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All Major Licensees
District Managers
BCTS Timber Sales Managers
Northern Interior Forest Region

To Whom it may concern:

I have received a proposal from Canfor to revise the maximum density number for lodge pole pine in the Northern Interior Forest Region. I have now completed my decision and a copy of the rationale is attached for your information.

If you have any questions please contact myself or Wayne Martin, Regional Staff Manager, Stewardship and (250) 565-6102.



Yours truly,

W.J. (Bill) Warner, R.P.F.
Regional Executive Director
Northern Interior Forest Region

Attachment: Max Density Rationale

pc: T.R. (Tim) Sheldan, Assistant Deputy Minister, Operations Division
Jim Snetsinger, Chief Forester
Phil Zacharatos, Regional Executive Director, Southern Interior Forest Region

July 17, 2007

**Rationale for the Regional Executive Directors Decision to
Increase Upper Limits of
Conifer Maximum Density in the
Northern Interior Forest Region**

Introduction

In April 2006, the Northern Interior Forest Region (N.I.F.R.) was approached by Canfor's Prince George Division requesting a group be formed to examine the possibility of increasing the upper limit of the allowable density for declaring free growing in the N.I.F.R. Phil Winkle (R.P.F.) was hired by Canfor to write a report on the subject. In March of 2007, Mr. Winkle submitted his report and this was followed shortly by a formal request from Canfor to increase the "maximum density" to 25,000 countable stems per hectare (sph). In May of 2007, the N.I.F.R. hired Craig Farndon R.P.F. to review and comment on Mr. Winkle's report.

Background and Legislation

The topic of what is an appropriate maximum density number has been going on since 1987 when licensee responsibility for reforestation began. It was originally set at 5000 sph in 1990 and was moved upward to 10 000 sph in 1998. In 2002 the 10 000 sph was effectively increased by introducing the concept of countable stems per hectare (sph).

Stands currently being assessed for free growing were for the most part established under the Forest Practices Code, therefore the max density standards under that legislation would apply.

Legislation addressing maximum density is contained in Section 41 of the Timber Harvesting and Silviculture Practices Regulation (THSPR) under the Forest Practices Code (FPC). The FPC default maximum density limit for free growing stands was not carried forward into the *Forest and Range Practices Act and Regulations*. The need for an upper density limit for some stands is established through the *Forest Planning and Practices Regulation's* (FPPR) dual requirements that the stocking standards be consistent with: (i) maintaining or enhancing an economically valuable supply of commercial timber; and (ii) the timber supply analysis and forest management assumptions applicable to the area covered by the FSP. Also, the definition of a free growing stand requires that its growth not be impeded by other trees.

Most of the stands currently requiring spacing are in the Vanderhoof, Nadina and Prince George (west portion) Forest Districts.

DECISION

After due consideration of the factors outlined below, several discussions with both Forest Service and Canfor staff, and a field trip on June 12, 2007, I have decided to set the maximum density for Lodge pole Pine leading stands in the N.I.F.R. at 20 000 stems per hectare. Lodge pole Pine leading stands are stands where pine is greater than or equal to 80 percent of the inventory. All other species and mixed stands will remain at 10 000 countable stems per hectare.

Factors Considered

In making my decision I considered the following factors

- 1) **Timber Supply.** The impact of increasing the maximum density limits on the timber supply across the NIFR will be small because even at the 10 000 countable sph standard, only about 1% of the reforested area in the NIFR required spacing. Allowing for a shift of harvesting to pine stands and an AAC uplift in pine stands, that number could be doubled to 2%. If the max density requirement was raised to 20 000 spacing in the NIFR would be reduced by about 90%. If in a worst case scenario this resulted in a 25% reduction in net volume the net decrease in timber supply might be 1/2 of 1 per cent. Stands that would not be spaced as a result of an increase in max density would take longer to reach merchantable size or be harvested at a smaller diameter. This may have a very small impact at the back end of the mid-term timber supply. With the current repression modelling data built in TIPSy the reductions would likely not affect the Timber Supply Review (TSR).
- 2) **Forest Health:** The impacts of changing max. density on forest health are negligible. There already exists a Regional Policy allowing an increase in maximum density in stands that are heavily impacted by rusts. Increasing post spacing densities in high rust hazard areas would be prudent. There is also an increased risk of damage from snowshoe hare feeding in overstocked pine stands.
- 3) **Impacts on Other Resource Values:** A change in max density regimes will have little impact on other resource values. The areas that are currently being spaced are generally consist of smaller strata within larger blocks. As such, they are scattered in patches across the landscape and do not make up a habitat type except on a very local level. High density stands resulting from larger wildfires are far more important from a habitat type perspective. High density pine stands have a relatively sterile understory and provide little in the way of non-traditional forest products.
- 4) **Potential Impact on First Nations Rights and Title:** Previous consultation efforts with First Nations on Forest Development Plans and Forest Stewardship Plans within NIFR have not raised any concerns around max density or the existing 10 000 s/ha max density standard being too high or too low. Most of the concerns raised by First Nations on silvicultural issues have been focused on the use of herbicides as a brushing tool. Because of previous consultation on operational plans, the small percentage of the land base affected by this decision, and it resulting in less activity on the land base, I have assessed the impact on First Nations rights and title to be minimal.
- 5) **Repression Modelling:** The limitations of modelling repression in TIPSy, is well documented in Craig Farndon's report. A limited amount of data was used to calibrate the repression function in the TIPSy model and the site from which the data was derived (Barnes Creek in the ICHmw2) is not very representative of most of the sites where max. density will be a concern in the NIFR. With varying site factors on each block and with varying growth dynamics of each stand, there is no single answer for when repression occurs in the NIFR and unfortunately existing models do not lead us toward accounting for the variability. All that can be really said is that an increase in the max density limit will increase the risk that the ministry will accept stands as free growing that are, or will become repressed to some degree. That risk is mitigated in the NIFR by the fact that there are not many logged stands that exceed the current maximum density numbers. With all of the limitations of the model, Craig Farnden's analysis showed (once data was adjusted to account for countable stems versus total stems and the difference

between establishment sph and free growing sph) that repression was beginning on the Barnes Creek data and to a greater extent, on the Fish Lake data, at about 16 000 sph.

- 6) Impacts of Increased Maximum Densities on Area Requiring Treatment: It is estimated that over the last 8 years, an average of about 600 ha. per year is spaced at an estimated cost of about \$700 per hectare. Using the tables in Phil Winkle's report, moving to a maximum of 15 000 countable stems per ha. would reduce spacing by about 87%. An increase to 20 000 sph would reduce spacing by about 96% and an increase to 25 000 countable sph at free growing would eliminate 99% of the required spacing.

Conclusion

In making this decision it became quite apparent that there is no "right" answer. A maximum density standard of 20 000 sph is an appropriate trade off between: increasing the level of risk to the crown that stands experiencing some level of repression will be declared free growing, and the impact that may have on the future timber supply, the likelihood of spacing stands that result in an increased risk to the Crown that the residual stand will be more susceptible to damage from disease and pests and the cost effective use of resources to do the spacing.

Given the uncertainty around this decision I request that the licensees impacted by this decision consider the development of a monitoring program to evaluate the long term impacts of this decision.



W.J. (Bill) Warner, R.P.F.
Regional Executive Director
Northern Interior Forest Region

Aug 2 2007.

Decision Date: