Template V.6.0a

Employment Development Group (EDPG)

Training Package

F18.1 Wildfire A (V0.1)

Introduction to Wildfire operations

Training pre-requisites

1.1 Before using this training package, learners should have completed initial and any developmental training commensurate with their role, such as Initial Trainee course, Equality and Diversity, Health & Safety, Manual Handling, First Aid, Incident Command etc.

1.2 To use this package for acquisition training, to support claiming competency in role, appropriate development plans must be in place to identify and assess learning outcomes. This could include delivery of this package by a competent trainer / assessor.

1.3 To use this package as part of maintenance of competence or a refresher training programme, all learners must be competent in role. This training package can be undertaken in either a team or individual environment.

SECTION 1

Wildfire Operations

SECTION 2

Introduction and Aims

Introduction

Wildfire is the generic term used to describe fires occurring in natural vegetation. Wildfire may be described as;

“Any free burning Wildland fire not prescribed for the area which consumes the natural fuels and spreads in response to its environment.”

Wildfire may occur in both rural and urban areas and will present a range of issues according to the location.

The tactics required for dealing with Wildfires will vary according to the specific direct and indirect risks. There are however a number of factors and considerations that are generic across the range of Wildfire scenarios.

Wildfires are a growing issue in the south east and across the whole of the UK. They differ greatly to structural fires with a larger number of environmental factors influencing how they develop. Due to this and the vast variations in fuel types, urban/rural interface, land topography, remote access, poor water supplies and rapid fire development it makes tactical planning difficult and operational fire fighting arguably one of the greater fire risks to crews who attend them.

Key to the success of wildfire control is an understanding of the fires behaviour in relation to the land, vegetation and weather and applying the right fire fighting tactics at the right time and in the right location.

Notes

Planning for wildfire incidents is an essential element of creating a safe system of work. The provision of up to date topographical and risk information as well as sound understanding of factors influencing a wildfire will allow Incident Commanders to undertake an appropriate dynamic risk assessment and develop a suitable tactical plan.

Aim

To provide crews with background knowledge of incidents involving wildfire and the mechanisms involved in their development

To provide crews with safe and effective skills and knowledge to apply to wildfire incidents to ensure successful outcomes

By the end of this session learners will be able to recognise when and how to implement the Standard operating procedure/s when attending incidents involving Wildfire.

It is suggested that 45 minutes are allocated to completing this training package together with the summative assessment.

Following a training frequency analysis it is recommended that this package is repeated every 24 months.

Notes:
This training package has been created to support the SOP/s that deals with Wildfire

SECTION 3

Learning outcomes:

By the end of this session delegates will be able to recognise and describe the:

- Significant Hazards
- Control measures and actions
- Incident command considerations
- Have an understanding of the terminology surrounding Wildfire incidents
- Have a basic understanding of wildfire behaviour
- Have a basic understanding of wildfire prediction
- Be able to apply this knowledge to safely implement SOPs relating to wildfire

When attending incidents involving Wildfire.

Notes:

The training notes in relation to this subject matter form a large amount of learning material and will need to be broken into a number of training packages:

A. Wildfires: An introduction to wildfire operations.

B. Firefighting tactics & ICS.

C. Communications and Navigation on the fire ground.

SECTION 4

Slide 1 How much do we know?

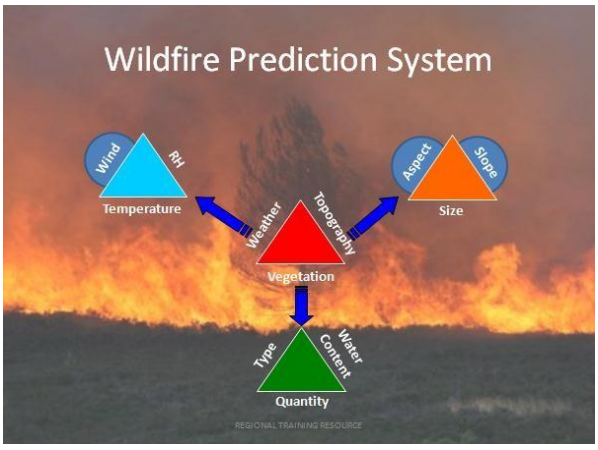
Notes:

What is a wildfire?

The two pictures are fundamentally the same, current practise in many circumstances is putting fire-fighters in dangerous and avoidable conditions.

Slide 2 Significant Hazards

Weather & Environmental Conditions



Notes:

A Wildfire Prediction System (WPS) can be used to identify the main significant hazards at any wildfire incident, predict fire behaviour and to identify potential locations and times where fire suppression activity would be most effective, these are known as ‘windows of opportunity’.

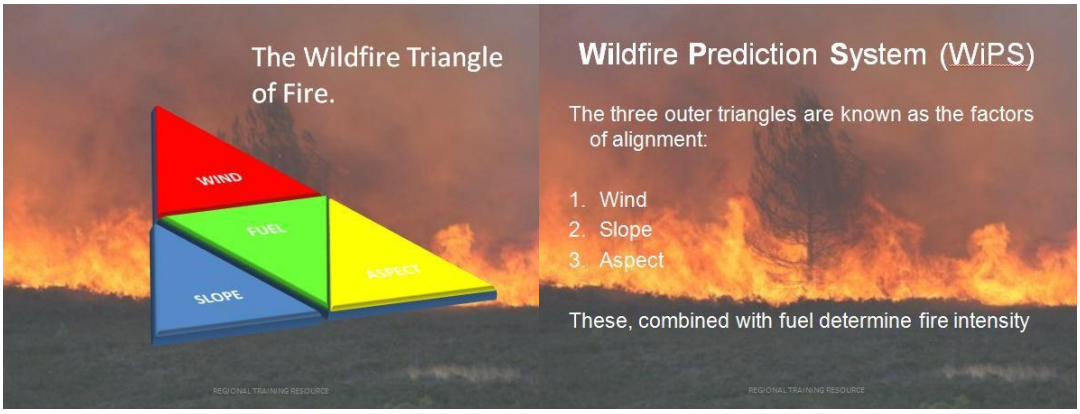
WPS uses the principle that fire behaviour within a given fuel is influenced predominately by its alignment with three major forces.

- Wind
- Slope
- Aspect

Slide 3 Significant Hazards

Weather & Environmental Conditions

Wildfire Triangle of Fire



Notes:

These 3 main factors make up - along with fuel type and quantity - the Wildfire triangle of fire. When these three factors (wind, slope & aspect) are in alignment it will produce the most intense wildfires.

Personnel should also be aware of the influence of other key factors:

Relative humidity

Air temperature

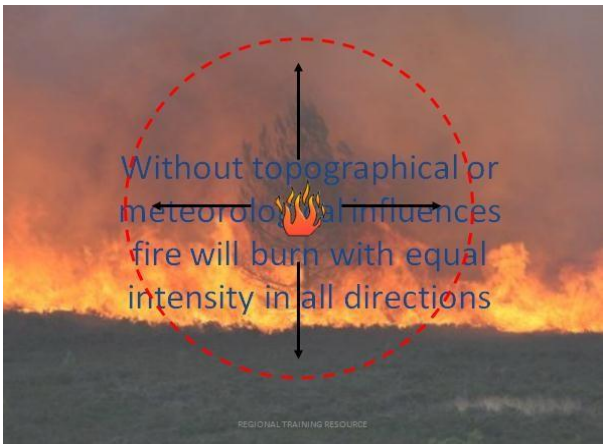
Wind speed

Discussed later

Slide 4 Significant Hazards

Weather & Environmental Conditions

Uniform fire development



Notes:

Removing external influence on the fire and provide uniform fuel and a fire will burn equally in all directions

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Slide 5 Significant Hazards

Weather & Environmental Conditions

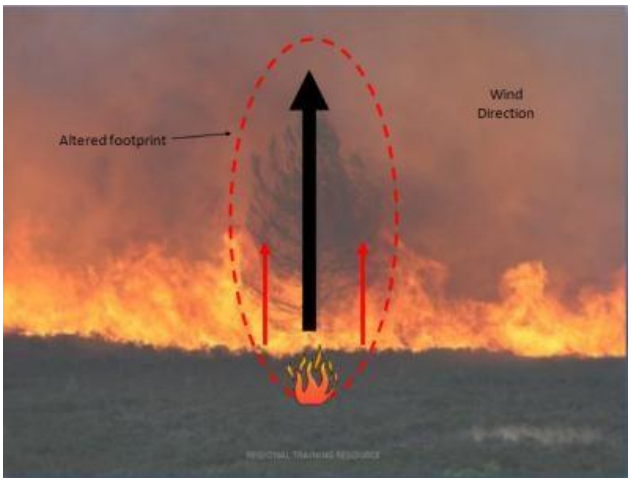
WIND

Notes:

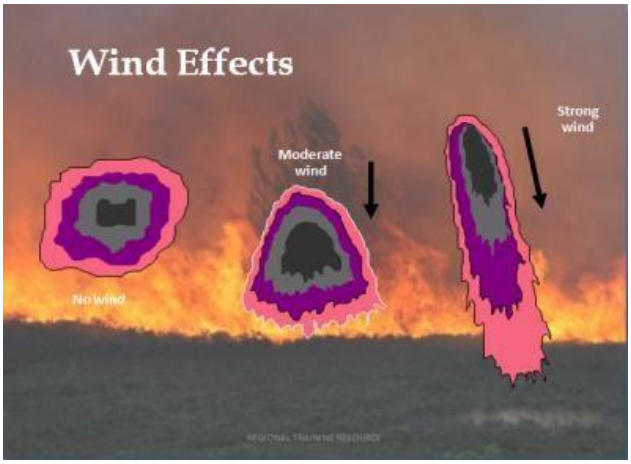
Wind will drive a fire, increase its intensity and may change its direction. Wind will also increase the rate of preheating of combustible material on the downwind side. This will accelerate the combustion process, as well as possibly creating spotting ahead of the main fire resulting in secondary fires and endangering safety.

Series of 3 slides to show the impact visually of Wind on a Wildfire.

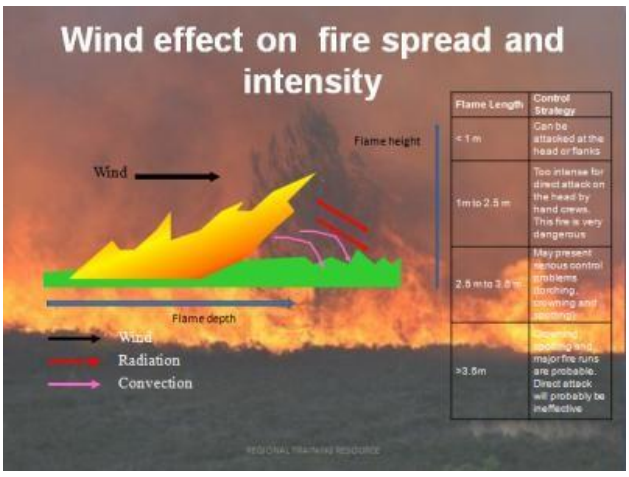
Slide 6



Slide 7



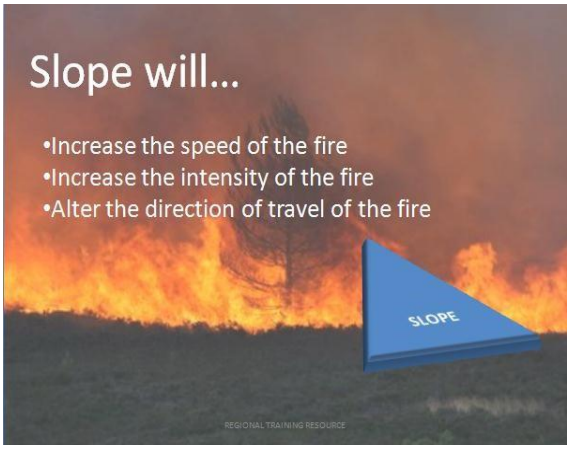
Slide 8



Slide 9 Significant Hazards

Weather & Environmental Conditions

SLOPE (1)



Notes:

Any variation in slope will affect fire behaviour. The preheating of combustible fuel will be intensified and thus fire will intensify and travel at a faster rate. This is essential to remember, particularly when identifying potential escape routes and safety zones.

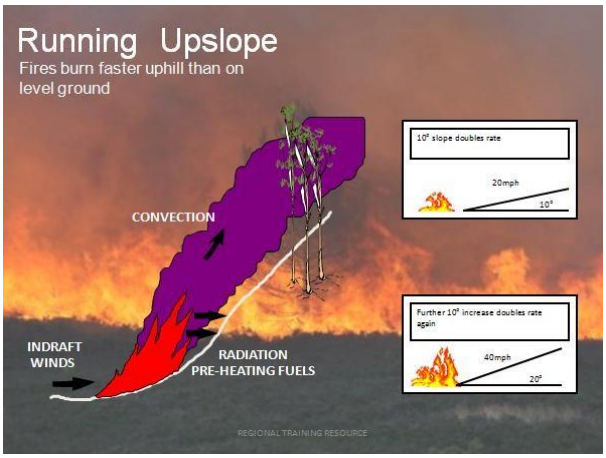
The rate of spread of fire is proportional to the slope. Increases in 10° will double the rate of fire spread. Therefore a fire on a level surface traveling at 10mph that reaches a slope of 10° will double its speed, thus reaching 20mph. Increases of a further 10° will double the speed again to 40mph.

Significant Hazards

Slide 10

Weather & Environmental Conditions

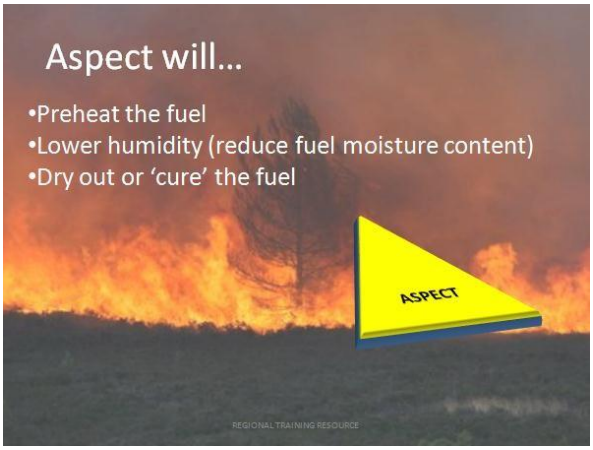
SLOPE (2)



Slide 11 **Significant Hazards**

Weather & Environmental Conditions

ASPECT (1)



Notes:

Southerly facing slopes will experience higher temperatures, lower humidity and fuel moisture content.

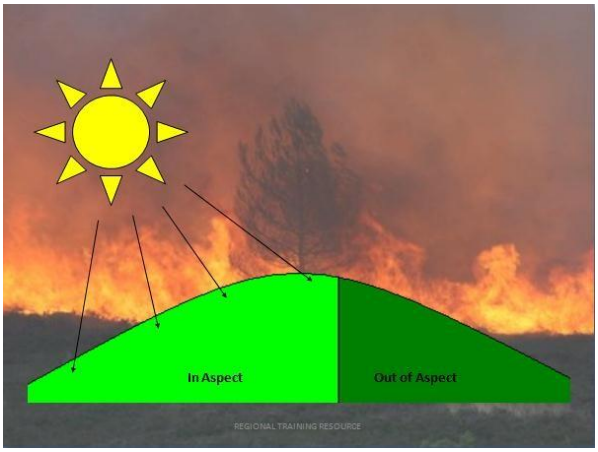
Northerly aspects will normally be cooler, and will have higher humidity and fuel moisture content. The extent of the variation will be determined by the time of year and severity of the slope.

Slide 12

Significant Hazards

Weather & Environmental Conditions

ASPECT (2)



Slide 13 Significant Hazards

Additional weather & topographical hazard considerations

A wildfire - in relation to weather and topography - produces hazards that are additional to those already mentioned, and must be taken into consideration.

- HISTORICAL, CURRENT & PREDICTED WEATHER BEHAVIOUR
- VEGETATION TYPE & QUANTITY
- TOPOGRAPHY
- SMOKE
- DISORIENTATION

Slide 14

Weather & Environmental Conditions

Weather

Significant Hazards

Notes

In addition to the three main considerations, wind direction, slope and aspect weather factors such as Humidity, Air temperature & Wind speed form part of the overall hazard by affecting the combustibility of the fuel.

Not only does the weather have an effect on the combustibility of fuel, it also has an influence on the combustion process itself. Weather influences fire behaviour by:

- **Raising and lowering the temperature of fuels and the air.**
- **Increasing and decreasing the moisture content of the air.**
- **Changing the moisture content of fuels, particularly dead ones.**
- **Supporting or limiting the development of strong convection plumes.**
- **Curing (drying off) fuel.**
- **Changing the direction, strength and type of prevailing and local winds.**
- **Changing the level of stability in the atmosphere.**

Slide 15

Weather & Environmental Conditions

Vegetation – type & quantity

Significant Hazards

Notes

Certain vegetation types can propagate rapid fire development and intensity. Not factoring fuel type and quantity in to the tactical planning may result in entrapment and injury from fire. Additionally certain fuels when burned produce toxic gases such as cyanide.

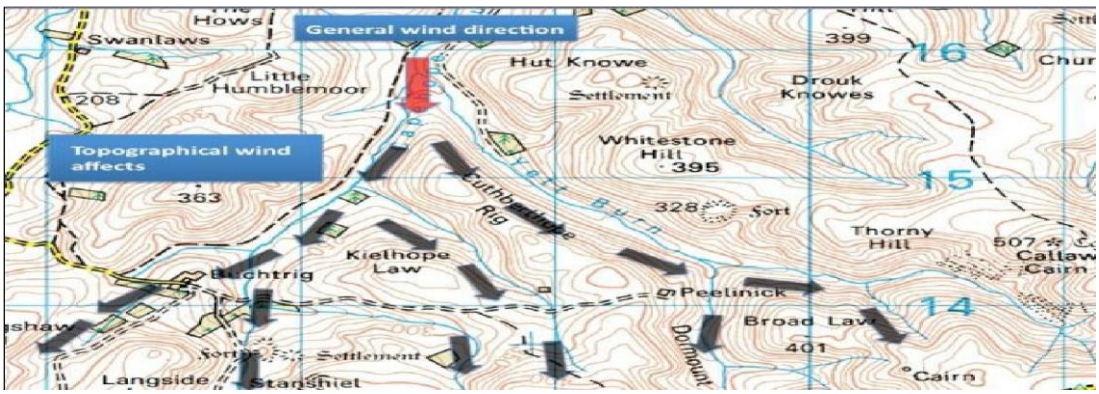
It is important to have an understanding about:

- Fuel Classification
- Fuel types
- Fuel Layers

They are based on broad habitat Classification used in the Wildfires IRMP (CLG 2008). **Refer to Section 7**

Slide 16 Significant Hazards

Spurs, re-entrants and ridges



Notes

When wildfires are burning in these areas they can have a severe effect on the intensity of the fire. Any changes in the land topography can produce unpredictable fire behaviour therefore fire-fighters should exhibit extreme caution when working upslope of these features.

Extreme caution should be displayed when working on an area above a wildfire and LACES adopted at all times.

Navigational terminology will be explained in detail in Training Package Wildfire C

Slide 17 Significant Hazards

Smoke & Disorientation

Notes

Smoke

Large volumes of smoke pose a significant hazard and may be present in large quantities. Certain vegetation presents a significant toxic hazard which should be considered when addressing fuel types.

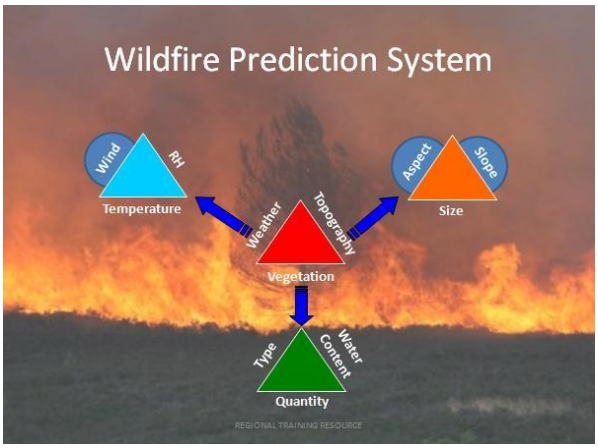
Disorientation

Land topography, weather, smoke, focusing on fire fighting activities can all lead to disorientation at wildfires. Ensure navigational skills are maintained by crews to minimise the risk of disorientation.

SECTION 5

Control Measures & Actions

Slide 18 WILDFIRE PREDICTION SYSTEM



Notes:

As discussed earlier WPS is used to provide us with key hazards.

Now we must look at WPS as a Control measure.

In simple terms the purpose of WPS is to provide a prediction tool that gives an understanding of where fire behaviour is likely to get better or worse. It can then be used to identify the 'Window of Opportunity' or in other words, time slots that exist where fire behaviour is such that it will allow the use of successful suppression tactics. Recognising that change will occur during the incident, then having the ability to identify when and where the changes will happen is the key to effective wildfire management. This is a methodology that has hitherto been lacking within the UK FRS.

The Wildfire Prediction System described is designed not only to provide fire service personnel with a tool to explain present fire behaviour, but more importantly, predict likely changes to fire behaviour in the future.

The primary purpose of any wildfire prediction system is to reduce levels of risk by providing:

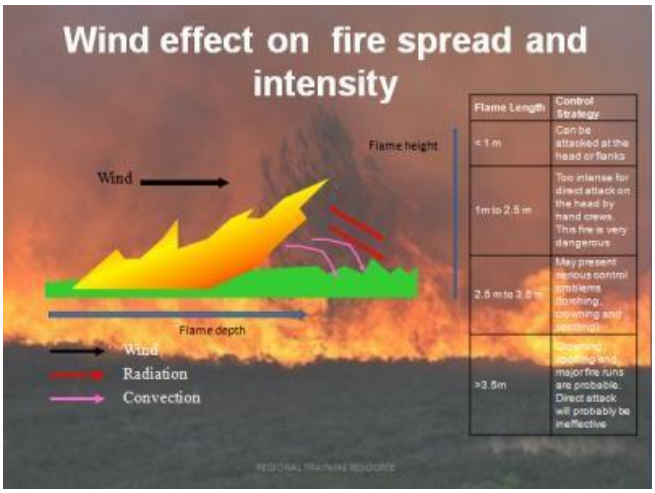
- An interpretation of fire severity.
- An understanding of how a fire will spread across the landscape.
- Information that assists in the risk assessment and decision making processes.

HIGHLIGHTED LEARNING POINT

In effect we are turning the main hazards into control measures by understanding how they interact with the fuel source!

Control Measures & Actions

Slide 19 WIND (WPS)



Notes

As previously mentioned wind is a major hazard, however, by applying the understanding of what the WPS provides we see that wind can potentially have both a negative and positive effect on the combustion process around the fire perimeter, and will play a major role in the development of the characteristics shown at the head, flanks and tail of a fire. The next two pictures illustrate this.

Slide 20

Slide 21

Notes

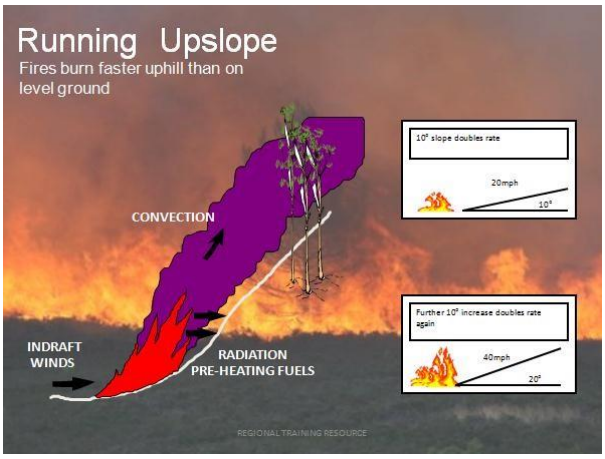
Slide 20. Shows wind pushing flames towards the fuel source so supporting combustion and increasing intensity. (Alignment factor)

Slide 21. Shows wind pushing flames away from the unburnt fuel, a negative effect on combustion. (Out of alignment)

By considering current and predicted wind patterns (provided by FIREMET) we can begin to safely deploy resources which will be more effective at containment.

Control Measure & Actions

Slide 22 SLOPE (WPS)



Notes

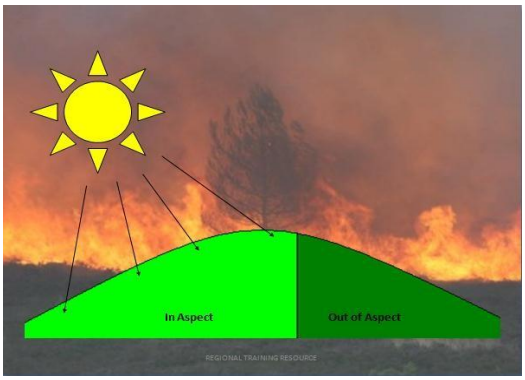
Slopes can either support or hinder fire development, but when 'in alignment' slopes can cause a significant increase in fire intensity and rate of spread.

WPS acknowledges the influence of topography on fire development, and in particular, it recognises that slopes are a major factor within the wildfire environment. The combined effect of their steepness and vulnerability to the effect of solar radiation can result in significant increases to fire intensity.

B**y considering slope & topography in relation to fire travel & wind direction we can begin to formulate an action plan with greater accuracy.**

Control Measures & Actions

Slide 23 ASPECT (WPS)

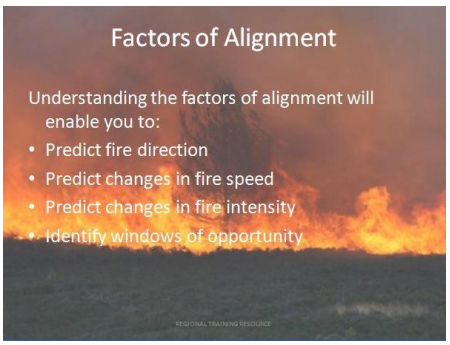


Notes

Where fuel is arranged on surfaces that are subject to direct sunlight it is described as being *'in aspect'*; parts of the landscape where fuels are not subject to direct sunlight are referred to as being *'out of aspect'*. Where the surface is '*in aspect'* then there can be a significant and rapid increase in the ambient temperature of the fuel and surrounding air, this can lead to a significant reduction in the levels of moisture surrounding the vegetation.

Control Measure & Actions

Slides 24 & 25 Factors of Alignment



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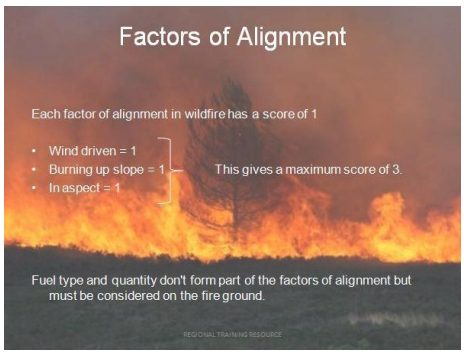


26

Notes:

They are called factors of alignment because whenever a fire is supported by wind, slope or aspect its ability to interact with the available fuel is improved and it burns with more intensity. Whenever the fire loses support from one or more of these influencing factors, the fire activity and intensity will decrease

Each factor of alignment in wildfire has a score of 1

- Wind driven = 1
- Burning up slope = 1
- In aspect = 1

Each factor increases the score and the range of factors is from 0 to 3

- No factors in the favour of the fire F0
- 1 factor in favour = F1
- 2 factors in favour = F2
- 3 factors in favour = F3

An F3 wildfire is potentially very dangerous and tactical decisions should reflect this.

Slide 27 Discuss



Control Measure & Actions

Slide 28 Fire Signature

Notes

A fire signature is the term used to describe how a fire behaves when it's burning in different fire alignments within a uniform fuel. By observing the behaviour demonstrated in each alignment, an understanding can be reached regarding the potential flame lengths that can be expected in the future, & can be used to maximise the effectiveness and safety of resources deployed onto the fire ground.

Control Measure & Actions

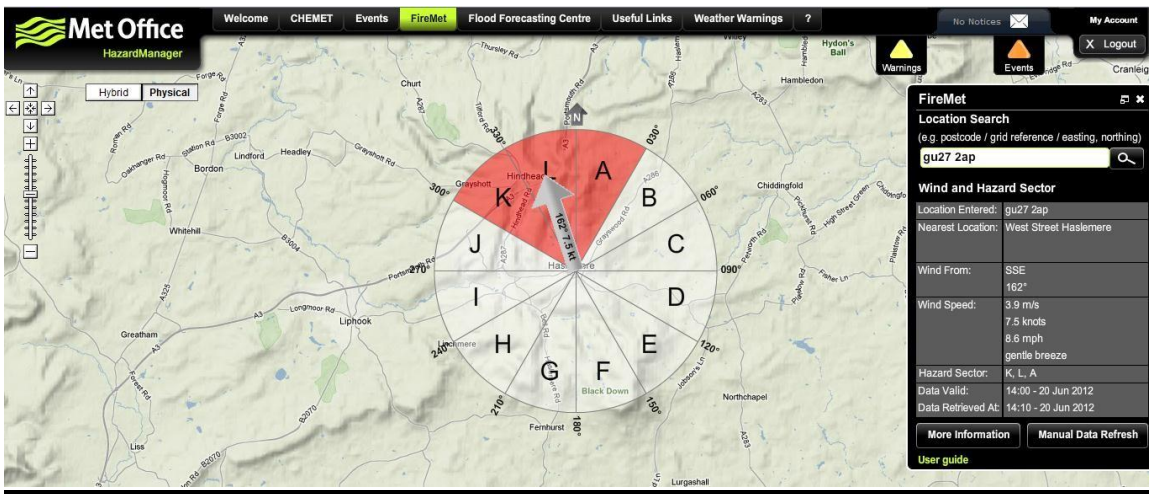
Slide 29 Fuel

Notes

Fuel is not an alignment force but obviously the type of vegetation and the way it is arranged across the landscape (both horizontally and vertically) plays a significant part within the combustion process. The wildfire's alignment with wind, slope or aspect will affect the severity of a fire in any fuel source and understanding all of the above forms part of our control measures, helping us build up a picture of the fires likely outward spread across the landscape.

Control Measures & Actions

Slide 30 Weather



Whilst we cannot control the weather it is important to understand how access to specialist data can act as a control measure for FRS.

Notes

FireMet

FireMet is a weather system designed to provide Fire and Rescue Service (FRS) responders with the latest weather information to help them identify a safe approach when dealing with a major incident. The aim is to provide immediate access to forecast conditions, while they are waiting for a more detailed CHEMET report. It also provides three hours of hind cast data, as well as three hours of forecast data.

CheMet

This is more detailed data geared towards chemical incidents however when applying for CheMet data it can be effective at providing predicted smoke plumes from an incident.

Control Measures & Actions

Slide 31 Smoke

Notes

Large volumes of smoke pose a significant hazard and may be present in large quantities. Certain vegetation presents a significant toxic hazard which should be considered when addressing fuel types.

To minimise the risks of injury and disorientation always employ correct control measures:

- Employ the LACES (explained in Slide 33) protocol during Wildfire operations; and,
- Have the adequate level of PPE including particulate masks.
- Breathing apparatus sets may be considered if absolutely necessary however incident commanders should carry out Dynamic Risk Assessments based on the WPS and assess whether Direct Firefighting should be carried out in that situation.

Control Measures & Actions

Slide 32 Disorientation

Notes

Land topography, weather, smoke, focusing on fire fighting activities can all lead to disorientation at wildfires.

Ensure that

- LACES (Slide 33) protocol is observed at all times
- Navigational skills are maintained by crews to minimise the risk of disorientation
- Robust channels of communication are established early on in the incident. (Secondary main scheme Airwave channels should be agreed for fire ground communications prior to any vehicle deployment on the fire ground.)

Control Measures & Actions

Slide 33 LACES PROTOCOL

L	LOOKOUTS	All teams to have a dedicated lookout Monitor Fire Behaviour/Weather Assess tactics and liaise with relevant commander
A	AWARENESS	All personnel to understand role/task Safety measures/Dangers/Risks identified and briefed Regular radio checks
C	COMMUNICATIONS	Full safety briefs for all personnel Regular situation updates
E	ESCAPE ROUTES	Part of briefing Must be more than one Avoid steep slopes
S	SAFETY ZONE	Clearly identified in briefing Size (4 x flame height)/Avoid downwind/Avoid steep slopes

Notes

The wildfire behaviour within the UK wildfire environment can be equally as dangerous as the rest of the world perhaps not in relation to size but definitely in the complexity of the fires. It is imperative that FRS's appreciate that without proper training, appropriate understanding and effective systems of work, FRS personnel and those that work with them remain at significant risk

LACES is a simple and easily applied safety system that is ideally suited for UK FRS use. It is internationally recognised as good practise, and has been adopted in many countries to improve the safety of operational personnel at wildfire incidents. The UK version of LACES is similar to the US system but has been adapted to ensure its compatibility with UK FRS systems. The principal advantage of LACES is that it can be applied to all wildfire situations and acts as a controlling process, which if followed, ensures critical risks are considered and monitored and that others are significantly diminished.
The various elements contained within the LACES protocol, ensure that:

- Personnel are supervised and remain informed of the status and development of the wildfire.

- The situation is monitored and the risks that personnel are exposed to are continually assessed.

- It proactively identifies a response to any unexpected events, ensuring that an escape route exists to take personnel from a place of danger to one of complete safety.

Slide 33a

LOOKOUTS

A LOOKOUT is a person that has the responsibility to monitor fire behaviour and how this may impact on the activities of operational personnel under their supervision. Lookouts at a wildfire incident can be appointed at crew, sector or incident level, depending on their training, expertise and experience.

Slide 33b

AWARENESS

Within the LACES protocol, AWARENESS concentrates on maintaining alertness to the changes that may impair safety and ensuring that personnel remain fully informed. The deployment of Tactical Lookouts, and the existence of Crew Lookouts, ensures that the dynamics of the situation can be constantly monitored.

Slide 33c

COMMUNICATION

At a wildfire incident - where changes to fire behaviour can occur suddenly - it is necessary to establish an effective communication system which includes briefing crews prior to deployment.

As close supervision and effective communication with personnel is often difficult at a wildfire incident, full advantage should be made of hand held and portable radio systems on the fire ground.

However, FRS's should be aware of areas where radio communications may be ineffective and should make suitable alternative arrangements to ensure that contact can be maintained with personnel and teams working on the fire ground. An inefficient communication system will seriously impair the effectiveness of any command structure.

Due to land topography we must ensure robust communications are established at the start of every wildfire incident. Therefore a secondary main scheme airwaves radio channel should be established for fire ground communications between ground crews and Incident Command Units.

Slide 33d

ESCAPE ROUTES

It is essential that personnel are aware of what action to take should an emergency situation arise. As a priority, the Crew Lookout must establish a safety zone and escape routes that will allow all team members to withdraw to a location that offers a place of complete safety. Whenever possible, it is good practise to have a primary and secondary escape route; in the event of the primary route being compromised the secondary one can then be used.

Slide 33e

SAFETY ZONES

A safety zone is a predetermined area where personnel can find refuge and safety from the effects of fire. It should be large enough to be used by all members of the crew(s). Its size and location will depend on a number of factors but will generally be dictated by the size of the crews, the fuel types, terrain, expected fire behaviour and prevailing weather conditions.

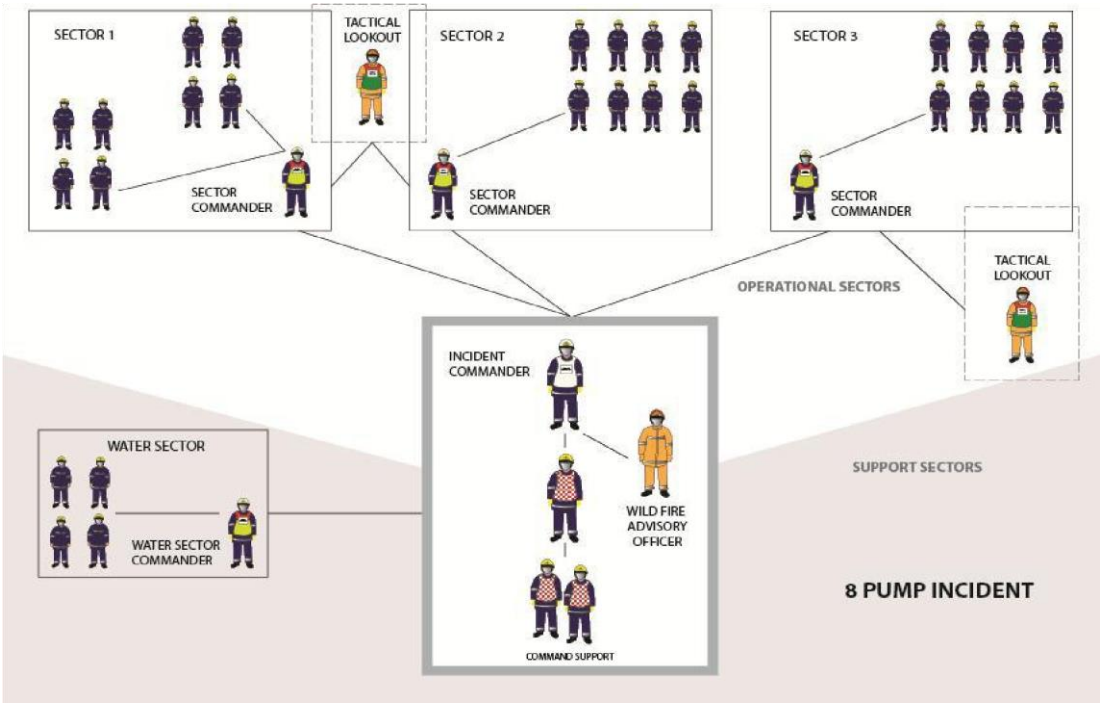
The minimum size of the SAFETY ZONE should be a radius of 4 times the flame height.

Information on the area to be used as a Safety Zone should be communicated to Sector or Operational Commanders, and Tactical Lookouts

if they have been deployed. The location of all identified Safety Zones should be relayed and recorded at the incident command post.

SECTION 6

Slide 34 INCIDENT COMMAND CONCIDERATIONS



Notes

Incident command will be discussed in detail in Wildfire Package 2, however, the basic command considerations in the early stages of a wildfire will be discussed here.

The Incident Command System (ICS) achieves its objectives by establishing effective command in three functional areas which are:

- **Organisation on the Incident Ground**
- **Incident Risk Assessment**
- **Command Competence**

The primary responsibility of any Incident Commander is the safety of personnel working under their control. A briefing must be provided so that any hazards can be identified and that control over them can be established.

Briefings

Due to the dynamic and spatial nature of wildfire incidents the need for comprehensive briefings is particularly relevant. Briefings are an integral part of the ICS communication process and, as advised in the Fire Service Manual on Incident Command.

Key Incident Command considerations

- **What is the fire's behaviour and its future development?**
- **Have effective Communications been established?**
- **Have we established communication with the land owner?**
- **Do I have the appropriate equipment and appliances to carryout fire suppression?**
- **What are the appropriate tactics to be employed?**
- **What suppression methods need to be used?**
- **The deployment of resources on the fire ground.**
- **The associated risks and the control measures to be instigated during the incident.**
- **Provide advice or practical guidance in relation to map reading or navigational issues.**
- **To gather and analyse operational intelligence.**

SECTION 7

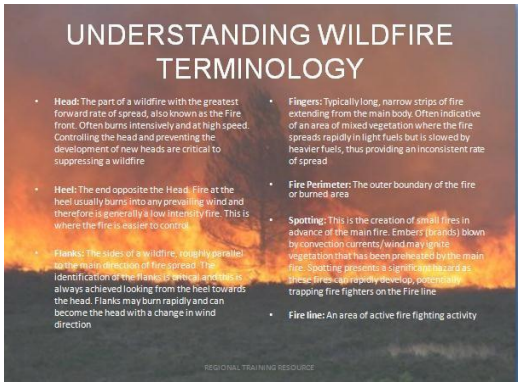
SUPPORTING INFORMATION

- Wildfire Manual (awaiting publication)
- F18.1 WLD 01 SOP Wildfire V0.2
- Wild land Fire fighting for structural Firefighters 4th Edition IFSTA 2003
- CLG : IRMP policy guidance Wildfires

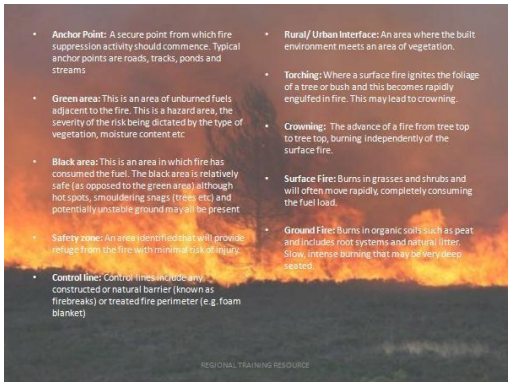
WILDFIRE TERMINOLOGY

Slide 35 Understanding wildfire terminology

To understand the significant hazards associated with Wildfires it is important to first understand the terminology associated with these fire types as they vary greatly from most other types of fire.



Slide 36



Slide 37

Notes:
(For slide 36)
Head: The part of a wildfire with the greatest forward rate of spread, also known as the Fire front. Often burns intensively and at high speed. Controlling the head and preventing the development of new heads are critical to suppressing a wildfire.

Heel: The end opposite the Head. Fire at the heel usually burns into any prevailing wind and therefore is generally a low intensity fire. This is where the fire is easier to control.

Flanks: The sides of a wildfire, roughly parallel to the main direction of fire spread. The identification of the flanks is critical and this is always achieved looking from the heel towards the head. Flanks may burn rapidly and can become the head with a change in wind direction.

Fingers: Typically long, narrow strips of fire extending from the main body. Often indicative of an area of mixed vegetation where the fire spreads rapidly in light fuels but is slowed by heavier fuels, thus providing an inconsistent rate of spread.

Fire Perimeter: The outer boundary of the fire or burned area.

Spotting: This is the creation of small fires in advance of the main fire. Embers (brands) blown by convection currents/wind may ignite vegetation that has been preheated by the main fire. Spotting presents a significant hazard as these fires can rapidly develop, potentially trapping fire fighters on the fire line.

Fire line: An area of active fire fighting activity

Notes:
(For slide 37)
Anchor Point: A secure point from which fire suppression activity should commence. Typical anchor points are roads, tracks, ponds and streams.

Green area: This is an area of unburned fuels adjacent to the fire. This is a hazard area, the severity of the risk being dictated by the type of vegetation, moisture content etc.

Black area: This is an area in which fire has consumed the fuel. The black area is relatively safe (as opposed to the green area) although hot spots, smouldering snags (trees etc) and potentially unstable ground may all be present.

Safety zone: An area identified that will provide refuge from the fire with minimal risk of injury.

Control line: Control lines include any constructed or natural barrier (known as firebreaks) or treated fire perimeter (e.g. foam blanket)

Rural/ Urban Interface: An area where the built environment meets an area of vegetation.

Torching: Where a surface fire ignites the foliage of a tree or bush and this becomes rapidly engulfed in fire. This may lead to crowning.

Crowning: The advance of a fire from tree top to tree top, burning independently of the surface fire.

Surface Fire: Burns in grasses and shrubs and will often move rapidly, completely consuming the fuel load.

Ground Fire: Burns in organic soils such as peat and includes root systems and natural litter. Slow, intense burning that may be very deep seated.

SECTION 8

Awaiting flow chart

SECTION 9

EQUIPMENT

- Main pumping appliances
- Off road capable fire fighting vehicles
- Water Carrier
- HVP and associated equipment
- Lightweight portable pump
- Incident Command Unit (ICU)
- BA Entry Control Board
- Bulk hose supplies (70 & 45mm)
- Appropriate branches
- CAFs foam capacity
- Beaters
- Flexible backpacks
- Breathing Apparatus
- Dust masks
- Main scheme Radio/MDT
- Incident Ground Radio communications
- Lighting
- Small gear and Turning over tools
- Welfare resources
- Transport vehicle (with off road capability)
- Aerial photography and fire fighting capability (where available)

SECTION 10

ASSESSMENT

Q1. What are the three main forces of alignment to be considered at a wildfire incident?

a. Wind, slope, temperature
b. Humidity, wind speed, slope
c. Wind direction, slope, aspect

Q2. What effects does wind have on a wildfire?

a. Drive a fire and give it direction
b. Feed the fire with additional oxygen
c. Dry out or 'cure' the fuel & creates spot fires
d. All of the above.

Q3. Over what flame height should we not be considering a head attack on a wildfire?

a. >3.5m
b. >2.5m
c. >1.0m
d. Head attack is always an option

Q4. What angle of slope results in doubling the speed of fire spread.

a. 20 degrees
b. 10 degrees
c. 30 degrees

Q5. The slope will have a major impact on the fire by increasing the speed, intensity and direction of the fire

a. True
b. False

Q6. With regards to aspect which slopes will experience higher temperatures, lower humidity and fuel moisture content.

a. North facing slopes

b. South facing slopes
c. All land that's 'In aspect'

Q7. What is the main benefit of implementation of the LACES protocol at Wildfire incidents

a. Personnel are supervised and remain informed of the status and development of the wildfire.

b. The situation is monitored and the risks that personnel are exposed to are continually assessed.

c. It proactively identifies a response to any unexpected events, ensuring that an escape route exists to take personnel from a place of danger to one of complete safety.

d. All of the above

Q8. What is considered the minimum radius of a safety zone that should be set up at a wildfire incident.

a. 3 times the maximum flame height
b. 5 times the maximum flame height
c. 4 times the maximum flame height

SECTION 11

APPLICABLE NATIONAL OCCUPATIONAL STANDARDS

Unit FF4,	Element 4.1	Wildfire Awareness
Unit FF4,	Element 4.3	Wildfire Awareness
Unit FF2,	Element 2.2	Wildfire Awareness
Unit FF9,	Driving	
Unit WM7	Wildfire behaviour & planning	
Unit EFSM2	Wildfire behaviour & planning	
Unit EFSM2	Incident command etc (Silver)	

SECTION 12

Relevant references

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Document Control					
F18.1 Wildfire A (Introduction to wildfire operations).					
Version	**Date**	**Author**	**Role**	**Status**	**Changes**
V0.1	08/09/12	M.Oakley	SEED PG	Created	N/a
V0.2				Revised	