

## Paper Outline

<b>Syllabus</b>	New – 2015
<b>Unit</b>	Rural Fire Operations
<b>Level</b>	SFF

## Prescriptor

An in-depth study of the principles of Rural Fire Operations in regards to firefighting operations. This paper draws on a wide range of knowledge and on specific activities to demonstrate ability to draw relevant strands together in reviewing evaluating live situations.

## Content

The paper consists of eight modules:

1. Work safely at vegetation fires
2. Use of water and additives
3. Dry firefighting techniques
4. Establish and deliver water supplies using light pumps
5. Lead a vegetation fire crew
6. Vegetation fire environment
7. Communicate in the outdoors using two-way radio
8. Work safely with helicopters and load water and additives for aerial operations

## Learning Outcomes

Studying for this unit provides the opportunity to develop knowledge in rural fire. Candidates who achieve this unit should be able to:

- Demonstrate good professional practice relevant to rural firefighting operations; and
- Demonstrate critical technical knowledge, understanding and skills required for individuals to be competent in rural fire jobs/roles/activities.

## Learning Strategies

1. Learning methods will emphasise student-centered learning and self-directed study.
2. Learning strategies will include access to online material, reading lists, links to videos, and case studies.

**Assessment Methods**

The assessment takes the form of one written two-hour examination. The examination contains ten multiple choice questions and three long answer questions.

**Learning Resources**

- Prescribed resources

## Paper Content: Unit Paper Plan Guide

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The content of the unit has been designed to reflect the critical technical knowledge that fire professionals need in order to understand rural fire operations. This knowledge and skill will contribute to good professional practice.

### 1. Work Safely at Vegetation Fires

- 1.1 How fires burn
- 1.2 Factors that influence fire behavior
- 1.3 Extinguishing fires
- 1.4 Hazards and survival
- 1.5 Protecting yourself and others

### 2. Use of Water and Additives

- 2.1 Firefighting fundamentals
  - 2.1.1 Fire behavior
  - 2.1.2 Flame lengths and fire intensity
  - 2.1.3 Fire extinguishing methods
  - 2.1.4 Fire suppression strategy – the basic rules
  - 2.1.5 Use of water in a direct attack
  - 2.1.6 Use of water in an indirect attack
  - 2.1.7 Communication
- 2.2 Delivery
  - 2.2.1 Delivery hoses and couplings
  - 2.2.2 Waterway equipment
  - 2.2.3 Hose laying
- 2.3 Water and additives
  - 2.3.1 Use of water
  - 2.3.2 Use of retardants
  - 2.3.3 Use of class A foam
  - 2.3.4 Dangerous situations to watch out for

### 3. Dry Firefighting Techniques

- 3.1 Dry firefighting fundamentals
  - 3.1.1 Fire behavior
  - 3.1.2 Flame lengths and fire intensity
  - 3.1.3 Fire suppression
- 3.2 Firefighting tools
- 3.3 Fireline construction

#### **4. Establish and Deliver water supplies using light pumps**

- 4.1 Water supplies
  - 4.1.1 Types of water supplies
  - 4.1.2 Suitability of water supply
  - 4.1.3 Assessment of water supply
  - 4.1.4 Improving water supply
- 4.2 Pump Operations in the field
  - 4.2.1 Locating a light portable pump
  - 4.2.2 Using waterway equipment
  - 4.2.3 Relay pumping
  - 4.2.4 Water additives
  - 4.2.5 Fault finding
- 4.3 Recommissioning
  - 4.3.1 Retrieving and recommissioning equipment
  - 4.3.2 Restoring a site
  - 4.3.3 Recommissioning the pump
  - 4.3.4 Documentation

#### **5. Lead a vegetation fire crew**

- 5.1 Responsibilities and tasks
- 5.2 Safety
- 5.3 Mobilisation
- 5.4 At the fire ground

#### **6. Vegetation fire environment**

- 6.1 Topography
  - 6.1.1 Elevation
  - 6.1.2 Slope
  - 6.1.3 Aspect
  - 6.1.4 Shape of terrain
  - 6.1.5 Barriers to fire spread
- 6.2 Fuels
  - 6.2.1 Fuel Type
  - 6.2.2 Layers of vegetation fuels
  - 6.2.3 Fuel Properties
- 6.3 Weather
  - 6.3.1 Relative Humidity
  - 6.3.2 Surface wind and turbulence
  - 6.3.3 Wind speed
  - 6.3.4 Topographical effects on wind
  - 6.3.5 Fohn winds
  - 6.3.6 Coastal effects on winds
  - 6.3.7 Upper atmosphere winds
  - 6.3.8 Atmospheric stability
  - 6.3.9 Whirlwinds
  - 6.3.10 Precipitation

- 6.3.11 Clouds and thunderstorms
- 6.3.12 Diurnal weather variations
- 6.3.13 Drought
- 6.3.14 Weather map interpretation
- 6.4 Combined effects of the fire environment

**7. Communicate in the Outdoors Using Two-way Radio**

- 7.1 Radio General
  - 7.1.1 Radio channel
  - 7.1.2 Servicing and maintenance
- 7.2 Radio Procedures

**8. Work Safely with Helicopters and Load Water and Additives for Aerial Operations**

- 8.1 Command structure
- 8.2 Fireground requirements
- 8.3 Flight requirements
- 8.4 Safety and communication
- 8.5 Site selection
- 8.6 Site layout
- 8.7 Loading procedures
- 8.8 Helicopter buckets
  - 8.8.1 Loading procedures
- 8.9 Fixed wing aircraft
- 8.10 Additives

## Resource list

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## Recommended resources

<b>Resources</b>	<b>Reference details</b>
All of the reading materials are available on the EMQUAL website: <a href="http://emqual.org.nz/resources-and-forms/learning-materials">http://emqual.org.nz/resources-and-forms/learning-materials</a>	
	RFLP-1 Establish and Deliver Water Supplies Using Light Pumps
	RFVFE1 Vegetation Fire Environment
	RFUHT-1 Dry Firefighting Techniques – Use of Hand Tools
	RFWA-1 Use of Water and Additives
	RFLF1 Lead a Vegetation Fire Crew
	RFTWR1 Communicate in the Outdoors using two-way radio
	RFLWAO-1 Load Water and Additives for Aerial Operations