Apply knowledge of vegetation fire behaviour for fire management

Level	**6**
Credits	**10**

Purpose People credited with this unit standard are able to: 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.

Subfield	Fire and Rescue Services
Domain	Fire and Rescue Services - Vegetation
Status	Registered
Status date	20 November 2009
Date version published	20 November 2009
Planned review date	31 December 2014
Entry information	Prerequisite: Unit 4648, *Demonstrate knowledge of vegetation fire behaviour,* or demonstrate equivalent knowledge and skills.
Accreditation	Evaluation of documentation and visit by NZQA and industry.
Standard setting body (SSB)	Fire and Rescue Services Industry Training Organisation

Accreditation and Moderation Action Plan (AMAP) reference 0039

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

Special notes

1 Compliance with the fire and rescue service provider's Health and Safety policy and procedures is mandatory.

2 Assessment against this unit standard may take place under real or practical simulated conditions.

Elements and performance criteria

Element 1

Demonstrate knowledge of principles of fire weather and meteorology.

Performance criteria

1.1 Climates are differentiated in terms of spatial effects and synoptics in accordance with industry guides and standards.

Range macroclimate, microclimate, mesoclimate.

1.2 The effects of terrain on fire weather are explained in accordance with industry guides and standards.

Range orographic, microscale, mesoscale.

1.3 Relationships between temperature and atmospheric moisture are explained in accordance with industry guides and standards.

Range relative humidity, dew point, relative humidity forecasting.

1.4 Principles of atmospheric stability are explained in accordance with industry guides and standards.

1.5 Relationships between atmospheric stability and fire behaviour are explained in accordance with industry guides and standards.

Element 2

Predict vegetation fire behaviour for fire management.

Performance criteria

2.1 Fire environment and fire behaviour interactions are explained in accordance with industry guides and standards.

2.2 Crown fire initiation transition levels are explained in accordance with industry guides and standards.

2.3 Fire area mapping prediction for surface and crown fires is explained in accordance with industry guides and standards.

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 in accordance with industry guides and standards.

2.5 Interpretation of fire environment factors and fire behaviour characteristics including personnel safety measures are explained in accordance with industry guides and standards.

Range fire suppression strategic and tactical plans, operational decisions.

Element 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 in accordance with industry guides and standards.

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 in accordance with industry guides and standards.

3.3 Initial-attack resources are determined to meet identified response times and predicted fire behaviour in accordance with industry guides and standards.

Element 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 in accordance with industry guides and standards.

Range rates of fire spread, fire perimeter growth rates, fire intensity values, crown fire initiation, extreme fire behaviour.

4.2 Determination of fire suppression resources enables the fire to be contained in accordance with industry guides and standards.

4.3 Selected fire suppression strategy enables fire to be suppressed with available resources in accordance with industry guides and standards.

4.4 The probability of firebreak breaching is determined in accordance with industry guides and standards.

Range given firebreak widths, fire types, fire intensities.

Element 5

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

Performance criteria

5.1 Explain the requirements for mitigating the exposure of structures to the effects of rural fires in accordance with industry guides and standards.

5.2 Requirements for subdivision design and planning in rural and urban interface areas are explained in accordance with industry guides and standards.

5.3 Fire-safe recommendations for building codes in rural and urban interface areas are explained in accordance with industry guides and standards.

5.4 Public evacuation requirements are explained in accordance with industry guides and standards.

5.5 Information and media management requirements for vegetation fires in areas of rural and urban interface are explained in accordance with industry guides and standards.

Please note

Providers must be accredited by NZQA, or an inter-institutional body with delegated authority for quality assurance, before they can report credits from assessment against unit standards or deliver courses of study leading to that assessment.

Industry Training Organisations must be accredited by NZQA before they can register credits from assessment against unit standards.

Accredited providers and Industry Training Organisations assessing against unit standards must engage with the moderation system that applies to those standards.

Accreditation requirements and an outline of the moderation system that applies to this standard are outlined in the Accreditation and Moderation Action Plan (AMAP). The AMAP also includes useful information about special requirements for organisations wishing to develop education and training programmes, such as minimum qualifications for tutors and assessors, and special resource requirements.

Comments on this unit standard

Please contact the Fire and Rescue Services Industry Training Organisation info@frsito.org.nz if you wish to suggest changes to the content of this unit standard.