongariro National Park Volcanic Alert Network (TNP VAN), which includes:

- The Ruapehu Eruption Detection System (**REDS**) and Whakapapa Ski Area Lahar Alert and Warning System (**WLAWS**)
- The Whakapapa Village Lahar Alert and Warning System (**VLAWS**)
- The Tongariro Eruption Detection System (**TEDS**)

More information about the TNP VAN can be found in the appendix.

2. VAN activation – initial response

2.1 Reflex actions for DOC Volcanic Rangers

Step 1:

- Call the rostered GNS Volcano Duty Officer for confirmation of eruption or false positive. *(See Trello app or email to identify rostered GNS staff member)*
- If the GNS Volcano Duty Officer needs time to look at the data and will call you back, post “Awaiting GNS confirmation” on the DOC TNP VAN Response Log and REDS/WLAWS Response WhatsApp groups.

- ? GNS confirmed eruption? Go to step 2 on the next page.
- ? GNS confirmed false positive?
- ✓ If TEDS false positive, post “no eruption, stand down” on the DOC TNP VAN Response Log. No further action required.
- ✓ If REDS/WLAWS and/or VLAWS false positive, continue to step 2 here:

Step 2:

- Confirmed false positive** – post “no eruption, stand down” on the DOC TNP VAN Response Log and REDS/WLAWS Response WhatsApp groups. Include the cause of the false positive in your post.
- Shut down sirens and send/broadcast all clear message using the tnpvan.nz website.
- If VLAWS (Whakapapa Village) activated, complete the VLAWS false positive callout list in section 5 of this document, or the VAN Response Trello board.

Note: The REDS/WLAWS (Whakapapa Ski Area) false positive callout is covered by the REDS/WLAWS Response WhatsApp group.

Step 3:

- Post a false positive notification on the DOC Tongariro Facebook page using the REDS/WLAWS/VLAWS false positive template in the comms plan.

- ✓ **False positive, stop here.**

✓ **Confirmed eruption, continue here:**

Step 2:

Confirmed eruption – ask the GNS Volcano Duty Officer:

- Where is the location of the eruption? (*Confirm origin vent*)
- Is the eruption ongoing, or has it stopped?
- What is the estimated size of the eruption?

Note: GNS may not be able to answer these questions, this is only best endeavours to maximise situational awareness.

- Post “eruption confirmed, initiate response plans” on the DOC TNP VAN Response Log and REDS/WLAWS Response WhatsApp groups.
- If you have situational information from GNS, share it on the groups.

Step 3:

- Complete the appropriate confirmed eruption callout list in section 5 of this document or the VAN Response Trello board. Ensure that contact has been made with the DOC Tongariro Operations Manager. *Task others to assist if possible – this task is simple but time consuming.*

Step 4:

- If **VLAWS** activated, or reports of lahar in the Whakapapanui – dial 111 and ask for Fire, Whakapapa Village, Mount Ruapehu. Request that both Bruce Road gates are closed, and road signs deployed.

Step 5:

- Ensure DOC public information management (PIM) personnel are contacted to deliver the comms plan. If DOC PIM is unavailable, post an eruption notification to the DOC Tongariro Facebook page using the appropriate template in the comms plan.
- Ensure DOC Local Bodies staff (Whakapapa Village) are informed, so the Whakapapanui water intake can be isolated to prevent ash contamination.
- Gather intelligence to steer response and assist in CIMS development.

3. Confirmed eruption – next steps for DOC Volcanic Rangers

Identify priority risk management actions for public and staff safety with the Tongariro Operations Manager. The priority is protecting life safety in Tongariro National Park:

- Undertake reflex closures and entry control with Police assistance.
- Evacuations if required – liaise with RAL for REDS/WLAWS response.
- Locate necessary resources.

Develop a CIMS structure as response builds:

- Transfer Incident Control to the DOC Tongariro Operations Manager, or CNI Operations Director’s delegated DOC person. In some cases, the Volcanic Ranger may stay on as DOC’s Incident Controller (IC) depending on the resources available.
- Ensure local PIM response is underway per Comms Plan.
- Ensure that the Intelligence response is underway – getting updates from GNS and RAL on event progression to inform response priorities.
- Identify and establish DOC/Police Incident Control Point location (ICP). Likely to be the Tongariro National Park Visitor Centre in Whakapapa Village.
- Establish the DOC and Police Incident Management Team (IMT) and assemble at the ICP.
- Use the CIMS IMT resource kits (located in both the Ohakune and Whakapapa offices).
- IMT develop and execute an Incident Action Plan with clearly defined goals and the operational period that they will be delivered in.
- At approximately eruption+45 mins, hold a Microsoft Teams meeting with RAL, Police and GNS. Send a meeting invite to participants via email. The DOC Tongariro Operations Manager/IC will lead this meeting if available. The purpose of the meeting is to gain situational awareness about eruption impacts and response progress and to identify collaboration opportunities.

4. Confirmed eruption reflex actions for the DOC Tongariro Operations Manager or delegated staff member:

- Obtain situational awareness from the Volcanic Ranger and take control of the incident until the police arrive. (If on site and able to lead an IMT. If not on site, delegate Incident Control until you arrive).
- Consider the information from the Volcanic Ranger and make decisions on the immediate response relevant to the origin and type of volcanic event to manage risk to staff and the public.
- Ensure a PIM response is being prepared with iwi and appropriate interagency input - ensure key messages are consistent.
- Notify more senior DOC Managers and the Minister of Conservation depending on, and as required, by the scale of the event.
- Ensure that iwi leaders are notified, and a suitable time is arranged for direct communication with them.
- If appropriate, prepare to handover to the local police when they arrive with a situation report.
- Ensure CIMS structure develops and works smoothly to manage DOC's response. Make sure that the DOC IMT is building an Incident Action Plan and using
- Ensure interagency communication is effective and key stakeholders are kept up to date (as necessary).
- Lead the Microsoft Teams meeting (at approximately eruption +45 mins) with RAL, Police and GNS (if you are available).

5. VAN activation response – phone callout:

5.1 REDS/WLAWS (Ski Area) – FALSE POSITIVE CALLOUT

✓ This REDS/WLAWS false positive callout list is covered by the 'REDS/WLAWS Response' WhatsApp group. This list is just a backup in case WhatsApp is unavailable.

- Ruapehu Alpine Lifts Whakapapa – Duty Manager: [REDACTED]
- Ruapehu Alpine Lifts Whakapapa (backup) – [REDACTED]
- Ruapehu Alpine Lifts Tūroa – Duty Manager: [REDACTED]
- Ruapehu Alpine Lifts Tūroa (backup) – [REDACTED]

- Police Ruapehu – [REDACTED]
- Police Ruapehu (backup) – [REDACTED]
- Police Ruapehu (backup) – [REDACTED]

- Ruapehu DC Civil Defence – [REDACTED]
- Ruapehu DC Civil Defence (backup) – [REDACTED]

- Ngā Waihua o Paerangi – [REDACTED]

5.2 VLAWS (Whakapapa Village) – FALSE POSITIVE CALLOUT

- Whakapapa Holiday Park: [REDACTED]

- Chateau – Reception: [REDACTED]

- Police Ruapehu – [REDACTED]
- Police Ruapehu (backup) – [REDACTED]
- Police Ruapehu (backup) – [REDACTED]

- Skotel – [REDACTED]
- Skotel (backup) – [REDACTED]
- Skotel (backup) – [REDACTED]

- DOC Operations Manager – [REDACTED]

- Ruapehu DC Civil Defence – [REDACTED]
- Ruapehu DC Civil Defence (backup) – [REDACTED]

5.3 RUAPEHU – REDS/WLAWS, VLAWS – ERUPTION CALLOUT

RUAPEHU ERUPTION CALLOUT LIST 1

- Ruapehu Alpine Lifts Whakapapa - Duty Manager: [REDACTED]
 - Ruapehu Alpine Lifts Whakapapa (backup) - [REDACTED]
 - Ruapehu Alpine Lifts Tūroa - Duty Manager: [REDACTED]
 - Ruapehu Alpine Lifts Tūroa (backup) - [REDACTED]
-
- Hillary Outdoors - Duty Manager: [REDACTED]
 - Hillary Outdoors (backup) - [REDACTED]

RUAPEHU ERUPTION CALLOUT LIST 2

- DOC Operations Manager - [REDACTED]
-
- Army Training Group 1st call - Duty: [REDACTED]
 - Army Training Group 2nd call - Control: [REDACTED]
-
- Police Ruapehu - Comms Alpha: [REDACTED]
 - Police Ruapehu (backup) - [REDACTED]
 - Police Ruapehu (backup) - [REDACTED]
 - Police Ruapehu (backup) - [REDACTED]

RUAPEHU ERUPTION CALLOUT LIST 3

- DOC PIM - [REDACTED]
 - DOC PIM (backup) - [REDACTED]
-
- DOC Local Bodies - [REDACTED]
 - DOC Local Bodies (backup) - [REDACTED]
-
- Genesis Control: [REDACTED] or Satellite: [REDACTED]
 - Genesis Control (backup) - [REDACTED]
-
- Securely Wanganui (Ernslaw One/WPI): [REDACTED]
-
- Ruapehu DC Civil Defence - [REDACTED]
 - Ruapehu DC Civil Defence (backup) - [REDACTED]
-
- Tukino Ski Field: [REDACTED]
 - Tukino Ski Field (backup) - [REDACTED]
 - Tukino Ski Field (backup) - [REDACTED]

Forest Managers Duty: [REDACTED]

RUAPEHU ERUPTION CALLOUT LIST 4

- DOC CNI Operations Director - [REDACTED]

- Ngā Waihua o Paerangi - [REDACTED]

- Uenuku - [REDACTED]
- Uenuku (backup) - [REDACTED]
- Uenuku (backup) - [REDACTED]
- Uenuku (backup) - [REDACTED]
- Uenuku (backup) - [REDACTED]

- Ngati Hikairo - [REDACTED]
- Ngati Hikairo (backup) - [REDACTED]
- Ngati Hikairo (backup) - [REDACTED]

- Transpower: [REDACTED]
- Transpower (backup): [REDACTED]
- Transpower (backup): [REDACTED]

- Taupo DC Civil Defence: [REDACTED]
- Chateau - Reception: [REDACTED]

RUAPEHU ERUPTION CALLOUT LIST 5

- KiwiRail - Shift Manager: [REDACTED]
- Kiwirail (backup) - [REDACTED]
- KiwiRail (backup) - [REDACTED]

- Skotel - [REDACTED]
- Skotel (backup) - [REDACTED]
- Skotel (backup) - [REDACTED]

RUAPEHU ERUPTION CALLOUT LIST 6

- Horizons Regional Council (24/7): [REDACTED]
- Waikato Region Emergency Management Group Duty Officer: [REDACTED]
- NEMA Duty Officer: [REDACTED]
- Forest Trust - [REDACTED]

5.4 TONGARIRO – TEDS – ERUPTION CALLOUT

TONGARIRO ERUPTION CALLOUT LIST 1

- Hut Rangers and TAC staff – during Great Walk season: Identify TAC and Hut Rangers in the field by using the Tongariro Intentions Board on the Planner app.

- Hillary Outdoors – Duty Manager: [REDACTED]
- Hillary Outdoors (backup) – [REDACTED]

- Ngati Hikairo – [REDACTED]
- Ngati Hikairo (backup) – [REDACTED]
- Ngati Hikairo (backup) – [REDACTED]

- Army Training Group 1st call – Duty: [REDACTED]
- Army Training Group 2nd call – Control: [REDACTED]

- Police Ruapehu – Comms Alpha: [REDACTED]
- Police Ruapehu (backup) – [REDACTED]
- Police Ruapehu (backup) – [REDACTED]
- Police Ruapehu (backup) – [REDACTED]

- Police Taupo – On call: [REDACTED]
- Police Taupo (backup) – [REDACTED]
- Police Taupo (backup): [REDACTED]

- DOC Operations Manager – [REDACTED]

- TACTAG Secretary – [REDACTED]

TONGARIRO ERUPTION CALLOUT LIST 2

- DOC PIM – [REDACTED]
- DOC PIM (backup) – [REDACTED]

- Genesis Control: [REDACTED] or Satellite [REDACTED]
- Genesis Control (backup) – [REDACTED]

- Forest Managers – Duty: [REDACTED]

- Transpower: [REDACTED]
- Transpower (backup): [REDACTED]
- Transpower (backup): [REDACTED]

- DOC Operations Director – [REDACTED]

Taupo DC Civil Defence: [REDACTED]

Ruapehu DC Civil Defence - [REDACTED]

Ruapehu DC Civil Defence (backup) - [REDACTED]

TONGARIRO ERUPTION CALLOUT LIST 3

Waikato Region Emergency Management Group Duty Officer: [REDACTED]

Horizons Regional Council (24/7): [REDACTED]

NEMA Duty Officer: [REDACTED]

Forest Trust - [REDACTED]

6. Additional information

6.1 Whakapapa Village 'Safe Zone' Assembly Points

The designated safe zone assembly points in Whakapapa Village are:

- **Whakapapa Visitor Centre**, Incident Control Point (ICP) for DOC
- **Chateau Tongariro**, State Highway 48 – Main assembly point
- **Skotel**, Ngauruhoe Place – backup for Chateau Tongariro
- **Lodge Clearing**, Rehua Place – Lodges

6.2 Stakeholder Evacuation Plans

DOC should regularly ensure that emergency evacuation plans and notices for sites in the Whakapapanui lahar path in Whakapapa Village are up to date.

- Heki Terrace Lahar Evacuation Notice for dwellings – [DOC-3244419](#)
- Whakapapa Holiday Park Lahar Evacuation Plan – [DOC-6670891](#)

This check should be carried out annually or following significant events.

6.3 Public Information Management

The Volcanic Ranger generally does the initial social media post on the DOC Tongariro Facebook page after a false positive activation of the VAN or an eruption.

The DOC PIM (typically a member, or several members, of the Tongariro Community Team) is responsible for managing communications using the communications plan after that initial post.

Appendix 1.

The Tongariro National Park Volcanic Alert Network (TNP VAN) system and alert descriptions

1. Tongariro National Park Volcanic Alert Network Supervisory Control and Data Acquisition System (TNP VAN SCADA)

The TNP VAN SCADA system controls and monitors the Whakapapa Ski Area Lahar Alert and Warning System (WLAWS) and the Whakapapa Village Lahar Alert and Warning System (VLAWS). The SCADA system sends eruption and lahar, all clear, testing, and diagnostic alerts via email and email2SMS. It also monitors the eruption detection data inputs from GeoNet.

The system is web based but physically located on a server in the TNP VAN equipment room at the DOC Visitor Centre in Whakapapa Village. It can be accessed via: [REDACTED]. It is owned and operated by DOC.

Example TNP VAN SCADA 3x Weekly Automatic Scheduled Test Message:

Information - TNPVAN Scheduled Test Message

2. Tongariro Eruption Detection System (TEDS)

TEDS detects eruptions on the Tongariro Volcanic Massif using acoustic and seismic sensors located on the flanks of the volcano. The system does not generate a public warning – it alerts DOC and GNS via the TNP VAN SCADA system. Alerts from TEDS are only enabled when there is volcanic unrest – VAL 1 or 2 – at Tongariro or Ngauruhoe. At VAL 0 there are no alerts produced by the system. It is part of the GeoNet project and is managed by GNS Science.

Example TEDS Eruption Alert Message:

Warning - TEDS - Tongariro may have erupted.

3. Ruapehu Eruption Detection System (REDS)

REDS detects eruptions from the active crater of Mt Ruapehu – Te Wai ā-moe (Crater Lake) – using acoustic and seismic sensors located on the flanks of the volcano. REDS is part of the GeoNet project and is managed by GNS Science.

4. Whakapapa Ski Area Lahar Alert and Warning System (WLAWS)

When an eruption is detected by REDS, WLAWS produces a siren and voice message warning in at-risk sections of Whakapapa Ski Area, signalling people to move out of lahar paths to higher ground. The system also triggers alerts to response agencies and affected stakeholders via the TNP VAN SCADA system. WLAWS is the primary management tool to reduce life and safety risk on Whakapapa Ski Area from sudden onset volcanic eruptions. It is owned and operated by DOC.

Example REDS/WLAWS Eruption/Lahar Alert Message – sent automatically when an eruption is detected by REDS:

*Warning - REDS/WLAWS - Ruapehu may have erupted.
Initiate your organisation's eruption/lahar response plan for Ruapehu.*

Example REDS/WLAWS All Clear Message – sent when the DOC Volcanic Ranger pushes ‘all clear’ in the TNP VAN SCADA system when GNS has confirmed a false positive:

*Important - REDS/WLAWS - ALL CLEAR - NO ERUPTION.
Confirmed that no eruption/lahar has occurred. Stand down.*

5. Whakapapa Village Lahar Alert and Warning System (VLAWS)

VLAWS uses a lahar fence (tripwire) in Skippers Canyon on Mt Ruapehu to detect lahars travelling down the Whakapapanui Stream. The system is primed by REDS and will not activate without an eruption being detected. If triggered by the fence, VLAWS produces a siren and voice message warning – signalling people to move out of at-risk areas in Whakapapa Village to designated evacuation points. The system also triggers alerts to response agencies and affected stakeholders via the TNP VAN SCADA system. It is owned and operated by DOC.

Example VLAWS Lahar Alert Message – sent automatically when a lahar is detected at Skippers Canyon:

*Warning - VLAWS - Whakapapa Village lahar possible.
Lahar detected in the Whakapapanui Stream at Skippers fence.*

Example VLAWS All Clear Message – sent when the DOC Volcanic Ranger pushes ‘all clear’ in the TNP VAN SCADA system when GNS has confirmed a false positive:

*Important - VLAWS - ALL CLEAR - NO LAHAR.
Confirmed that no lahar has occurred. Stand down.*

Appendix 2.

Document list

Document	DOCCM numbers
Eruption Response and Volcanic Risk Communication Plan for Tongariro National Park	DOC-6211037
Guidelines for DOC Volcanic Risk Management in Tongariro National Park	DOC-1130183
Volcanic Ranger Task Assignment	DOC-5601965
Whakapapa Holiday Park Lahar Evacuation Plan	DOC-6670891
Hepi Terrace Lahar Evacuation Notice for dwellings	DOC-3244419
DOC’s helicopter service directory	DOC-5932479

Appendix 3. DOC Action Plan template

Date:		Operational Period: <i>(Start and end time, 24hr clock)</i>	Incident Name: <i>(Name assigned to the Incident)</i>	
Mission: <i>(Clear statement of intent)</i>				
Critical Factors: <i>(Influencing the response)</i>				
Priority	Objectives <i>(What)</i>	Strategy <i>(How)</i>		Assignments/Tasking <i>(Who with what)</i>

Appendix 4.

DOC Situation Report template

Incident name: ICP Location:	Date:	<i>As at (time)</i>
Situation:		
Critical factors:		
Actions taken:		
Predicted developments:		

Appendix 5.

WLAWS and VLAWS manual shut down procedure

WLAWS or VLAWS siren shut down

To be initiated by the Volcanic Ranger when the WLAWS, VLAWS (or both) audible warnings need to be shut down and [REDACTED] cannot be used to shut them off. It is very unlikely that this manual procedure will ever need to be used.

This procedure is only used when a false positive has been confirmed by the GNS Volcano Duty Officer.

1. Go to the VAN equipment room in the Whakapapa Visitor Centre
2. Find the two four- button panels on the wall, one labelled **WLAWS** and one labelled **VLAWS**.
3. Confirm which of these two panels has the button you need to turn off
4. Push the second button down from the top called **Warning Stop**, hold in and count to five
5. Push the third button down from the top called **All Clear**, hold in and count to five
6. Contact RAL to confirm all clear message broadcast and check that sirens are off.

Appendix 6.

Useful web links

Information for volcanic situational awareness and risk management.

Volcanic Alert Network (VAN):

- REDS/WLAWS, VLAWS, TEDS: Mango web-based SCADA server - [REDACTED]

GeoNet volcano data:

- GeoNet volcano homepage: <https://www.geonet.org.nz/volcano>
- Crater Lake (Te Wai ā-moe) temperature: <https://fits.geonet.org.nz/plot?sites=VO.RU001&typeID=t&days=30&type=scatter>
- Tongariro gas spectrometers: <https://fits.geonet.org.nz/plot?sites=VO.TO301,VO.TO302&typeID=SO2-flux-a&type=scatter>

Weather information:

- NIWA Tongariro National Park forecast: <https://weather.niwa.co.nz/parks/Tongariro%2520National%2520Park>
- DOC Mt Tongariro weather station (1696 m): https://envirodata.co.nz/vdv_direct_login.php?ref=9&id=38A0C5
- RAL Knoll Ridge weather station, Mt Ruapehu (2000 m): <https://live.harvest.com/?hsn=12304&grp=Main>
- Genesis Energy rainfall and flow data: <https://www.genesisenergy.co.nz/assets/rivers-lakes-rainfall>

Webcams:

- Mt Ruapehu cams: <https://www.mtruapehu.com/whakapapa/report>
- Tukino cam: <http://tukinoalpinesportsclub.org.nz/wp-content/uploads/2016/09/latest.jpg>
- Horizons' Whangaehu cam at Tukino: www.horizons.govt.nz/HRC/media/Data/WebCam/Tukino_latest_photo.jpg
- GNS volcano cams: <https://www.geonet.org.nz/volcano/cameras>

