The Effectiveness of Managing Visual Quality under the *Forest and Range Practices Act*

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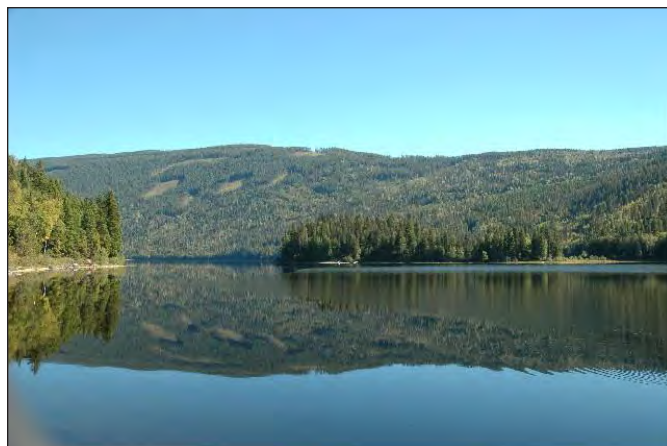
Figure 1. *A quiet morning on East Barriere Lake, a partial retention landscape.*

authority of the *Forest Practices Code of British Columbia Act* (the "*Code*"). The goal of these assessments was to establish a benchmark for future comparison with visual management carried out under the FRPA. Results of the 2006–2008 monitoring initiative revealed some visual resource management strengths and weaknesses, and provided guidance for improving "on-the-ground" practices and outcomes (see FREP Extension Note No. 13; http://www.for.gov.bc.ca/hfp/frep/publications/extension_notes.htm#e13).

This extension note provides resource stewardship monitoring results for the visual resource value achieved under the FRPA, comparing these results with those previously achieved under the Code, and offers further guidance and recommendations for resource professionals.

Resource stewardship monitoring for visual quality seeks to answer the question "How well are we managing and conserving visual quality in designated scenic areas?" The measure used is "How well are we achieving Visual Quality Objectives?"

1.0 INTRODUCTION

This extension note reports on Forest and Range Evaluation Program (FREP) resource stewardship monitoring results for landforms with legally established visual quality objectives harvested under the *Forest and Range Practices Act* (*FRPA*). The primary audience for this extension note is resource professionals and those who write and (or) approve forest stewardship plans.

Between 2006 and 2008, visual quality effectiveness evaluations concentrated on landforms harvested under the

2.0 EFFECTIVENESS EVALUATION METHODOLOGY

The 2009–2012 visual quality data collection for the *FRPA*-managed sites followed the same monitoring procedures and standards used to collect the 2006–2008 *Code* samples. The *Protocol for Visual Quality Effectiveness Evaluation* (http://www.for.gov.bc.ca/ftp/hfp/external/!publish/frep/indicators/Indicators-VisualQuality-Protocol-Nov2008.pdf) uses an ocular assessment, in which the visual condition in the field is compared to the definitions of legally established

Key message: Visual quality objectives on highly sensitive landscapes (e.g., those with a Visual Quality Objective (VQO) of "retention") were achieved 33% of the time under the Forest Practices Code and 56% under the Forest and Range Practices Act. Achievement of Partial Retention VQO results have remained essentially the same—63% under the Code and 64% under FRPA. Modification VQOs were achieved 76% of the time under the Code and 80% under FRPA. Implementing elements of good visual design will go a long way to continue improving visual quality outcomes.

BRITISH COLUMBIA

Visual Quality Objectives (VQOs) supplied by the Forest Planning and Practices Regulation (Section 1.1; http://www.bclaws.ca/EPLibraries/bclaws_new/document/ID/freeside/14_2004#section1). As research shows that percent alteration can be an accurate and reliable predictor of a visual quality class (e.g., 78% accuracy for retention and 85% for partial retention), a numerical assessment is also performed. The ocular and numerical assessments are then compared to evaluate how well a VQO has been achieved.

The landforms evaluated in each resource district were randomly selected from an annual listing of cutblocks that FREP generates from Reporting Silviculture Updates and Land Status Tracking System (RESULTS) data. This list was refined to include only cutblocks harvested in the previous 3 years within scenic areas with legally established VQOs. For visual quality effectiveness evaluations, an opening or cutblock is used to select the sampled landforms. In some cases, a landform may contain one or more cutblocks, in which case, all cutblocks are assessed. During each field season, effectiveness evaluation packages were assembled by completing visual quality evaluation checklists and photographing the randomly selected landforms.

In the fall of each year, completed evaluation packages were submitted to regional visual resource management staff for quality assurance. After samples passed quality assurance checks, the data was submitted to the Resource Practices Branch for entry into the visual quality database. Of the 432 visual samples collected provincially from 2009 to 2012, 407 were accepted for analysis (see sidebar, "Quality Assurance Checks").

2.1 TRAINING

To initiate resource stewardship monitoring, training was provided to staff within most resource districts, as well as a number of consultants and forest licensee staff. Training consisted of a day of lectures and exercises in the classroom, and a day in the field. A total of 101 individuals received visual quality effectiveness evaluation training between 2009 and 2012 and an additional 15 district staff received mentoring (Figure 2).

Figure 2. *Skeena-Stikine visual quality effectiveness evaluation training session.*

3.0 RESULTS[1]

Basic analysis of the data was completed by generating averages and percentages in response to specific questions. The results from the evaluation of *Forest Practices Code* cutblocks (FREP Extension Note No. 13) are presented for comparison. Two districts are not represented in the provincial data set: no cutblocks were found in VQO areas within the Mackenzie District and the 100 Mile House District did not collect any samples.

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1   Unless otherwise noted, the following results are provincial summaries.

Quality Assurance Checks

Eligibility checks verify that:

- *cutblocks are in a Scenic Area;*
- *landscape is mid-ground or near background (foreground not eligible); and*
- *cutblock is administered under FRPA (Code cutblocks are not eligible).*

After a sample was accepted, each checklist was reviewed to ascertain whether:

- *landform delineation is accurate;*
- *ocular assessment is reasonable;*
- *design observations are reasonable; and*
- *percent alteration is measured properly.*

A total of 432 samples were collected in 21 districts from 2009 to 2012. Approximately 25 samples were screened out for the following reasons:

- *Not in a scenic area;*
- *Foreground view;*
- *Poor photography; and*
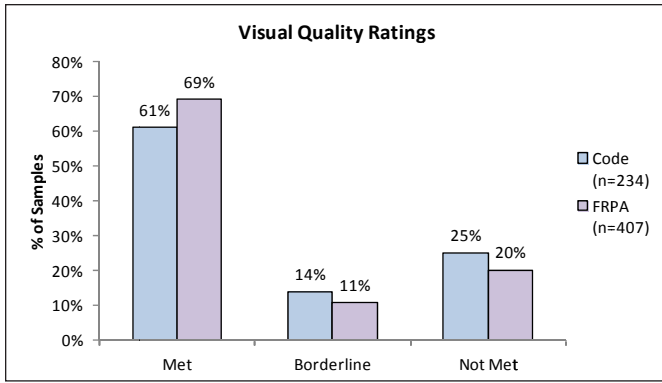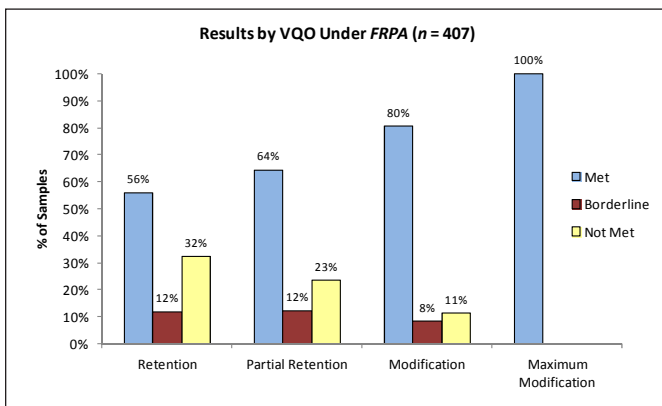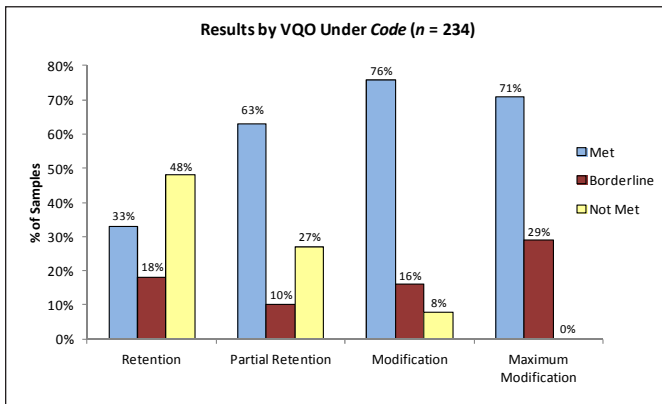- *Not a FRPA-influenced landform (e.g., was harvested under the Code)*

Visual Quality Ratings

Code (n=234), FRPA (n=407)

	Met	Borderline	Not Met
Code	61%	14%	25%
FRPA	69%	11%	20%

Question 1: To what extent are VQOs being achieved under the Forest and Range Practices Act?[2]

Under the *Code*, VQOs were achieved on average 61% of the time. Under *FRPA*, the achievement rate was 69% provincially. Under *FRPA*, 20% of landforms still fail to achieve the VQO.
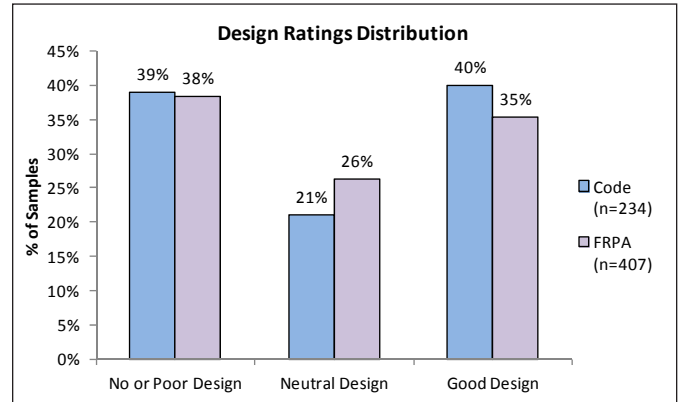
Results by VQO Under *Code* (n = 234)

	Retention	Partial Retention	Modification	Maximum Modification
Met	33%	63%	76%	71%
Borderline	18%	10%	16%	29%
Not Met	48%	27%	8%	0%

Results by VQO Under *FRPA* (n = 407)

	Retention	Partial Retention	Modification	Maximum Modification
Met	56%	64%	80%	100%
Borderline	12%	12%	8%	
Not Met	32%	23%	11%	

Question 2: Does VQO achievement vary by VQO category?

Visual quality objectives on highly sensitive landscapes with a VQO of "retention" were achieved 33% of the time under the *Code*. This has improved to 56% under *FRPA*. The Partial
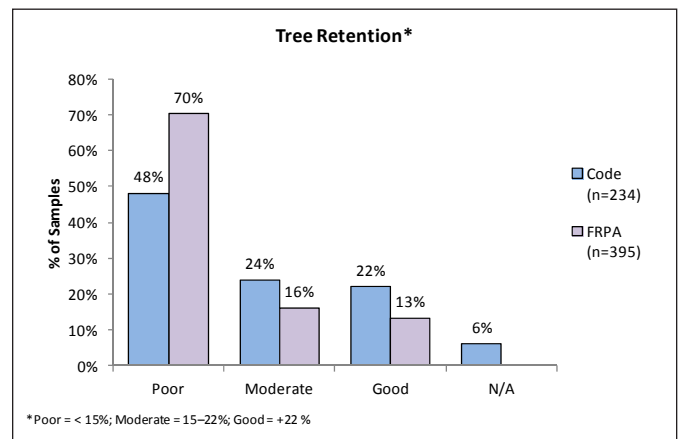
Retention VQO results have remained essentially the same—63% under the *Code* and 64% under *FRPA*. Modification VQOs were achieved 76% of the time under the *Code* and 80% of the time under *FRPA*.
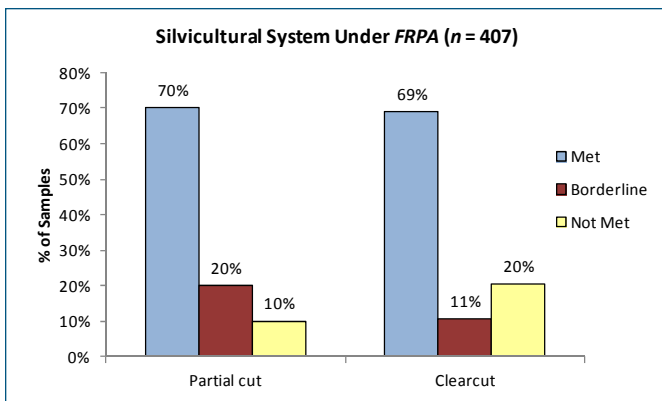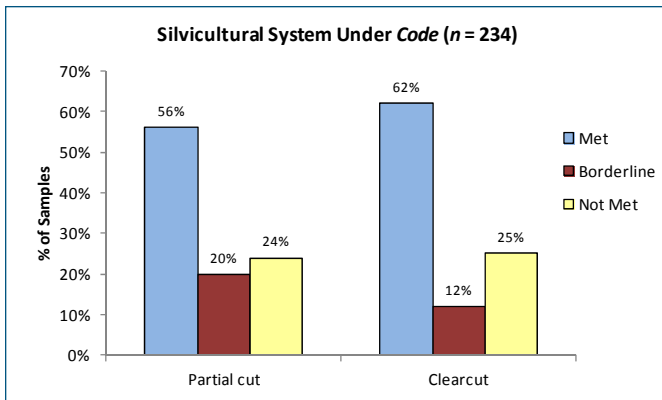
Design Ratings Distribution

Code (n=234), FRPA (n=407)

	No or Poor Design	Neutral Design	Good Design
Code	39%	21%	40%
FRPA	38%	26%	35%

Question 3: To what extent are visual design concepts and principles being applied in harvest planning?

Forest alterations sampled under the *Code* exhibited good visual design 40% of the time. Under *FRPA*, good visual design was observed 35% of the time. Table 2 of the Visual Quality Effectiveness Evaluation Form (http://www. for.gov.bc.ca/ftp/hfp/external/!publish/frep/indicators/ FS-1252-VQEE-Nov2008.pdf) sets out design criteria. For example, some elements of good visual design include block shaping that responds to visual force lines, borrows from natural character, incorporates edge treatments, and utilizes in-block retention.

Tree Retention*

Code (n=234), FRPA (n=395)

	Poor	Moderate	Good	N/A
Code	48%	24%	22%	6%
FRPA	70%	16%	13%	

*Poor = < 15%; Moderate = 15–22%; Good = +22 %

Question 4: What levels of tree retention are being implemented within harvest cutblocks to achieve VQOs?

Under the *Code*, good tree retention (22% and greater) was present in 22% of the cutblocks sampled. Under *FRPA*, the amount of good tree retention fell to 13%. The majority of samples did not contain enough retention to offset the dominance of block size.

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2   The evaluation protocol uses an ocular assessment and a numerical assessment to determine if a VQO is "met," "not met," or "borderline." The term "met" means that both assessments confirm that the objective has been met. "Not met" means both assessments indicate the objective has not been met. In the case of "borderline" situations, one assessment suggests that the objective has been met and the other suggests it has not been met.

Silvicultural System Under *Code* (*n* = 234)

Silvicultural System Under *FRPA* (*n* = 407)

Question 5: How effective are various silvicultural systems at achieving VQOs?

Under the *Code*, VQOs were achieved 56% of the time when using partial cutting and 62% of the time when using clearcutting. Under *FRPA*, the achievement of VQOs is about equal when using either clearcut (69%) or partial cut (70%) silvicultural systems. One noteable observation is that a greater risk exists of not meeting Retention or Partial Retention VQOs when clearcut, as opposed to partial cut, silvicultural systems were used.

4.0 DISCUSSION

Under the *Code*, VQOs were achieved on average 61% of the time provincially; at the district level, success ranged from 40% to 78%. The 2009–20012 data shows an 8% improvement under FRPA, with the achievement rate reaching 69% provincially, although actual district results vary significantly (Figure 3).

The most restrictive VQOs (Retention and Partial Retention) continue to be at greatest risk for non-achievement. In particular, the Retention VQO, which represents 13% of provincial scenic areas, was achieved 56% of the time. Considering that this VQO is reserved for the province's most visually sensitive and important landscapes, a significant risk exists for visual quality degradation of these landscapes.

As discussed in FREP Extension Note No. 13, one of the most effective tools available for managing visual quality is the application of visual design principles. Forest alterations

sampled under the *Code* exhibited good visual design 40% of the time; this number dropped to 35% of samples under FRPA. Because the implementation of visual design is critical
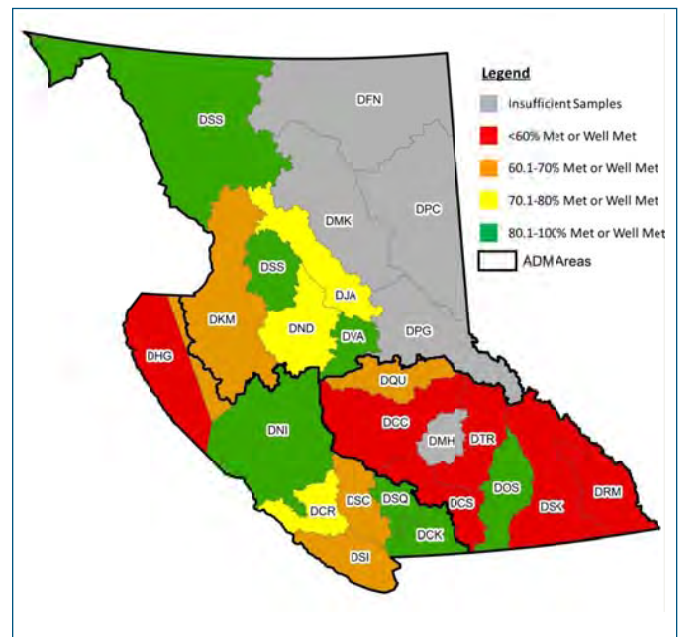

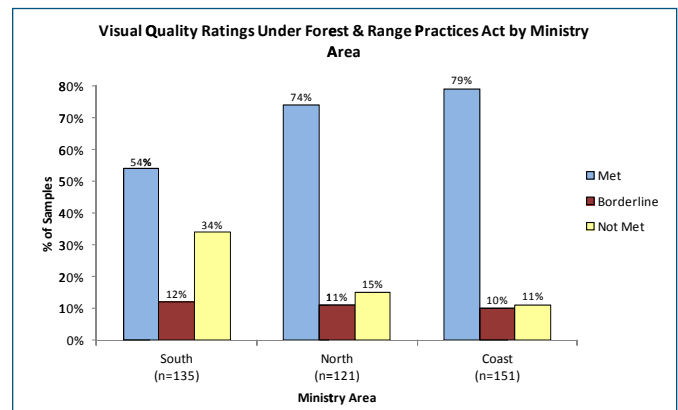**Figure 3.** *Proportion of FRPA visual samples meeting VQOs (by district).*

Figure 4. *Visual quality ratings by Ministry area.*

in achieving VQOs, it will be necessary to focus on ways of encouraging better visual design (e.g., further training opportunities, recommended competencies for engaging in this type of work, and other measures) (Figures 5 and 6).

Figure 5. *A poorly designed opening with angular characteristics and horizontal upper boundary on Lois Lake, contrasting with the older, better-designed opening in the background.*

Another tool for managing visual quality and reducing the overall impact of clearcutting is the use of tree retention. Under the *Code*, visually effective levels of tree retention (i.e., retaining greater than 22% tree volume or stems; Ribe 2005; B.C. Ministry of Forests and Range 2006), were present

Figure 6. Well-designed cutblocks that blend with natural landscape features on Harrison Lake.

in 22% of the cutblocks sampled; under *FRPA*, this dropped to 13%. Greater levels of in-block tree retention create more natural-appearing landscapes, which meet the VQOs.

Under *FRPA* the choice of silvicultural system did not appear to improve or decrease the ability to achieve a VQO. This is not unexpected as the VQO can be achieved using either approach so long as operations occur within the numerical range specified for each VQO.

The main advantage of partial cutting over clearcutting is the ability to remove more volume over a larger landform with less visual impact (Figures 7 and 8).
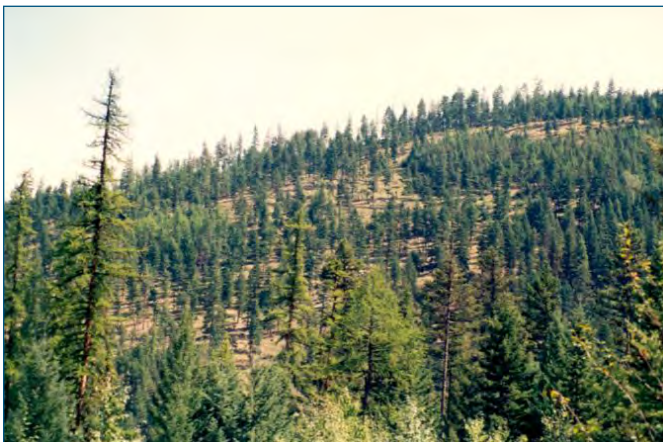

Figure 7. *Partial cut stand meeting a Partial Retention VQO.*

5.0 CONSIDERATIONS FOR RESOURCE PROFESSIONALS

5.1 OPERATIONAL PRACTICE RECOMMENDATIONS

Previous FREP documents reporting on the visual quality resource value have provided advice on improving on-the-ground practices. The most recent resource

Figure 8. Clearcut blocks meeting a Partial Retention VQO.

stewardship monitoring results for visual quality achieved under the *Forest and Range Practices Act* indicate this advice is still relevant and worth re-stating because management practices in some areas have actually declined. Results from the 2009–2012 visual quality effectiveness evaluations clearly show that visual design strategies are being applied less effectively, in-block tree retention is being used less frequently, and the amount of partial cutting has dropped substantially. The following management practices will improve visual management outcomes.

- Implementing visual design concepts and principles to ensure harvested areas better blend with the natural landscape. This is the foundation of good visual resource management and something that should occur with every harvest development in designated Scenic Areas.

- Retaining higher levels of designed in-block tree retention to create a more natural appearance to harvest areas. This important design element should be considered wherever feasible.

- Using partial-cutting silvicultural systems (e.g., single-tree selection and dispersed retention) wherever feasible. Partial cutting not only creates a more natural appearance in harvested areas, it also provides an opportunity to harvest a larger area and remove a greater volume of wood than with clearcutting, while also meeting the same visual quality objective.

5.2 ADMINISTRATIVE PRACTICE RECOMMENDATIONS

The following administrative practices will improve visual performance outcomes.

- Reviewing Forest Stewardship Plan Results and Strategies to ensure consistency with visual quality objectives and to confirm that they are measureable and verifiable.

- Referencing visual quality objectives as a "result" in Forest Stewardship Plans, as VQOs are a result defined by legislation.

- Supporting government and licensee staff in obtaining the training necessary to develop visual design skills, implement on-the-ground visual management practices (e.g., increasing in-block retention; using partial cutting; using visual design principles).

WHAT'S NEXT?

Resource stewardship monitoring for the visual quality resource value will continue to track trends in visual management and report on progress.

THANK YOU

The author would like to thank all district and region staff who collected the FREP visual samples on which this extension note is based. Thanks also to region staff that completed the quality assurance checks on submitted field forms. I would like to acknowledge Jessie Fanucchi for her great work in completing data entry and conducting the subsequent data analysis.

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REFERENCES

B.C. Ministry of Forests and Range. 2006. The public response to harvest practices in British Columbia at the landscape and stand level. Forest Practices Branch, Victoria, B.C. http://www.for.gov.bc.ca/hfd/pubs/docs/mr/Rec/Rec038.pdf

Ribe, R. 2005. Aesthetic perceptions of green-tree retention harvests in vista views: The interaction of cut level, retention pattern and harvest shape. Landscape and Urban Planning 73(4):277–293.

MORE INFORMATION

The FREP *Protocol for Visual Quality Effectiveness Evaluations: Procedures and Standards* is available at: http://www.for.gov.bc.ca/ftp/hfp/external/!publish/frep/indicators/Indicators-VisualQuality-Protocol-Nov2008.pdf

To learn more about Visual Resource Management in British Columbia visit:

http://www.for.gov.bc.ca/hfp/values/visual/index.htm

For additional information about the protocol or these results, contact: Jacques Marc (Jacques.Marc@gov.bc.ca).