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

From: Diane Nicholls
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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 (WUI) areas 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 behaviour 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 for 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 guidance on the application of principles governing silviculture and wildfire behaviour, conditions that Delegated Decision Makers (DDMs) may consider during review, and illustrative stocking standard examples highlighting best practices.

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

Role of Forest Professionals and Licensees

As Chief Forester and ADM Integrated 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 look forward to seeing the strategic use of well-conceived fire management stocking standards that will both protect those values on the landbase important to British Columbians and enhance our ability to maintain an adequate timber supply for 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, infrastructure, to cultural and natural resources. Wildfire (whether intentional or natural) responds to fuels, weather and topography. Fuel 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 to create and maintain 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. As forest stands are not static in time, fire management stocking standards can be applied at different times during the life of a stand in order to 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 that include the use of broadleaf species can achieve increased diversity and 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 such 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 to communities identified as WUI 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 when necessary to establish fuel breaks or for fuel treatments specifically identified within a fire management plan.

Existing stocking standards are typically even aged and focussed on production of commercially valuable timber. Fire management stocking standards will be DDM approved variations to existing standards focussed on achieving fire management objectives. Like current stocking standards, fire management stocking standards need to consider all the components 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 tests outlined in Section 26 of the Forest Planning and Practices Regulation (FPPR) 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, ingrowth and forest succession characteristics all contribute to the variation in forest stands. This in turn influences the degree of self-pruning (i.e. increase or decrease canopy base height), development of ladder fuels and canopy bulk densities which alters the potential for high intensity, and 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.

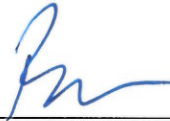
Stand Assessment for a Fire Management Stocking Standard. Assessment for a fire management stocking standard requires an understanding of the interplay between fire and fuels. As a result the guidance encourages the co-development of fire management stocking standards by practicing foresters and wildfire experts. Understanding the role that 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 for stocking appropriate densities 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 guidance document presents a science based approach to creating fire management stocking standards. It also provides example standards with situations and rationales for their development. The guidance document should be used as Best Management Practice (BMP) to set guidelines for what should be considered when developing acceptable fire management stocking standards.



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Enclosures: Appendix 1 - Stocking Standards Q And A
Fire Management Stocking Standards Guidance Document