An Overview Reference for The Evaluation of Stocking Standards Under FRPA

Forest Practices Branch, Ministry of Forests and Range

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Purpose and Scope

One of government's objectives under FRPA was to reduce the complexity and prescriptive nature of the Forest Practices Code. FRPA was intended to reduce administrative and operational costs for both industry and government while continuing to maintain high levels of environmental stewardship, public confidence and a strong compliance and enforcement regime. FRPA was meant to enable, not mandate, flexibility and innovation in determining approaches to forest practices.

This guide is intended to provide overview guidance to Ministry of Forests and Range (MoFR) staff in reviewing and approving stocking standards under FRPA. As such, this guide is intended to clarify context and intent. This document focuses on the key content, tests, and critical issues or questions: It is not to be considered comprehensive and must be used in conjunction with other relevant legislative, planning and professional guidance documents.

This guide will be useful to licensee staff or consultants who are preparing FSP and associated stocking standards. Most, but not necessarily all, approaches previously widely accepted under the FPC, will continue to be acceptable under FRPA. All FSP stocking standards must meet the requirements of the key approval tests contained in the applicable legislation. FSP stocking requirements containing new innovative approaches may require an associated rationale thorough enough to facilitate this evaluation.

The overarching purpose of the guide is to help ensure that the proposed standards are evaluated against the applicable legislative requirements both in a fair and consistent manner and in accordance with the intent of the evaluation requirements in the legislation. Nevertheless, flexibility is provided under FRPA for approval of new innovative standards. The use of, and rationale for, this flexibility is clarified here as well.

This guide is intended to apply equally to standards submitted with an FSP or approved/amended into an existing FSP as individual standards. The guide is limited to the evaluation of proposed stocking and related standards for what are described in the Forest Planning and Practices Regulation as 'free growing stands generally.' In other words, the guide pertains to standards for stands to which free growing obligations apply, as well as to intermediate cutting and special forest product harvesting situations where obligations apply for the retained stand.

The guide is limited at this time to stocking standards for forest licences, tree farm licences, timber sale licences that require their holders to prepare an FSP, and to stocking standards that must be prepared by a timber sales manager. It does not address stocking and related standards for minor tenures, woodlot licences, and forestry licences to cut, nor does it address stocking and related standards as part of the transfer of an obligation to establish a free growing stand.

PLEASE NOTE: This guide is intended to assist the delegated decision-maker (DDM) in approval of stocking standards. Any proposed stocking standards with any multi-block criteria will have to be approved by the Chief Forester and are therefore outside the scope of this document.

SECTION A - Content in an FSP for Stocking and Related Standards

Stocking Standards Definition under FRPA:

FPPR– Sec 1

Section 1 of the regulation defines stocking standards to mean the stocking standards that apply when (a) establishing a free growing stand; or (b) meeting the residual stand requirements following an intermediate cutting or the harvesting of special forest products. This definition is modified from that used in the previous Forest Practices Code.

Factors:

Within the FPPR the term "factors" refers to considerations used in developing results / strategies. These are identified for stocking standards in Section 6 of Schedule 1 to the regulation in specifying a stocking standard (Section 16 (2) FPPR). These factors provide a reference for licensees preparing a stocking standard under FRPA, but they are not considered requirements. Accordingly, they also provide the MoFR with an indication of what they may see as content for stocking standards in FSPs. If all of the Schedule 1 factors are used, the DDM cannot require a licensee to address additional factors.

FPPR – Sched. 6

FPPR – 26 (1)

The factors listed in this schedule are summarized as follows:

(a) Where trees are to be established - the economically valuable, ecologically appropriate species, numbers and distribution of those trees to be established; and,

(b) Where trees are to be retained - the economically valuable, ecologically appropriate species, characteristics, quantity and distribution of those trees to be retained.

(c) For all standards – occurrence and extent of forest health factors and long term forest health risks.

Why are the factors listed by silvicultural system (even-aged, uneven-aged, intermediate cuts and special forest products)?

The three categories make it clear that considerations for stocking standards vary, as they should, for different silvicultural systems. Those systems where a considerable proportion of the stand will be occupied with retained trees, should consider including criteria for the retained trees within the stocking standard. Where stocking is intended to have a contribution from both retained trees and established trees, the standards should reflect that. For uneven-aged stands, multi-storied stocking standards have been in use for some time. Other approaches may emerge that address multi-storied situations equally as well or better. One example is the "deviation from potential" (DFP) approach. The DFP approach was developed by a government/ industry/ consulting team and has been tested in several Districts. Other approaches may also emerge over time.

What if the Factors are not addressed by a standard?

None of the schedule 6 factors are required when proposing a stocking standard. As well, a standard that does not address all of the relevant factors may still be approved by the DDM. However, the DDM must carry out a review that is adequate to be satisfied that the criteria of the approval tests are met. (See the following section). As mentioned previously, if all of the factors pertaining to stocking standards listed in schedule 6 have been addressed, the DDM may not ask for information pertaining to factors other than those listed in schedule 6.

Free-growing Height

FRPA – Sec 1(1), 29 (interpretation and obligation)

FPPR – Sec 44-46

FPPR– Sec 44

A licensee who has an obligation to establish a free growing stand must establish a stand that (a) meets the applicable stocking standards by the regeneration date, and (b) meets the applicable stocking standards by a date that is no more than 20 years from the commencement date. Under FRPA, this twenty-year interval is comparable to the "late free-growing date" under the Code. Also under FRPA what was the "early free-growing date" under the Code is now defined by a free-growing height. The free-growing height is related to stocking standards, but specified separately.

NOTE: Free-growing heights are only applicable to stands with establishment as an objective – they do not apply to intermediate cuts.

FPPR – Sec. 16 & Sec 22 (1)

Certified heights - What if someone with the prescribed qualifications certifies free-growing heights?

The DDM cannot demand additional information with regard to the minimum heights and the FSP must be approved if other tests are met. Certified minimum heights may be challenged after FSP approval.

FPPR – Sec 26 (3)(b)

What if free-growing heights are not certified?

They should then be evaluated along with the stocking standards using the tests described in the following sections.

Situations and Circumstances

FPPR – Sec 16

A stocking standard may require specific context to be evaluated using the approval tests specified in the Regulations. For that reason, licensees are required to specify situations and circumstances that determine where various stocking standards and their associated regulatory requirements will be applied. Note that it is possible for licensees to apply a stocking standard to all situations and circumstances within a designated area, and specify it as such. However, some standards may require a definition of specific situations and circumstances to reasonably pass the tests for approval. A few examples of specific situations and circumstances that may apply in that regard are:

- Biogeoclimatic variant and site series – the most common approach.
- Other Site Modifiers – such as aspect or elevation band. These should be specific enough so it is clear where they might apply.
- Objectives – such as visual quality objectives or mule deer winter range.

Note that licensees should also specify situations and circumstances that determine when standards for individual tree removal or commercial thinning will apply to an area. Situations and circumstances may be important to provide proper context for partial cutting during the key approval tests[1]. therefore the FSP should be sufficiently specific to allow the DDM to adequately evaluate the standards For example, an exact elevation threshold, rather than the term "high elevation".

SECTION B - Key Tests for Approval of Stocking Standards:

With the FRPA emphasis on professional reliance, it is important that licensee professionals are prepared to clearly explain unique approaches to stocking standards. Accordingly, the DDM should have a clear rationale for the rejection of a standard during the evaluation process. A guiding principle to avoid approval issues for stocking standards is for licensee and MoFR professionals to thoroughly discuss new ideas and potential issues in advance before the FSP is submitted.

It is important to remember that the ultimate test for proposed FSP stocking standards is that, after reviewing them, the DDM is satisfied that they are consistent with the key tests. Section 26 of the FPPR describes the key tests for the Minister (or the DDM) to use when evaluating stocking standards.

It is equally important that the approval tests for stocking standards are applied in an integrated fashion, as described below.

Test 1 - Initial High Level Test

The first step in the evaluation process is to conduct a high-level review of all proposed sets of stocking and related standards to determine at the outset if there are obvious omissions or issues that will not allow for approval, so that this information can be communicated to the licensee quickly. As well, this test should examine if the stocking and related standards appear to cover the anticipated situations and circumstances (e.g., forest types, ecosystems, silvicultural systems) to be encountered during the plan period. The high level test is not intended to replace the tests that follow, but to act as an initial coarse filter for the more obvious issues to expedite the approval process. Therefore, this first test should be a relatively quick and simple step.

[1] For partial cutting it may be particularly important to provide this type of clarity. This has been an issue in some parts of BC recently. For example, evaluation of individual tree removal standards using Tests 4 and 5 may be better facilitated when the intent for application outside of the Timber Harvesting Land Base (THLB) is specified (if that is the intent). As well, in such circumstances, a one-time harvest for an economic opportunity provides a much different context than other types of intermediate cut applications associated with various silvicultural systems. A clear description of the situations or circumstances is required to provide enough information to allow the DDM to apply the FPPR 26 (5) tests.

If previously approved FDP stocking standards are rolled into the FSP, is it safe to assume these will be approved?

While this assumption may often be reasonable, it would be misleading to think that it will always apply. All standards should be judged against the requirements of the tests described here. Consideration should be given to any factor that may cause some of these standards to be out-of-date and currently unable to pass these tests. If FDP standards previously approved are still deemed to be ecologically suitable and economically valuable with an acceptable level of risk from forest health factors, and, they were in place during the recent TSR, then they should be approved.

Do standards need to be compatible with the provincial silviculture survey approach in use since the 1980's?

No - standards do not need to be in a form that fits with an "established" method of assessment. However, the DDM will need to be satisfied that the proposed standards can be measured to a reasonable level of accuracy and precision. Accordingly, the DDM should be aware of a method of sampling that will allow for this. Branch specialists may be of assistance in this regard. Yet, where a licensee is proposing a standard in a unique format, fitting with a "new" approach to stocking surveys, it would be prudent for the licensee to ensure that the DDM understands the approach. Discussions prior to FSP submission, or a clear explanation of the assessment approach envisioned for the standard in a companion document may be useful.

What about multi-block stocking standards?

This guide is intended to assist the DDM in approval of stocking standards. Any proposed stocking standards with any multi-block criteria will have to be approved by the Chief Forester and are therefore outside the scope of this document.

TEST 2 - Ecological Suitability Test

FPPR – Sec 26 (3)(a)

The *Reference Guide to FDP Stocking Standards* is a good starting point for this test. The guide represents the status of species acceptability by site series throughout the province based on productivity and reliability information available in 2002-2003. The guide provides a baseline of knowledge for FSP developers and reviewers – however it is not to be blindly accepted as the final word on this topic. New information emerging since 2003, such as published literature, research or data regarding species acceptability should be considered, as long as it is credible and appropriately applied.

Licensees may use such emerging information to provide a rationale for using certain species on particular sites. If species are proposed for areas of BC where they were previously not listed as acceptable, and a rationale is not provided, or is inadequate to provide convincing arguments to the DDM for changing the current regard for the species (as described above), and the DDM is not satisfied that the tests have been met then those standards should not be approved.

NOTE: This is the first species-related test in the approval process. As such, it will generally provide a broad set of species. However, this set of species will receive further scrutiny using additional criteria under the subsequent tests, and be potentially reduced as a result.

What about stocking standards for partial-cutting?

As stated above, the Reference Guide is just a starting point. It was not designed to consider the impact on regeneration from an overstory canopy. When stocking standards are proposed for partial cutting silvicultural systems, the species considered to be "ecologically suitable" may shift according to the silvicultural system used, the amount of shade anticipated from overstory retention, and the approach and timing for any subsequent harvesting entries. Significant forest health concerns may exist in stands that are partial cut and this should be addressed in the standards in areas with high risk forest health concerns. Where silvicultural systems and harvesting methods will retain significant overstory for a harvest unit that will also have a free-growing obligation, these situations and circumstances should be clarified by the licensee for the associated stocking standards and the ecological implications of the resulting shade considered in the list of "ecologically appropriate tree species".

Should climate change be considered in this test?

While climate change is an important emerging topic worldwide, it will require a coordinated provincial strategy for consistent and effective application, and should not specifically be addressed at this time (2006) in District stocking standard evaluations.

TEST 3 - Forest Health Test

FPPR – Sec 26 (3)(a)

The FPPR requires the DDM to approve an FSP if he/she is satisfied that "the regeneration date and stocking standards will result in the area being stocked with ecologically suitable species that address immediate and long-term forest health issues." The DDM may reject the FSP if not satisfied the species proposed will address the forest health issues. The key emphasis for this test should be species acceptability (and associated situations and circumstances) based on known forest health factors. For example: over-deployment of a species such as pine that may be at high risk to damage from rusts and other forest health agents in an area could be a major concern.

For context, it is reasonable that the DDM would look to the local Forest Health Strategy as one source of information in making this determination. The DDM however, should be prepared to consider any reasonable rationale provided by the licensee for not following the Forest Health Strategy, as long as it is supported by credible information. It should be clear that consistency with the local Forest Health Strategy is not a legal requirement. The key focus for the DDM should be the forest health risk posed to the maintenance of a supply of commercially valuable timber by the set of stocking standards proposed by the licensee.

TEST 4 - Economically valuable supply of commercial timber

TEST 4 focuses on value, based on the proposed species and the associated potential risk with respect to future options for products and values. TEST 5 addresses factors related to timber supply in terms of volume production. Note that this test should not be interpreted so narrowly as to unreasonably restrict species selection options for

FPPR – Sec 26 (3)(a)

dealing with forest health issues. Also, the standards package as a whole for a particular FSP should be considered for risks to future options for products and values, rather than assessing the risk on an individual standards basis.

Ensuring today's stocking standards are consistent with an economically valuable supply of timber in the future is a challenge. For free-growing stocking standards with long time periods to harvest and realization of product value, relative species values are difficult to forecast as they can change substantially in unexpected ways over a rotation. To manage this uncertainty, maintenance or enhancement of a mix of species is considered a reasonable strategy. The assumption is that maintaining or enhancing the species mix, will maintain future options for value and volume recovery.

The species profiles reported within TSR analyses may provide useful comparisons for this test, even though they are not specific to biogeoclimatic units. The TSR profile can be compared against the general deployment of species, in terms of their acceptability in the entire set of standards, as a package, across the management unit. As an example, uniform acceptance, across all or most biogeoclimatic units, of hemlock, subalpine fir, or lodgepole pine without any restrictions or qualifications applied to their deployment, will raise concern if the TSR species profile indicates that they are leading species in only a small proportion of stands.

Without any restrictions on the acceptability of lower valued species that can proliferate naturally, there is a significant potential for a major increase in their profile across a management unit. Such a scenario represents a risk to provincial and local objectives under this test, unless a credible rationale for an expanded profile can be provided. Restrictions placed on use of such species might include: a maximum percentage of the well-spaced acceptable trees at the site level; application to a maximum area at the management unit level (in hectares, or a maximum percentage of the annual area logged); application to specific situations and circumstances (ecosystem types, aspects, elevation thresholds, combinations, or other); and other similar approaches.

TEST 5 - Consistency with the Timber Supply Review.

FPPR – Sec 26 (3)(a)

To facilitate good forest management, standards for establishment and growth must be well linked to local assumptions for the sustainability of timber flows over time. Such a linkage is best facilitated by feedback in both directions between the standards and timber flow planning. Accordingly, standards that are "consistent" with the latest timber supply review (TSR) should be considered to be "acceptable".

However, since TSR is a backwards look at past practice, new or innovative standards that are <u>inconsistent</u> with the current TSR <u>should be</u> proposed from time to time to address changing societal values and new emerging objectives, knowledge, science, or management challenges. For example; twenty years ago, management objectives for biodiversity as they exist today were not widely considered or even understood. Associated new standards should be accepted by the DDM, if the licensee provides an acceptable rationale for their use and the DDM is satisfied that the test criteria has been met.

What is meant by "consistency with TSR"?

The FPPR requires that stocking standards are consistent with the timber supply analysis and forest management assumptions that apply to the area. This "consistency" means that the proposed "set" of stocking standards does not put the timber flows projected from TSR "at risk" by their application over time.

How is "consistency with TSR" tested?

To allow for an evaluation of consistency, the DDM should be familiar with the management assumptions associated with stocking and related standards in the latest TSR analysis document. Comparing FSP stocking standards against these TSR assumptions is an imperfect process because TSR assumptions are organized by timber supply analysis units that represent broad averages over a range of sites, species mixes, stocking densities, and growth rates. Stocking standards are generally more specifically organized by biogeoclimatic site series and/or other situations and circumstances. Also, TSR assumptions may address similar factors as stocking standards (such as: density, distribution, regeneration delay), yet they may reflect these factors in a different format. As well, TSR assumptions always reflect historical practice rather than targets or binding minimum standards for management to attain (as with stocking standards).

With these considerations in mind, it is important that the DDM does not become too focused on the details of TSR for each individual standard. The intent of this test is that the FSP set of standards as a whole does not have a strong potential to put the future timber supply on a trajectory that is very different (in a negative sense) than that anticipated by the last TSR, without a good reason.

In general:

- If the proposed standards are similar to the standards applicable to relevant practices on which the analysis is based, they should be considered consistent.
- If the proposed standards exceed the standards applicable to relevant practices on which the analysis is based, they should be considered consistent.

Suggested Specific Approaches to Address Test 5:

To consider the real risk of the entire proposed set of standards, first consider the range of management assumptions in TSR that are unrelated to tree species (density, regeneration delay etc). These often show trends with one or two sets of assumptions prevailing over most analysis units. If this is the case, compare these general sets of TSR stocking assumptions against the general descriptions of stocking and related standards proposed by the licensee. In order to be deemed inconsistent, most of the standards should be substantially different than the assumptions, such that there is a real risk of negative consequences to timber supply over time. Regional or provincial growth and yield specialists may be helpful where considerable uncertainty exists.

Where the assumptions vary considerably from one analysis unit to another in TSR, it may be best to compare the most widespread or common analysis units in TSR against the most widespread or common stocking standards in the FSP. Determination of representation in the management unit, and whether it is comparable between the proposed standards and TSR analysis units may be difficult, requiring input from a range of specialists.

Where comparisons between the management assumptions and the stocking standards are impossible, the DDM may need to request more information from the licensee. For example, where criteria for distribution of stocking is not included in the proposed standards, and TSR suggests relatively uniform stocking across most sites (low OAF factors and planting as the regeneration method), the DDM may request more information (at least for the more widely used standards) to test consistency with these assumptions.

Species assumptions should be considered in Test 5, but again by looking at the species acceptability trends across the entire set of standards. Likely the most useful approach in this regard will be to compare the most widespread or common TSR assumptions for species acceptability, against the most widespread or common stocking standards. If for example, the management assumptions suggest a strong reliance on coastal Douglas-fir across the most common analysis units, and the stocking standards show a strong possibility that western hemlock could dominate the most common site series, this should raise a red-flag in this test. A suggested step is to ensure that the perceived risk is real, by checking that the analysis units and the stocking standards are reasonably comparable. This may require some discussions with specialists. Regardless, the approach taken by the licensee may still be deemed acceptable, if there is a reasonable rationale for broadening out the list of acceptable species that fits with provincial objectives applied locally. If this is the case and subsequent practices change species compositions of future stands as a result, the management assumptions should be adjusted in a future TSR.

What if there is clearly a significant inconsistency with TSR in the standards set?

FPPR – Sec 26 (5)

Under section 26 (5) a set of standards may be approved even though they do not conform to section 26 (3) or (4) of the FPPR. The approval is subject to the DDM being satisfied that the regeneration date and stocking standards <u>are reasonable, having regard for the future timber supply for the area.</u> As suggested previously, TSR should follow the proper evolution of sustainable management practices for changing societal values, not the other way around. Accordingly, an "inconsistency with TSR" may be following the proper evolution of practice. However, a clear, credible rationale for this inconsistency is required, linked to management objectives or strategies, new emerging knowledge or data, or an ecological / biological condition not previously considered (or combinations thereof). Some approaches to partial cutting where the residual trees will contribute significantly to the stocking may emerge as examples, since few TSRs currently consider partial cutting as a management assumption. However, the magnitude and scope of the partial cutting and its associated potential impact on future timber supply must be considered.

The intent here is to improve TSR such that it reflects best management practices to meet provincial and local objectives in the most realistic manner. As well, innovative standards intended to meet specific objectives (such as partial-cutting for specific habitat objectives or VQOs) should service that objective to the benefit of the province and stakeholders, such that tradeoffs against timber supply have been considered, and appear reasonable and worthwhile. The rationale for the stocking standards provided by the licensee (or discussed prior to FSP submission) should provide a sound professional narrative to address this concern. If such a rationale is

not provided for a standard with a substantial TSR inconsistency and it cannot be made available by the licensee, the standard should not be approved.

The rationale provided by licensees may include data or experiences for similar stocking standards on similar sites to make a credible case with the DDM. Where data or experiences with the standard are not available, the licensee may propose an interim (time or area limited) application of the standard on a trial basis with a plan to monitor the results over time.

It is reasonable that the DDM will be satisfied with, and approve a new, innovative stocking standard, when a licensee provides a sound stewardship rationale for using that standard, and takes steps in that rationale to reasonably reduce the risks to the Crown associated with such a standard by: providing credible information associated with its use elsewhere, proposing an interim status for the standard with a credible monitoring program, or by using any other approach to reasonably reduce such risks.

Are partial cutting standards or hardwood management standards inconsistent with TSR?

They are technically inconsistent if they are not included in the management assumptions of the latest TSR. Most of the recent TSR Chief Forester rationale statements make reference to silvicultural systems, so these assumptions should be obvious.

For example, suppose in the recent TSR the Chief Forester Rationale states “it is assumed that all harvesting would be done using the clear-cut silvicultural system”, and at the time of the data package preparation it was estimated that only 1 % of the harvest would be partial cut. Therefore, partial cutting stocking standards exceeding 1 % of the land base would not be consistent with the TSR and forest management assumptions. Similarly, proposed broadleaf standards in a TSA with a TSR that does not assume any broadleaf management would not be consistent with TSR. However, that does not mean that partial-cutting or broadleaf management standards are inappropriate, if they fit with changing management objectives within the TSA.

For partial cutting, most of the current scientific literature suggests reduced yields from stands over time unless very little volume is retained long term (over the entire rotation). As the amount of long-term retention increases and the distribution is more uniform, yield impacts increase. Therefore, the scale and timing of such partial-cut harvest units is important for Test 5. If the proposed partial-cut stocking standards do not provide context as to where and when systems with a high degree of long term retention would be applied within the FDU, the DDM would most likely not have enough information to evaluate consistency with TSR.

To approve partial cutting standards as in the previous example, the DDM would have to be satisfied that the increased amount of partial-cutting does not put projected timber flows at risk, or that the reduced timber flow is a worthwhile tradeoff for another resource management objective. So, if proposed partial cutting standards are inconsistent with TSR but are proposed for some other objective, they would have to contain enough information to allow the DDM to estimate the potential impact on timber yields to be satisfied that the potential tradeoff is worthwhile. For example, if high levels of mature timber were to be retained on-site for the rotation, parameters for the distribution of these trees would be important to determine impacts on understory regeneration growth, and vigor criteria would be useful to provide an indication of overstory persistence and potential contributions to yield. Without

these types of criteria, it may be difficult for the DDM to either determine consistency with TSR, or the potential tradeoff in timber yield that the proposed stocking standard represents.

Again, under section 26 (5) a set of standards may be approved even though they do not conform to section 26 (3) or (4) of the FPPR. The approval is subject to the DDM being satisfied that the regeneration date and stocking standards are reasonable, having regard for the future timber supply for the area.