



**Forest
Practices
Board**

Audit of Visual Resource Management

Headwaters Forest District

FPB/ARC/123

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Table of Contents

- Executive Summary..... 1**
- Introduction.....3**
 - The Visual Resource Management Framework 3
 - The Audit Area 5
 - Legal Framework 5
- Audit Scope and Approach..... 7**
 - The Auditees..... 7
 - Criteria Development 7
 - Compliance with the Visual Requirements of FRPA 8
 - Effectiveness of Managing Visual Quality 8
- Audit Findings..... 9**
 - Compliance..... 9
 - Effectiveness..... 12
- Appendix 1: Key Concepts and Terms 19**

Executive Summary

In August 2009, the Forest Practices Board conducted an audit of visual resource management in the Kamloops Timber Supply Area portion of the Headwaters Forest District (see map on page 2). Visual resource management is the process of identifying and classifying scenic landscapes, and managing forestry activities on the landscape to meet the visual needs of the public, visitors and other resource users.

The audit area contains major highway corridors, which pass through areas of exceptional natural scenery and provide access to national and provincial parks, making it an ideal location for a visual audit. The maintenance of visually sensitive areas in the corridors is a priority for recreation and tourism management.

The activities of five forest licensees were audited: International Forest Products Ltd. (Interfor), Wells Gray Community Forest Corporation (WGCF), Gilbert Smith Forest Products Ltd. (Gilbert Smith), Ainsworth Lumber Company Ltd. (Ainsworth) and Canadian Forest Products Ltd. (Canfor). Also audited was BC Timber Sales (BCTS), Kamloops Business Area, Clearwater Field Unit, who volunteered to be included.

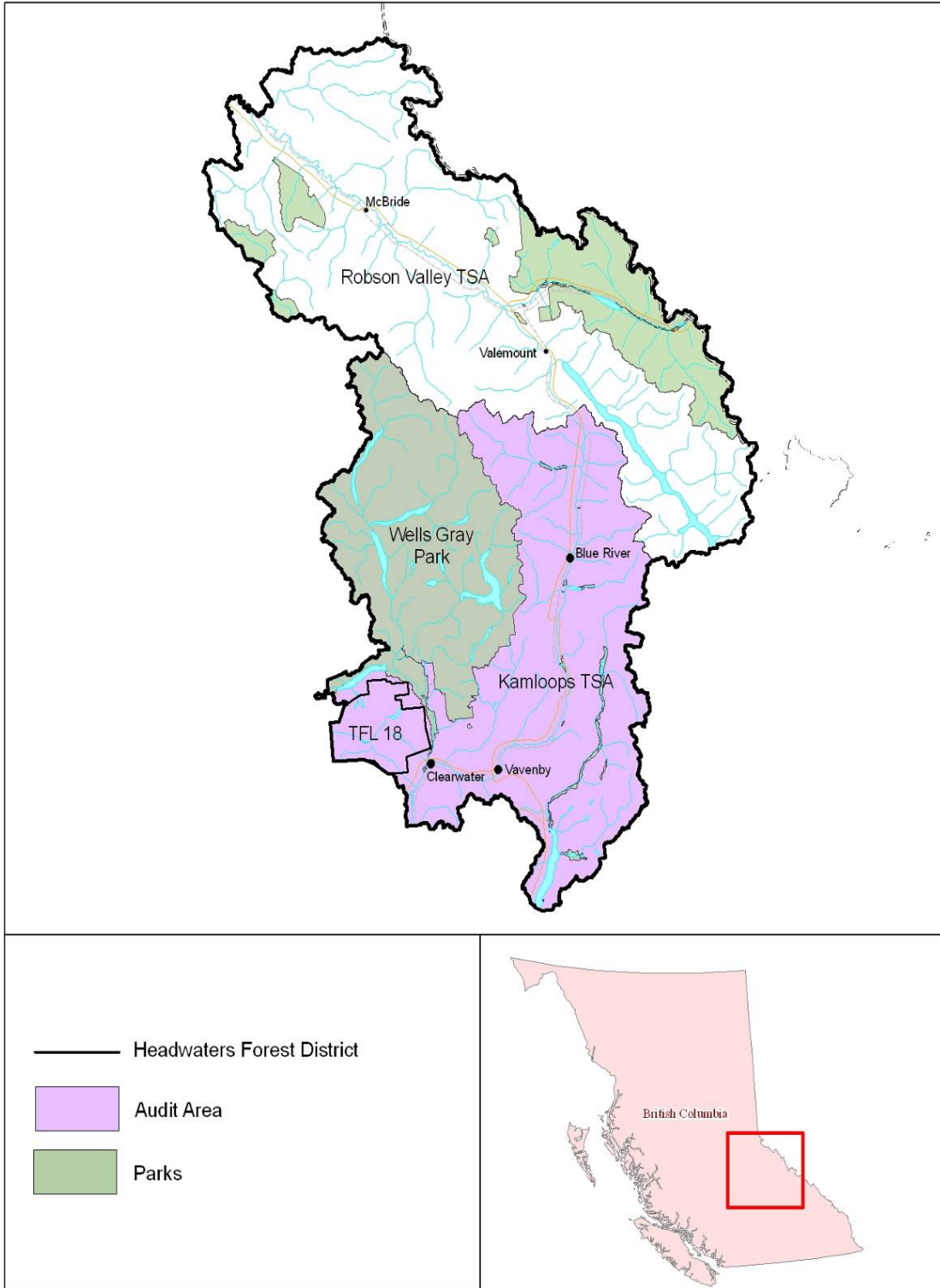
The audit examined activities and related operational planning on 73 cutblocks harvested within designated scenic areas along the Highway 5 corridor, Adams Lake and smaller lakes within the audit area, between August 2007 and August 2009. In assessing these cutblocks, the audit examined 42 visual landscape inventory polygons, 38 viewpoints and 73 site plans.

Overall, the audit found that all six auditees were both compliant and effective in their management of visual objectives within the southern portion of the Headwaters Forest District.

Most of the audit area was managed according to the visual objectives specified in the *Forest Planning and Practices Regulation* (FPPR) section 9.2. Visuals were managed diligently, with evident care in ensuring visual goals were met. The audit results clearly show that most areas examined not only met the visual objectives but also exceeded them, with the exception of mountain pine beetle (MPB) infested areas, where visual objectives were often not achieved.

However, where MPB was a consideration, auditees demonstrated that a substantial amount of effort was devoted to managing visual impacts by incorporating irregular boundaries, edge treatments and natural landscape features into cutblock design. The auditees are commended for reducing visual impacts in beetle-infested areas by using mitigative visual design practices where possible.

Audit of Visual Resource Management Headwaters Forest District



Introduction

In August 2009, the Forest Practices Board conducted an audit of visual resource management in the Kamloops Timber Supply Area portion of the Headwaters Forest District (see map on page 2). Visual resource management is the process of identifying and classifying scenic landscapes, and managing forestry activities on the landscape to meet the visual needs of the public, visitors and other resource users.

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The activities of five forest licensees were audited: International Forest Products Ltd. (Interfor), Wells Gray Community Forest Corporation (WGCF), Gilbert Smith Forest Products Ltd. (Gilbert Smith), Ainsworth Lumber Company Ltd. (Ainsworth) and Canadian Forest Products Ltd. (Canfor). Also audited was BC Timber Sales (BCTS), Kamloops Business Area, Clearwater Field Unit, who volunteered to be included.

The audit examined activities and related operational planning on 73 cutblocks harvested within designated scenic areas along the Highway 5 corridor, Adams Lake and smaller lakes within the audit area, between August 2007 and August 2009. In assessing these cutblocks, the audit examined 42 visual landscape inventory polygons, 38 viewpoints and 73 site plans.

Objectives for visual quality are set by government under the *Forest and Range Practices Act* (FRPA). Forest licensees operating on Crown land must ensure their forestry planning and practices are consistent with these objectives, for which there are categories for 'visually altered landscapes' (see Table 1).

Within the audit area, legal requirements for the management of visuals came from two main sources: the Kamloops Landscape Resource Management Plan (KLRMP) and objectives established under section 9.2 of the *Forest Planning and Practices Regulation*.

Legal requirements are incorporated into a visual resource management framework, which was designed to deal with visual interests.

The Visual Resource Management Framework

Visual resource management is the process of identifying and classifying scenic landscapes, and managing forestry activities on the landscape, to meet the visual needs of the public, visitors and other resource users. It recognizes scenic landscapes as an integral part of the forest resource.

The visual resource management framework was developed to address the subjectivity associated with the human perception of visual quality. It classifies forest alteration according to levels of acceptability of alteration in scenic areas. Key components of the visual management framework are:

- The identification of an area of land as visually sensitive from chosen viewpoints through a visual landscape inventory (VLI). Visually sensitive areas may be designated as scenic areas for management purposes.
- Categories of visually altered forest landscape (see Table 1), based on studies of public perception of the acceptability of differing levels of timber harvesting activity in scenic areas.
- The assignment of a recommended visual quality class, visual quality objective (VQO) or objective set by government for visual quality to scenic areas to define how much alteration is deemed acceptable for each scenic area.
- The design of timber harvesting cutblocks, involving visual impact assessments (VIA),¹ for assessment against the recommended visual quality class or established VQO.
- Conducting the timber harvesting activity, causing the alteration to the scenic area.
- Assessment of performance.

TABLE 1. Definitions of categories of visually altered forest landscape

CATEGORIES OF VISUALLY ALTERED FOREST LANDSCAPE	BASIC DEFINITION
Preservation (P)	An altered forest landscape in which the alteration, when assessed from a significant public viewpoint, is: <ul style="list-style-type: none"> • very small in scale; and • not easily distinguishable from the pre-harvest landscape.
Retention (R)	<ul style="list-style-type: none"> • difficult to see; • small in scale; and • natural in appearance.
Partial Retention (PR)	<ul style="list-style-type: none"> • easy to see; • small to medium in scale; and • natural and not rectilinear or geometric in shape.
Modification (M)	<ul style="list-style-type: none"> • very easy to see and is: <ul style="list-style-type: none"> - large in scale, but natural in its appearance; or - small to moderate in scale, but with a design that has some angular characteristics.
Maximum Modification (MM)	<ul style="list-style-type: none"> • very easy to see and is: <ul style="list-style-type: none"> - very large in scale, - rectilinear or geometric in shape, or - both.

Source: Adapted from Protocol for Visual Quality Effectiveness Evaluation Procedures and Standards, Version 3.0, October 2008.

The definitions in Table 1 apply to objectives set by government for visual quality.

¹ A visual impact assessment is an evaluation carried out to demonstrate that timber harvesting or road operations are consistent with the established visual quality objective for a scenic area. The assessment simulates the visual effects of the planned operation on the landscape from one or more viewpoints.

The Audit Area

As part of the Forest Practices Board's 2009 audit program, the Board randomly selected the former Clearwater Forest District as the site of this, the Board's second, visual quality audit. This area is now referred to as the Kamloops Timber Supply Area (TSA) portion of the Headwaters Forest District and is located in the southern portion of the district (see map on page 2). It is characterized by two main visually significant components:

- The lakeshore-based areas are dispersed within the operating area and are viewed by many pleasure craft and sport fishing boats. They are separate from the main Highway 5 corridor, located around lakes and recreation areas including Mahood Lake, Adams Lake and smaller lakes. Most of the areas visible from the water are first-growth forests, with partial retention and retention objectives.
- The Highway 5 corridor is the main travel corridor from Clearwater to Valemount and carries a significant volume of tourist traffic, primarily in the summer period, but it also services heli-skiing areas in the winter. Most of the highway passes through mountainous forest, with a mixture of retention, partial retention and modification objectives. Most of the land surrounding the highway corridor in populated areas is privately owned.

Activities along the Highway 5 corridor include forestry, hydro projects, heli-skiing and those associated with private land. Visual design consideration for hydro, heli-skiing and private land activities tends to be limited. Some of these past activities have resulted in significant alterations to the scenic landscape. Because the audit focused on more recent activities, the visual impacts of these activities were not examined during the audit.

Legal Framework

The audit area contains a unique set of legal requirements that form the basis for how compliance was assessed for this audit. The legal framework is described below.

Legal requirements for the management of visuals came from two main sources. First, there are two general objectives established by a 2006 amendment to the Kamloops Higher Level Plan Order. Second, there are objectives "set by government in relation to visual quality" established under section 9.2 of the *Forest Planning and Practices Regulation*. The two general objectives established in the order for visual quality are:

Visually sensitive areas

"The primary objective in visually sensitive areas is to ensure that the levels of visual quality expected by society are achieved on Crown land in keeping with the concepts and principles of integrated resource management."

Outside visually sensitive areas

“Areas outside the identified visually sensitive areas in the Kamloops LRMP are managed for landscape objectives as follows: alterations may dominate the characteristic landscape but must borrow from natural line and form to such an extent and on such a scale that they are compatible to natural occurrences.”

These objectives apply under the *Land Act* and the FRPA definition of “objectives set by government.”

Under FRPA, forest stewardship plans² (FSPs) must include results or strategies in relation to objectives for visuals. The results or strategies must be consistent, to the extent practicable, with the objectives. When carrying out forestry operations, the holder of the FSP must ensure that the results are achieved and strategies carried out. In this way, practices are expected to be consistent with visual objectives.

Specifically, licensees must ensure they meet:

- the requirements of FRPA section 5, to include results and strategies consistent with FRPA objectives for visuals in FSPs. A result is a description of a measurable or verifiable outcome in respect of a particular objective. A strategy is a description of measurable or verifiable steps or practices that will be carried out in respect of a particular objective.
- the requirements of FRPA section 21, to ensure that the intended results set out in FSPs were achieved, and that the strategies described in the FSPs were carried out.

Except for the general objectives in the Kamloops Higher Level Plan Order, the objectives in relation to visual quality are determined by reference to the Land and Resources Data Warehouse (LRDW). The LRDW contains relevant scenic area polygons and the visual sensitivity classes from which the visual objectives are derived.

Scenic areas were described in a visuals inventory in 1999. These scenic areas, as they existed on October 24, 2002, have visual sensitivity classes assigned to them in the LRDW. The objectives in section 9.2 are based on these visual sensitivity classes.

² A forest stewardship plan (FSP) is a key planning element in the FRPA framework and the only plan subject to public review and comment and government approval. In FSPs, licensees are required to identify results and/or strategies consistent with government objectives for values such as water, wildlife and soils. These results and strategies must be measurable and once approved are subject to government enforcement. FSPs identify areas within which road construction and harvesting will occur but are not required to show the specific locations of future roads and cutblocks. FSPs can have a term of up to five years.

While not legal requirements, the Lakes Local Resource Use Plan (LLRUP) and the 1996 visual inventory for TFL 18, contain visual objectives for lakeshore management zones³ (LMZ) and other visually sensitive areas within TFL 18. Because they serve as guidelines for visual practices, they were only used as a standard for assessing the effectiveness of visual practices during this audit.

Audit Scope and Approach

The Auditees

Five major licensees operating in the area were subject to audit: International Forest Products Ltd. (Interfor); Wells Gray Community Forest Corporation (WGCF); Gilbert Smith Forest Products Ltd. (Gilbert Smith); Ainsworth Lumber Company Ltd. (Ainsworth); and Canadian Forest Products Ltd. (Canfor), including Canfor's TFL 18, which lies within the audit area. BC Timber Sales (BCTS), Kamloops Business Area, was also subject to this audit. The Board notes that, though BCTS was in an audit exemption period,⁴ they volunteered to participate in this audit. Their participation provided a more comprehensive view of visual management practices in the audit area. Table 2 summarizes the forest licences and cutblocks that were subject to the audit.

TABLE 2. Operators and cutblocks audited

Auditee	Applicable licences	Number of cutblocks subject to audit*	Number of cutblocks audited
Ainsworth	FL A82234	4	4
BCTS	Various TSLs	24	19
Canfor	FL A18688, TFL 18	26	22
Gilbert Smith	FL A56291	5	5
Interfor	FL A18693	12	12
WGCF	CFA K2A	11	11
Total		82	73

* Number of blocks with harvest activity between August 2007 and August 2009, within the audit area and within a scenic area.

³ **Lakeshore management zone** is the zone around a lake established by the district manager where specific guidelines will apply. A **visual quality objective** is set for each lake management zone based on its classification. This zone lies outside of any **riparian reserve zone** and adjacent to the lake if there is no riparian reserve zone. It is considered to be approximately 200 metres, yet can be significantly larger or smaller depending upon the topography, aesthetics, and site-specific concerns.

⁴ When a licensee is audited by the Board, they are exempt from the random audit selection process for a period of three years, after which they may again be subject to a Board audit.

Criteria Development

This is the second visual quality audit the Board has conducted, and criteria developed from the initial audit (Campbell River Forest District⁵) continue to be used. The two principal objectives of this visual resource management audit were to assess and conclude on:

1. compliance with the visual requirements of FRPA; and
2. the effectiveness of managing visual quality where forest practices have occurred.

Compliance with the Visual Requirements of FRPA

Visual management activities and associated planning were assessed for compliance with FRPA and related regulations in effect as of August 2009. In determining compliance with FRPA requirements, the audit examined whether operators complied with sections 5 and 21 of FRPA. This included whether they achieved the objectives described above in the legal framework section.

The audit was conducted in accordance with: the Board's *Compliance Audit Reference Manual, Version 6.0, May 2003*; the addendum to the manual for the 2009 audit season; the Board's Visual Quality Audit Methodology – July 2004; and, a method designed by the Forest and Range Evaluation Program (FREP) for assessing visual quality management. All together these documents set out the standards and procedures that were used to carry out this audit.

Effectiveness of Managing Visual Quality

In 2004, the Board worked in cooperation with the FRPA Resource Evaluation Working Group (a joint project of the Ministry of Forests and Range⁶ and the Ministry of Water, Land and Air Protection⁷) to develop effectiveness criteria and indicators for each of the forest values identified in FRPA. For visual quality, this meant developing procedures for evaluating effectiveness of visual management practices. These procedures provide a basis for consistent assessment of achievement of visual objectives on landforms from a specific viewpoint.

⁵ The Audit of Visual Resource Management – Campbell River Forest District report is found on the Board's website at <<http://www.fpb.gov.bc.ca/publications.aspx?id=2604>>

⁶ The Ministry of Forest and Range is now the Ministry of Forests, Mines and Lands, as of November 2010.

⁷ The Ministry of Water, Land and Air Protection is now the Ministry of Environment.

The Board used the following effectiveness criteria, which are necessary attributes of an effective overall system of visual resource management.

1. Documented public input relating to visual quality has been fully addressed by operators through operational planning and forest practices.
2. Scenic areas⁸ are designated over areas of visual sensitivity.
3. Visual objectives⁹ within scenic areas are appropriate to manage visual quality.
4. Within designated scenic areas, visual management meets or exceeds established visual objectives.
5. Within designated scenic areas, good landscape design is fully utilized to reduce visual impacts.
6. Auditees have management systems in place to achieve visual objectives and they are working effectively.

The Board developed the effectiveness criteria during the pilot audit in 2004 and used them again for this audit. Before the audit began, MFR visual specialists were consulted and any changes to effectiveness evaluations since 2004 were incorporated in this audit.

Audit Findings

Compliance

The fieldwork assessed compliance with FRPA provisions as of August 2009. All activities subject to audit were conducted under FRPA (FSPs) and amendments.

In determining compliance with FRPA requirements, the audit examined whether auditees complied with legal objectives, including:

- planning requirements in scenic areas; and
- commitments to achieve visual objectives that may have been made in FSPs.

⁸ A scenic area is a visually sensitive area or scenic landscape identified through a visual landscape inventory or planning process approved or established by government. It is more precisely defined by regulation.

⁹ A visual objective is a legally established resource management objective established by government, or contained in a higher level plan, that reflects the desired level of visual quality based on the physical characteristics and social concern for the area. It is more precisely defined by regulation.

The audit assessed compliance with FRPA requirements based on the following objectives:

- the objective for visually sensitive areas set out in the 2006 amendment to the Kamloops Higher Level Plan;
- the objective for areas outside the visually sensitive areas, also set out in the 2006 amendment to the Kamloops Higher Level Plan, which includes TFL 18; and
- The objectives established by FPPR section 9.2, based on the scenic areas and visual sensitivity classes set out in the LRDW.

The assessments consisted primarily of examination of documents and field sampling. Table 3 summarizes the items audited.

TABLE 3. Plans audited for visual resource management

Auditee	Applicable Licences	FSPs Audited	VLI polygons Audited	Landforms Audited	Site plans¹⁰ Audited
Ainsworth	NRFL A82234	1	2	2	4
BCTS	Various TSLs	1	4	7	19
Canfor	TFL 18, FL A18688	2	18*	15	22
Gilbert Smith	FL A56291	1	4	3	5
Interfor	FL A18693	1	10	5	12
WGCF	CFA K2A	1	4	6	11
Totals		7	42	38	73

*Within TFL 18, VLI polygons are considered to be synonymous with lakeshore management zones.

Compliance with Planning Requirements

FRPA requires that FSPs specify results and strategies that address legal objectives for visual resources. Site plans must be consistent with the FSP and identify how the intended results or strategies described in the FSP apply to the site.

Conclusion

The audit found that, in all significant respects, auditees met planning requirements for visual resource management for all 7 FSPs and 73 site plans audited. The audit found that all FSPs contained results and strategies that addressed legal objectives for visual resources, and that all site plans were consistent with FSPs and identified how the intended results and strategies applied to the site.

¹⁰ A site plan is a site-specific plan that is required in place of a silviculture prescription as of December 17, 2002, except where there is already an existing silviculture prescription. Site-specific plans are required to be consistent with the forest stewardship plan. The site plan contains many of the same elements as a silviculture prescription and is designed to identify resource values and define what a free-growing stand will be on that site. However, it is not an operational plan under the *Forest Practices Code of British Columbia* and does not require review or approval by government to be implemented.

Compliance with Planning Commitments (FRPA s.21)

The audit found that all FSPs and site plans prepared by all auditees contained clear commitments to meet visual objectives and that forest practices achieved these commitments. Operators substantially complied with FRPA section 21 for all 38 landforms audited.

Still, the audit found 10 instances where visual objectives were borderline or not met (Table 4). However, auditees made provisions in their FSPs for the influence of other circumstances on their ability to achieve visual objectives, including salvaging or managing pest outbreaks. Operators clearly demonstrated to Board auditors that, for these 10 instances, MPB infestations affected their ability to achieve visual objectives and, therefore, visual management practices in these areas were compliant with FRPA, section 21.

TABLE 4. Effectiveness evaluation (EE) for landforms audited

Licensee	Landforms Audited	Effectiveness Evaluation (EE) for the Landform				
		<i>Clearly Not Met</i>	<i>Not Met</i>	<i>Borderline</i>	<i>Met</i>	<i>Well Met</i>
Ainsworth	2	0	0	0	0	2
BCTS	11	1	3	0	5	2
Canfor	13	1	0	3	1	8
Gilbert Smith	2	0	0	0	0	2
Interfor	4	0	0	0	0	4
WGCF	6	0	1	1	1	3
Totals	38	2	4	4	7	21

Note: Effectiveness Evaluation categories are defined in Protocol for Visual Quality Effectiveness Evaluation Procedures and Standards, Version 3.0, October 2008 and on the Visual Quality Effectiveness Evaluation Form.

Conclusion

The audit found that operations audited either met visual commitments made in FSPs or site plans, or were substantiated where they did not.

Overall Conclusion Regarding Compliance

The audit found that the auditees' forest planning and practices complied in all significant respects with the FRPA requirements for visual resource management. In reference to compliance, the term "in all significant respects" recognizes that there may be minor instances of non-compliance, which either may not be detected by the audit, or that are detected but not considered a significant non-compliance.

Effectiveness

In considering the effectiveness of forest practices for the purpose of this audit, it was necessary to define what constitutes effective practices for visual resource management. At present, effectiveness criteria have been developed, or are under development, for the 11 key resource subjects, identified in FRPA legislation,¹¹ by FREP. For visual quality, work mainly consists of the previously described procedures for effectiveness evaluation, which are limited to evaluating the achievement of visual quality objectives at the site level.

For the purpose of this audit, the Board adopted the 2004 pilot audit effectiveness criteria described in section 2.3 of this report.

The audit examined operators' performance during the audit period, in the audit area, in relation to these effectiveness criteria.

Effectiveness Criterion 1: Documented public input relating to visual quality has been fully addressed by operators through operational planning and forest practices

The primary test for this criterion was to collect and assess written public input to FSPs, related to visual quality. The audit found a very low number of written public submissions on FSPs and no written submissions regarding visual interests.

Conclusion

The criterion is of limited value as an indicator of effectiveness because there was no documented public input. Neither the criterion nor the audit findings address the broader question of whether public expectations for visual quality are being met in the audit area.

Effectiveness Criterion 2: Scenic areas are designated over areas of visual sensitivity

Auditors sampled extensively in primary travel corridors and lakeshores within the audit area, and made general comparisons between scenic area maps and what was actually visible. Mapped scenic areas appear to adequately include the visible land area adjacent to the highway corridors, as well as the perimeter of lakes visible from the lake surface, or lakeshore viewpoints identified in the Lakes LRUP. No concerns were noted for the designation of scenic areas in these portions of the audit area. In a few instances there were areas designated as visually sensitive that were not visible from significant viewing areas, which may indicate that a conservative approach was taken when identifying scenic areas. The audit found six cutblocks located in mapped scenic areas that were not visible from significant viewpoints.

¹¹ FRPA Section 149.

Visual inventories were conducted as if trees had been removed from the landscape so areas that would become visible, should the trees be removed in the future, were included in the ‘visually sensitive’ designation. This approach had the benefit of maintaining a static scenic area for consistent visual management planning, regardless of the size of the trees or other vegetation in the viewscape, which are addressed in each visual impact assessment (VIA).

Conclusion

The criterion is well met. Scenic areas appear to be well, if not conservatively, designated for highway corridors and lakeshore areas within the audit area.

Effectiveness Criterion 3: Visual objectives within scenic areas are appropriate to manage visual quality

This criterion was assessed within the confines of the existing visual quality classification system. No assessment work was done regarding the appropriateness of the classification system itself. Auditors considered the appropriateness of the assigned visual quality designations in various scenic areas within the audit area.

Scenic and visually sensitive areas were mapped and assigned visual objectives of modification, partial retention or retention. For the purposes of meeting the KLRMP and FPPR section 9.2 visual objectives, in 2006, visual sensitivity classes were assigned to scenic and sensitive areas. Table 5 summarizes the visual sensitivity classes, their associated visual objectives and relative proportions in the audit area.

TABLE 5. Visual quality classes within the audit area

Visual Inventory	Visual Sensitivity Class (VSC)		
	2 (High)	3 (Mod)	4 (Low)
Visual objective for Visually Sensitive/Scenic Area	R or PR	PR or M	PR or M
VSC Percentage of Scenic Areas	35	55	10

Note: See Table 1 for visual objective definitions, which corresponds to the categories of visually altered forest landscape.

Auditees within the Headwaters Forest District committed, in their FSPs, to manage for the visual objectives contained in FPPR section 9.2 for KLRMP VSAs, and 1999 visual inventory scenic areas. The visual objectives and scenic areas contained in the MFR visual landscape inventory (LRDW) were compared with district manager directives and found to be consistent, providing clear direction to operators.

Visual objectives on the highway corridor are a mix of partial retention (PR) and modification (M) (see Table 1 for visual objective definitions). The PR designations are associated with concentrated-use areas, such as towns or resort sites, as well as landforms that are viewed for long periods, or from many different viewpoints. In other parts of the main travel corridors, and in the more remote areas, the designations are M.

The Lakes LRUP designates PR or retention (R) for lakeshore management zones. The KLRMP designates areas outside VSAs to be managed to the equivalent of an M visual objective, to ensure visual interests are addressed in areas where potential visual impacts are not as obvious.

Conclusion

The designations generally appeared reasonable in consideration of other resource interests. Areas with higher levels of traffic or recreational use were managed for higher levels of retention. However, the audit cannot conclude on the absolute appropriateness of the visual objective designations.

Effectiveness Criterion 4: Within designated scenic areas, visual management meets or exceeds visual objectives

The assessment of forest landscapes to determine whether visual objectives have been met raises several issues that require consideration in the interpretation of audit results, including:

- landform versus landscape as the basis of assessing visual management,
- selection of viewpoints,
- roadside and foreground areas,
- visual design versus percent alteration, and
- visual impacts on private land.

Assessment Results

The audit found that operators used a consistent approach to visual management. Landforms, preferred over the FRPA requirement to use landscapes, were used as the basis to assess visual management practices and the landforms audited were well defined. All operators considered the most significant viewpoints when completing visual impact assessments and used both numerical and design elements as decision-making tools to predict the anticipated results of planned operations.

There were no roadside areas encountered during the audit.

When designing cutblocks in visually sensitive areas, operators considered and accommodated potential visual impacts caused by operations on private land.

Of the 38 landforms sampled, 11 had special consideration because they were located in areas where addressing MPB infestation was a priority, rather than achieving visual objectives. The audit found that operators substantially met the visual objectives for 28 (74 percent) of the total samples. However, the 10 samples that did not meet assigned targets were consistent with FSP results and strategies that made provision for the effect of forest health considerations on achieving visual objectives.

TABLE 6. Summary of visual quality objective (VQO) achievement

Auditee	Total # of Samples	Beetle Samples	Total # of Samples That	
			Met VQOs	Did Not Meet VQOs
Ainsworth	2	0	2	0
BCTS	11	5	7	4
Canfor	13	4	9	4
Gilbert Smith	2	0	2	0
Interfor	4	0	4	0
WGCF	6	2	4	2
Totals	38	11	28 (74%)	10 (26%)

Conclusion

Operators met the assigned visual objectives for all 27 non-beetle samples and 1 of the beetle samples. Therefore, the audit found that, with the exception of managing some harvesting areas to address MPB infestations, operators were effective in meeting or exceeding visual objectives. Where MPB was a factor, operators used design principles where possible to minimize visual impacts (see criterion 5).

Effectiveness Criterion 5: Within designated scenic areas, good landscape design is fully utilized to reduce visual impacts

Design elements are very important in visual resource management. The public may respond more positively to a forest view that looks well-managed, even if it does not look “natural.” Well-designed alterations also have a higher likelihood of meeting a given visual objective definition than poorly designed ones with the same percentage of alteration.

The importance of landscape design is clear when considering the cost of visual management. The requirement to manage a landscape to meet a given visual quality objective constrains the rate at which the visible area can be harvested. The more stringent the visual objective, the greater the downward pressure on the timber supply. Good visual design can allow the forest manager to harvest more timber from a landscape than if poor design is used. Consequently, consistent use of good design will lower the timber supply impact of managing for visual resource values.

The assessment methodology considers seven design elements. Auditors rated each sample good, moderate or poor for each of the seven elements, asking, does cutblock design:

- respond to lines of force (topographic shape of the landscape)?
- borrow from the natural character of the landscape (shape and vegetation patterns)?
- incorporate edge treatments (feathered or wavy and irregular edges)?
- consider the distance from the viewpoint to the alteration (farther is better)?
- appropriately position the alteration on the landform (away from the center is better)?

- account for visual impact of roads and side-cast?
- designate an appropriate amount of within-block tree retention?

Overall, the audit found good design practices were used, particularly when comparing audit blocks to areas harvested prior to the audit period. Design practices were consistent between operators. In some cases, operators harvested additional areas around older openings to enhance their visual design. The total sample base of 38 was assessed, although 10 samples did not meet visual objective definitions due to forest health reasons. In these instances, the visual objective definition was not met because percent alteration limits were exceeded while design practices were used to limit visual impacts. Overall, the audit found the average design score fell between good and moderate, while the results for each design element were variable. Table 7 summarizes design scores for each element.

TABLE 7. Summary of design element scores

Element Rating	DESIGN ELEMENT							OVERALL
	Lines of Force	Natural Character	Edge Treatments	Viewpoint Distance	Landform Position	Impact of Roads	Tree Retention	
G	8	12	9	4	15	17	3	68
M	27	24	25	34	19	17	12	158
P	3	2	4	0	4	4	23	40

While there were some instances where each design element received a poor score, overall scores were consistently good to moderate for all auditees and all visual objectives. One exception was tree retention, which accounted for 57 percent of the poor scores. In many of these instances, auditees chose to remove timber susceptible to MPB, rather than retain residual stems to buffer visual impacts.

The area has been subject to MPB infestations in previous years. In the audit, 11 of 38 samples were associated with cutblocks harvested to address MPB-infected timber. This indicates that recently, auditees chose to harvest beetle-killed and -infested timber, even though visual objectives would not be achieved. Non-symmetric block boundaries and partial cutting are treatments that can help reduce visual impacts in beetle-infested areas, but sometimes they cannot fully alleviate the amount of forest cover removal required to address beetle concerns.

Conclusion

For the most part, auditees used good landscape design to mitigate visual impacts, with 85 percent of the design elements receiving a moderate or better score, though forest health factors sometimes took priority over visual design in the audit area.

Effectiveness Criterion 6: Auditees have management systems in place to achieve visual objectives and they are working effectively

All auditees had systems in place to help manage visual resources. The audit examined these systems to ensure they were working effectively, and used the auditees' ability to meet expected outcomes as an indication of each system's effectiveness.

All auditees incorporated visual impact assessments (VIAs) into their management systems to assure visual objectives were being achieved. The audit found that VIAs were completed in all cases where harvesting was planned in scenic areas. Operators took a risk-based, three-tiered approach when considering the level of detail they would apply to VIAs, as follows:

1. Low level – used when proposed forest cover alterations are expected to easily meet visual objective definitions and where alterations are barely perceptible on the landform. An informal field assessment is made from significant viewpoints to confirm visibility and minimal design considerations are made. Operators sometimes conduct a follow-up, post-harvest site visit to monitor results.
2. Mid level – used when alterations are expected to be more dominant on the landform but still meet visual objective definitions. An informal field assessment is made where photos may be taken from viewpoints and design elements will be employed during planning to reduce visual impacts. Operators sometimes use mid-level VIAs in cases where overriding factors, such as forest health, may prevent them from achieving visual objective definitions. Operators usually conduct a follow-up, post-harvest site visit to monitor results.
3. High level – used when alterations are expected to be clearly visible on the landform and more careful planning is required to assure visual objective definitions are met. In this case, modelling techniques are used to simulate design practices and calculate percent alterations when viewed from predetermined significant viewpoints. Operators most often conduct a follow-up, post-harvest site visit to monitor results.

The audit found that operators used an appropriate VIA level when planning harvest operations in scenic areas and that the expected outcomes were achieved.

Conclusion

All auditees had a visual resource component included in their management systems. Because expected outcomes were achieved, the auditors concluded that their systems are working effectively. However, there was a weakness in some licensee systems, because they did not always monitor results of harvesting activities to ensure that the intended outcomes were achieved.

Overall Conclusions Regarding Effectiveness

The audit found that visual resource management practices examined in the audit area were generally effective, with the exception of areas infected by MPB.

One aspect of operations that appears strong is that intended results were achieved all the time, even though FPPR objectives were used rather than visual objectives established through the *Government Actions Regulation* or the Forest Practices Code. Auditees clearly demonstrated that they had devoted a substantial amount of effort to managing the visual impact of harvesting in the audit area.

Appendix 1: Key Concepts and Terms

Visual resource management – visual resource management identifies and classifies scenic landscapes and manages forestry activities on the landscape to meet the visual needs of the public, visitors and other resource users.

Scenic area – A scenic area is a visually sensitive area or scenic landscape identified through a visual landscape inventory or planning process approved by a district manager. It is more precisely defined by regulation.

Visual Quality Objective (VQO) – a visual quality objective is a legally binding resource management objective established by government, or contained in a higher level plan, that reflects the desired level of visual quality based on the physical characteristics and social concern for the area. It is more precisely defined by regulation.

Recommended Visual Quality Class (RVQC) – a recommended visual quality class is a planning designation describing the level of alteration that would be appropriate for a scenic area, considering visual and other values. It is not legally binding.

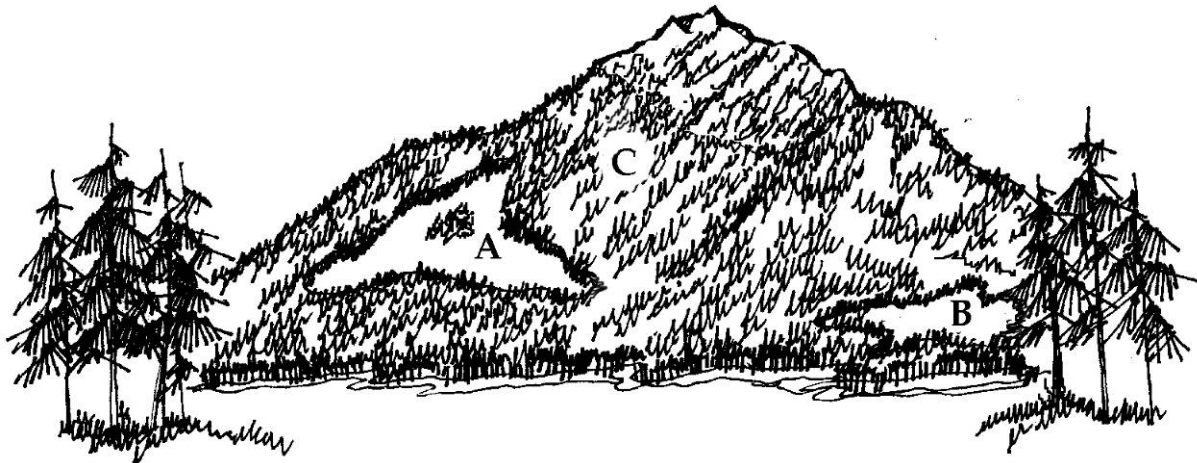
Visual impact assessment – a visual impact assessment is an assessment carried out to demonstrate that timber harvesting or road operations are consistent with the established visual quality objective for a scenic area. The assessment evaluates the visual effects of the planned operation on the landscape from one or more viewpoints.

Polygon – a polygon is an area, delineated on a map, with associated attributes, such as a visual quality objective or recommended visual quality class.

Landform – a landform is a natural feature of the earth’s surface, such as a mountain or a valley, and is the logical land area covered by a visual impact assessment. In the diagram below, the landform is the entire visible mountain (A+B+C, where A and B are cutblocks)

Percent alteration – the proportion of a landform that is visually altered by roads or cutblocks as seen from a viewpoint, expressed as a percentage. In the diagram below, percent alteration is calculated as:

$$\% \text{ alteration} = \frac{\text{Cutblock area (A + B)}}{\text{Landform area (A + B + C)}} \times 100\%$$



Adapted from BC Ministry of Forests, January 2001, Visual Impact Assessment Guidebook.



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