

Title	Apply knowledge of vegetation fire behaviour for fire management		
Level	6	Credits	10

Purpose	<p>People credited with this unit standard are able to:</p> <ul style="list-style-type: none"> - explain principles of fire weather and meteorology; - predict vegetation fire behaviour for fire management; - provide fire behaviour information for the development of pre-suppression plans; - provide fire behaviour information for the development of fire suppression strategies and tactics for given rural fire scenarios; and - explain characteristics of fire behaviour for rural and urban interface areas.
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Classification	Fire and Rescue Services > Fire and Rescue Services - Vegetation
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Available grade	Achieved
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Prerequisites	Unit 4648, <i>Demonstrate knowledge of vegetation fire behaviour</i> , or demonstrate equivalent knowledge and skills.
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Guidance Information

- 1 Compliance with the fire and emergency agency's Health and Safety policy and procedures is mandatory.
- 2 Assessment against this unit standard must take place under real or simulated conditions.
- 3 Assessment against all outcomes must be in accordance with the fire and emergency agency's requirements

Outcomes and performance criteria

Outcome 1

Demonstrate knowledge of principles of fire weather and meteorology.

Performance criteria

- 1.1 Climates are differentiated in terms of spatial effects and synoptics.

Range macroclimate, microclimate, mesoclimate.

- 1.2 The effects of terrain on fire weather are explained.
Range orographic, microscale, mesoscale.
- 1.3 Relationships between temperature and atmospheric moisture are explained.
Range relative humidity, dew point, relative humidity forecasting.
- 1.4 Principles of atmospheric stability are explained.
- 1.5 Relationships between atmospheric stability and fire behaviour are explained.

Outcome 2

Predict vegetation fire behaviour for fire management.

Performance criteria

- 2.1 Fire environment and fire behaviour interactions are explained.
- 2.2 Crown fire initiation transition levels are explained.
- 2.3 Fire area mapping prediction for surface and crown fires is explained.
Range fire perimeter growth, fire rate of spread.
- 2.4 The development of extreme fire behaviour characteristics and associated phenomena is explained by interpreting the combined effects of given fire environment factors.
- 2.5 Interpretation of fire environment factors and fire behaviour characteristics including personnel safety measures are explained.
Range fire suppression strategic and tactical plans, operational decisions.

Outcome 3

Provide fire behaviour information for the development of pre-suppression plans.

Performance criteria

- 3.1 Fire growth potential for given fuel types is determined for given levels of fire danger.
Range fuel ignitability, fuel availability, fuel continuity, head fire rates of spread, crowning potential, resistance to control.
- 3.2 Initial-attack response times are determined in relation to potential fire behaviour of identified fuel types to contain fire within given time frames.

- 3.3 Initial-attack resources are determined to meet identified response times and predicted fire behaviour.

Outcome 4

Provide fire behaviour information for the development of fire suppression strategies and tactics for a given rural fire scenario.

Performance criteria

- 4.1 Prediction of fire behaviour is expressed in quantitative terms.
 Range rates of fire spread, fire perimeter growth rates, fire intensity values, crown fire initiation, extreme fire behaviour.
- 4.2 Fire suppression resources enabling the fire to be contained are determined.
- 4.3 Fire suppression strategy enabling fire to be suppressed with available resources are selected.
- 4.4 The probability of firebreak breaching is determined.
 Range given firebreak widths, fire types, fire intensities.

Outcome 5

Explain characteristics of fire behaviour for rural and urban interface areas.

Performance criteria

- 5.1 Requirements for mitigating the exposure of structures to the effects of rural fires are explained.
- 5.2 Requirements for subdivision design and planning in rural and urban interface areas are explained.
- 5.3 Fire-safe recommendations for building codes in rural and urban interface areas are explained.
- 5.4 Public evacuation requirements are explained.
- 5.5 Information and media management requirements for vegetation fires in areas of rural and urban interface are explained.

Planned review date	31 December 2023
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Status information and last date for assessment for superseded versions

Process	Version	Date	Last Date for Assessment
Registration	1	18 June 1995	N/A
Revision	2	21 May 1998	N/A
Review	3	25 March 2004	N/A
Review	4	20 November 2009	N/A
Revision and Rollover	5	30 September 2021	N/A

Consent and Moderation Requirements (CMR) reference

0039

This CMR can be accessed at <http://www.nzqa.govt.nz/framework/search/index.do>.

Comments on this unit standard

Please contact The Skills Organisation reviewcomments@skills.org.nz if you wish to suggest changes to the content of this unit standard.