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To: ALL REGIONS
ALL FIRE CENTERS
ALL NATURAL RESOURCE DISTRICTS
ALL FOREST LICENSEES

From: Diane Nicholls
Acting Chief Forester
Resource Stewardship Division

Robert Turner
Assistant Deputy Minister
Integrated Operations Division

Re: Guidance for Stocking Standards for Fire Management

Fire is a natural disturbance within the forests of British Columbia; however, annual area burned is increasing as is the cost of wildfire suppression. As area burned increases, so do losses to economically important natural resources and other values on the land base. Continued development in wildland urban interface areas (WUI) and the expansion of energy and other industry related infrastructure on the land base further increases the potential for wildfire losses. Wildfires may also threaten other non-economic values such as critical wildlife habitat that is important to the province.

The linkages between climate change, forest health and wildfire behavior are being realized with increasing wildfire intensity and spread rates occurring in areas that have been attacked by the mountain pine beetle. Future forest health challenges may also result in catastrophic wildfires as live trees become dead fuel. Increasing fire season length, fire severity and annual area burned are predicted in many areas of the province as a result of climate change. Forest management needs to consider silvicultural and other forest and land management activities through a fire management lens with the objectives of reducing wildfire damages; improving suppression effectiveness and reducing costs; and, supporting wildfire resilient landscapes.

The intent of this memo is to provide guidance on how to achieve fire management goals and objectives through the use of a fire management stocking standard and to educate professionals on the relationships between silviculture and fire management. It provides both guidance on the application of principles governing silviculture and wildfire behaviour, conditions that Delegated Decision Makers (DDMs) may consider, and illustrative example stocking standards highlighting best practices.

With respect to existing stocking standards, fire management is currently identified within the existing *Incorporation of mixed wood and broadleaves into Forest Stewardship Plan stocking Standards, SP amendments and TSR regeneration assumptions* guidance and is linked to the FRPA mechanisms (e.g. FPPR 26(5) approval of non-conforming stocking standards) and processes for innovative practices outlined under the *Consideration of Climate Change When Addressing Long Term Forest Health in Stocking Standards*.

Role of Forest Professionals and Licensees

As Acting Chief Forester and ADM Intergraded Resource Operations, we strongly recommend a cooperative approach to the development of fire management Stocking Standards. Through professional reliance principles, experts in silviculture working closely with experts in wildfire behaviour can develop standards for different age stands that meet both silvicultural and fire management objectives. We anticipate and look forward to seeing that the strategic use of well-conceived fire management stocking standards will both protect those values on the landbase important to British Columbians and enhance our ability to maintain an adequate timber supply to meet current and future demands.

A Brief Synopsis of the Fire Management Stocking Standard

Purpose: The fire management stocking standard has been developed to modify or reduce the impacts of wildfire upon values ranging from life and property to infrastructure to cultural and natural resources. Wildfire, whether intentional or natural responds to fuels, weather and topography and fuels, is the factor that natural resource managers can most influence through silvicultural modification of forest structure.

The guidance developed for fire management stocking standards provides a methodology for professionals to develop a strategy that achieves and maintains forest stand conditions that achieve fire management objectives. This commonly means manipulating forest stand composition and structure to reduce the intensity of wildfire to more ecologically desirable levels and/or enhancing successful wildfire suppression. Forest stands are not static in time and so fire management stocking standards implemented at different times during the life of a stand seek to enable or achieve fire management objectives as the forest stand changes. For this reason, maintenance of fire management stocking standards is linked to silvicultural activities planned through time for a particular stand.

Fire Management in Relation to Other Objectives: Fire management stocking standards need to be considered along with other objectives on the landbase. Implementing fire management stocking standards which include the use of broadleaf species can achieve increased diversity as well as provide for hardwood volume for harvest. Standards that only use coniferous species may result in reduced timber production due to reduced fuel loading commonly associated with fire management stocking standards. The challenge in developing and implementing fire management stocking standards is to balance complementary and competing objectives across landscapes within ecologically, socially and economically compatible frameworks.

Fire Management Objectives. Fire management stocking standards are intended to help achieve fire management objectives at both the stand and landscape levels. These objectives

are designed to reduce the impact of fire both locally and across the landscape. Example objectives as reduced fire intensity and/or fire size are intended to both reduce the harmful ecological effects of fire as well as reduce the areal extent of harm to values as commercial timber.

Fire Management Stocking Standard Context: Fire management stocking standards are developed to reduce the harmful effects of wildfire on values. They are intended to be applied where identified as needed within fire management plans. This will most commonly be adjacent to values on the landbase and adjacent to communities identified as wildland urban interface areas. These standards will be applied in a fashion similar to regeneration stocking standards. As a result they will be applied at times when forest stands are being harvested or thinned and at times when specifically identified within a fire management plan as necessary to establish fuel treatments or fuel breaks. Stocking standard guidance for even-aged management has been developed for subzones and site series within the biogeoclimatic ecosystem classification (BEC) system for BEC types that produced commercially valuable timber. Fire management stocking standards will be decision-maker approved variations of these standards that achieve fire management objectives. Fire management stocking standards are to be developed as designated decision maker (DDM) approved variations on existing, usually even-age, standards. Like current stocking standards, fire management stocking standards do need to consider all the current requirements of a stocking standard (e.g. ecologically suitable species, density, minimum inter tree distance (MITD), minimum height(s), competition ratio, acceptable variation, etc.). Rationales detailing the development of proposed fire management standards that meet the test of FPPR 26 will be a key component of fire management stocking standards.

Fire Management Stocking Standard Considerations: The basis for a fire management stocking standard is the development and/or manipulation of a forest stand to meet fire management objectives. In order to meet objectives the tree species need to be not only ecologically adapted but usually fire adapted as well. The use of broadleaf species commonly reduces fire behaviour and may be favoured through manipulating competition ratios. The interplay among genetic potential, growth rates, stand densities, inter-tree distances and ingrowth and forest succession characteristics all contribute to the variation in forest stands to self-prune (i.e. increase or decrease canopy base height), develop ladder fuels and differing canopy bulk densities thus altering the potential for high intensity difficult to control Crown fires.

Partial cut manipulation of forest stands necessitates consideration of the characteristics of trees retained on site. In addition to many of the above considerations, retained trees should be healthy and windfirm. Because logging or thinning debris enhances likelihood of high intensity fire, post-harvest debris should be reduced either through utilization or debris burning and as is required by the *Wildfire Act* and regulation.

Stand Assessment for a Fire Management Stocking Standard: Assessment for a fire management stocking standard requires an understanding of the interplay between fire and fuels. As a result, the guidance encourages the co-development of fire management stocking standards by practicing foresters and wildfire experts. Understanding the role silvicultural manipulations play in affecting variables that either increase or reduce wildfire intensity and

potential harm to values is key to the development of a successful fire management stocking standard.

Stocking standards including fire management stocking standards all target post-harvest or post intermediate cut activities to meet objectives regarding stocking of appropriate densities, species, etc. of tree species. Stocking standards do not constitute a prescription or site plan for a stand of trees.

Guidance for Stocking Standards for Fire Management: The supporting document is a document which presents a science based approach to creating fire management stocking standards and provides example standards with situations and rationales for their development. The guidance document should be used as (Best Management Practice) BMP to set a guideline for what an acceptable fire management stocking standard should consider.

Diane Nicholls	Robert Turner
Acting Chief Forester	Assistant Deputy Minister
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Enclosures: Appendix1 - Stocking Standards Q And A
Fire Management Stocking Standards Guidance Document