



**Forest
Practices
Board**

BCTS Cutblocks in Slocan Park

FPB/IRC/161

January 2010

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Executive Summary

A group of residents of Slocan Park submitted a complaint about a British Columbia Timber Sales (BCTS) timber licence regarding harvest and harvest plans for four cutblocks in Slocan Park. The complainants were concerned that BCTS had not consulted with them effectively and that BCTS would not monitor road building and harvesting. As well, among their many other concerns, the complainants were worried that harvest would impact water supply, terrain stability, visual quality and fire risk.

The Board investigation considered the following:

1. Did BCTS provide an effective opportunity for review and comment on the proposed cutblocks?
2. Were assessments and subsequent prescribed measures reasonable?
3. Will there be an unacceptable increase in fire risk?
4. What is being done to ensure compliance with legislation and to mitigate impacts?

With regard to the first consideration, the Board found that BCTS did follow the legislated review and comment requirements for public review of its 2001 Forest Development Plan (FDP) submitted under the old *Forest Practices Code of British Columbia Act* (the Code) and that the same is true of its 2007 Forest Stewardship Plan (FSP), submitted under the *Forest and Range Practices Act* (FRPA). However, this investigation found that if BCTS had found a way to engage local residents in a more meaningful way before doing the field planning for the cutblocks, communication between BCTS and Slocan Park residents would have been more effective.

With regard to the second consideration, the Board concluded that the assessments, and the measures they contained for identifying hazards and minimizing risk, were reasonable. Under FRPA, licensees and BCTS are not required to complete assessments. Instead, they are expected to make competent stewardship decisions, and are responsible for the impacts of these decisions. However, BCTS completed a number of assessments for terrain stability, visual quality, and hydrology both before and after selling the timber sale.

With regard to the third consideration, the investigation found that while it is likely that the fire hazard will be elevated for a short period during and immediately following harvest, the licensee is required to follow the *Wildfire Act* (WA), and the proposed harvest method should ultimately minimize the risk of fire resulting from the harvest operations.

With regard to the fourth consideration, both the Arrow Boundary Forest District and BCTS will be monitoring the harvesting separately and BCTS will allow the participants of the complaint to accompany them on the inspections.

In response to the complaint, the local BCTS office has initiated a new procedure where it refers operating plans for proposed new road and cutblock development to the public, providing at least a 30-day review and comment period. This process is not required by FRPA.

As well, notification letters are now sent to nearby water licensees, adjacent private land owners and to other known stakeholders. BCTS has also added a second step to check for administrative errors and delays. Finally, all operating plan maps are posted for viewing and download on a BCTS website.

By all indications in this investigation, BCTS and the licensee are doing the right things to minimize the risk of impacts to the residents of Slocan Park. However, a number of the complainants are still very concerned about what might happen.

Therefore, the Board invites the complainants to contact us should they see any negative impacts resulting from the approved harvesting and road building, and we will investigate the results on the ground.

The Investigation

In December 2008, a resident of Slocan Park, a small, unincorporated town in the Slocan Valley submitted a complaint about a licence sold by British Columbia Timber Sales (BCTS) that included four cutblocks just above Slocan Park. Subsequently, 20 other individuals joined the complaint. The complainants had numerous concerns, and asserted that:

1. BCTS did not contact all the water licence holders who may be affected by the logging in their watersheds.
2. There was no terrain stability study done before harvest blocks were sold.
3. Riparian protection is inadequate.
4. The hydrology reports are inadequate.
5. BCTS' risk assessments were faulty.
6. The access roads will put public safety at risk.
7. The logging will reduce property values.
8. BCTS and the Ministry of Forests and Range (MFR) did not adequately consider the visual impact.
9. Land use planning needs to be re-assessed due to effects of climate change.
10. The logging will increase peak flows and decrease low flows in streams.
11. There was inadequate consultation with First Nations.
12. The residents cannot rely on professionals hired by BCTS.
13. The roads will allow public access to private property.
14. There will be an unacceptable elevated fire risk.

During the course of the investigation, the Board dealt with some of these issues (see Appendix A). As well, a few of the complainants are fundamentally opposed to logging in consumptive use watersheds and wanted to ensure that the Board, through the publication of this investigation report, would, "create or stimulate public debate, discussion, and awareness around those issues that are beyond [the Board's] jurisdiction, but greatly inform the context of our resistance to these cutblocks."

The Board dealt with remaining, unresolved issues by investigating and reporting on the following four questions:

1. Did BCTS provide an effective opportunity for review and comment on the proposed cutblocks?
2. Were the assessments and subsequent measures prescribed to address them reasonable?
3. Will there be an unacceptable increase in fire risk?
4. What is being done to ensure compliance with legislation and to mitigate impacts?

Background

In 1998, British Columbia Timber Sales (BCTS) started development planning for four cutblocks located east of Slocan Park. The cutblocks are on the toe of the slope, above a flood plain, on a terrace that is cut by gullies at regular intervals.

The district manager approved the cutblocks, put forward in a forest development plan (FDP), in 2001. Just after approval, BCTS suspended development to instead concentrate on logging mountain pine beetle susceptible and damaged stands in other areas.

In 2004, the *Forest and Range Practices Act* (FRPA) came into force. Under FRPA, a forest stewardship plan (FSP) that showed a general forest development unit had to be submitted and approved. FRPA removed the requirement that MFR approve individual cutblock locations.

In 2007, BCTS submitted an FSP amendment for the Slocan Park area that included the four cutblocks. It was approved the same year.

In 2008, a BCTS multiphase contractor completed site plan development under BCTS' supervision and the licence was sold that August.

Discussion

1. Did BCTS provide an effective opportunity for review and comment on the proposed cutblocks?

The complainants said that not all of the water users were contacted before BCTS sold the cutblocks and that, when they found out, it was too late to object.

Review and comment requirements

Under the former *Forest Practices Code of British Columbia Act* (the Code), and now under FRPA, licensees must provide an opportunity for the public to review and comment on areas that licensees intend to harvest. The Board examined whether the opportunity provided was effective.

Because there is no FRPA or Code requirement for BCTS or licensees to inform water users that they are planning to harvest timber in locations or in a manner that may affect their water supply, the board used consultation criteria put forth in the Forest Practices Board's bulletin concerning FRPA and public consultation.¹ For the purposes of this report, water users are regarded as those who use water for domestic purposes, but who may or may not have a water licence giving them a right to that use.

¹ [Board Bulletin, Volume 3 – Opportunity for Public Consultation under FRPA](http://www.fpb.gov.bc.ca/assets/0/114/190/50a4c9e4-699a-4511-b7ea-0663b2631709.pdf) page 1 located at <http://www.fpb.gov.bc.ca/assets/0/114/190/50a4c9e4-699a-4511-b7ea-0663b2631709.pdf>

Under the Code, BCTS was required to advertise its FDP in a local paper, accept comments from the public, and show comments and any subsequent changes to the FDP to the district manager before the district manager approved the plan. BCTS submitted its FDP in 2001 under this legislation.

Under FRPA, BCTS was required to advertise its FSP in a local paper, accept comments from the public, and show the comments and subsequent revisions to the minister before the minister approved the plan. BCTS submitted its FSP in 2007.

With regard to consumptive use streams running through a forest development unit, the 2007 BCTS FSP said, “at the plan and design stage for harvesting, road construction, or deactivation a reasonable effort will be made to contact licensed water users to provide an opportunity for those persons or recognized group representative to provide comment on the plan.”

What was done?

In 2001, BCTS advertised an opportunity for the public to comment on its FDP to fulfill the Code’s requirement for public review and comment. In addition, BCTS also hosted open houses in several communities, including Slocan and Castlegar, at which they answered questions about the proposal. Further, even though there was no legal requirement to do so, the 12 licensed water users (those that use water for domestic purposes and also have a water licence giving them a right to use) were sent referral letters (letters inviting comment on proposed harvesting) in 2001. No comments were received from the water users. The FDP was approved on September 25, 2001.

In 2004, the Code was replaced by FRPA and, subsequently, BCTS was required to prepare an FSP under the new legislation. FSPs do not contain the same level of operational detail that FDPs contained under the Code, but since the cutblocks had been approved in an FDP under the Code, the FSP grandfathered (carried forward the approval of) the cutblocks.

In 2007, FSP amendment #2 was advertised for the Slocan Park area in the Castlegar News and the Pennywise. In part it stated,

“The purpose of this amendment is to add the Slocan Park Development Unit to the plan.”

Comments from the public were accepted for consideration from September 5 to November 5, 2007, and the review and comment procedures BCTS followed met legislative requirements.

Further, on August 30, 2007, BCTS again sent letters to licensed water users, of which there were several more in the area by this time, but, due to an administrative error, 3 of the 15

licensed water users were not sent a letter.² As well, due to an administrative delay, one other licensed water user, the original complainant, was not sent a letter; instead the delay caused that referral letter to be sent the previous licence holder.

However, even though these four licensed water users did not receive their letters, no streams running through the cutblocks had domestic water licences on them, so, technically, BCTS met its FSP commitment to contact licensed water users on streams in the forest development unit. However, the administrative error and administrative delay prevented BCTS from meeting its intent to send all licensed water users in the area a referral.

Ultimately, no comments were received from the licensed water users that were contacted by BCTS. The FSP amendment was approved on February 15, 2008, and the tender for the timber sale was advertised in a local paper on July 15, 2008. The timber sale was awarded on August 7, 2008.

Finally, the advertisement for the timber sale caught the attention of a few of the local residents, who let others know that there was “clearcut” logging proposed, and this created significant local opposition to logging the cutblocks. Some complainants pointed out that the open house would have been better attended, and may have attracted more attention from the local public if it had been in Slocan Park, rather than Slocan.

Public review summary

BCTS followed the legislated requirements for public review of its FSP and sent out referral letters to most licensed water users in 2007. BCTS did miss at least four licensed water users when it sent out the letters and the original complainant on this file was one of those four.

While it is true that an open house in Slocan Park, rather than in Slocan, may have attracted more attention, ultimately, despite BCTS’ efforts to get input from the local public, the result has been frustrating for both local residents and BCTS.

However, the Board notes that if the original complainant(s) had been sent a letter, it’s possible that one of them may have contacted BCTS to find out its plan for the cutblocks. None of the other licensed water users who received letters were parties to the complaint and none of them contacted BCTS about the proposed plans.

Effective consultation

“Effective consultation allows British Columbians to find out what is happening in their forests, express their views and have them seriously considered by decision-makers.”³

² During the investigation some complainants wanted proof that all the water licensees sent letters still lived at the addresses to which the letters were sent. The Board notes that it is the water user’s responsibility, not government’s, to make sure that they have a water licence and that it has the correct registered address attached to it.

³ [Board Bulletin, Volume 3 – Opportunity for Public Consultation under FRPA](http://www.fpb.gov.bc.ca/assets/0/114/190/50a4c9e4-699a-4511-b7ea-0663b2631709.pdf) page 1 located at <http://www.fpb.gov.bc.ca/assets/0/114/190/50a4c9e4-699a-4511-b7ea-0663b2631709.pdf>

Once local residents realized that logging was imminent, they began communicating more effectively with BCTS and, since then, BCTS has taken additional measures to consider their comments. These measures included holding more public meetings, doing assessments, and, in response to concerns raised by individuals, negotiating changes to the logging plan with the timber sale licensee.

Given that BCTS advertised the FDP, accepted and considered comments, and subsequently met the FRPA requirements for its FSP, BCTS met the legal requirements for public review and comment. However, BCTS did not meet its intention to notify all licensed water users in the area before selling the cutblocks.

But even if all users had been notified, it would have been more effective if BCTS had found a way to engage local residents in a more meaningful way before doing the field planning for the cutblocks. Although BCTS met the legal requirements for public review and comment, the communication between BCTS and the residents of Slocan Park was ineffective.

2. Were assessments and subsequent prescribed measures reasonable?

Concerned that they may lose water quality, scenic views, property (due to landslides or erosion) and even lives, the complainants had many concerns about appropriateness of assessments. Some asked how they could be expected to trust the results of an assessment done by a BCTS contracted professional, as this person's livelihood depends on work garnered from BCTS. Others asked who would post a bond should there be damages resulting from logging.

Under the more prescriptive Code, assessments were required in certain circumstances, but under the new FRPA legislation assessments are not required. Instead government sets objectives and desired outcomes, and it is up to licensees and BCTS to prepare plans that propose results or strategies that reflect these requirements.

Still, there are reasons why a company may choose to do an assessment. For example, an important incentive for a licensee to do an assessment, and follow its recommendations, is that the licensee will be more likely to prevent adverse situations on the ground (such as slides) which in turn will help avoid a contravention determination under FRPA. If a contravention is identified, but an appropriate assessment has been done, the licensee will likely have a good due diligence defence. Further, licensees and BCTS can potentially assume civil liability⁴ for their actions. Professional assessments could help them limit some of that liability.

The following outlines in more detail the assessments that were completed for the area.

⁴ For a more detailed description of professional liability/professional accountability see section 2.1 of the ABCPF discussion paper [Application of professional discretion under the Forest Practices Code](http://www.abcpf.ca/regulating_the_profession/documents/guideline-app-for-profdis.pdf) located at http://www.abcpf.ca/regulating_the_profession/documents/guideline-app-for-profdis.pdf

2.1 Terrain stability assessments

How could two assessments have such different results?

In 1997, a local Slocan Park resident planned a subdivision with two building sites. He had a geotechnical assessment done for an area on the bench on the north side of the Arvid Creek gully. That assessment recommended that timber in the rest of the area should not be removed. No specific reason was given for that recommendation. However, on the other side of the gully, BCTS had sold cutblock 4 and the geotechnical assessment done for BCTS in that area allowed timber harvesting.

The complainants wondered how one professional hired by a landowner could recommend no timber harvesting while, for a similar area nearby, the professional BCTS hired recommended that timber harvesting be allowed.

The Board investigation examined the two assessments and found that the objectives of the assessments (industrial versus residential purposes), industry standard, and potential hazards were different for the two areas.

The objective of the BCTS assessment was to examine and make recommendations to mitigate the risk of road construction and forest harvesting that could cause a landslide, while the objective of the landowner's assessment was to prove that building a residence in the area was safe.

The industry standard for evaluating potential hazards to residential buildings is also different than the industry standard for evaluating risks caused by forest harvesting.

And finally, the actual hazard risks in the two assessments appear to have been different. For the subdivision, the main hazard to consider was rock fall hitting a residence from cliffs above the property; in cutblock 4, the main hazard to consider was the possibility of a landslide resulting from forest harvesting or road building hitting residences below.

Is the system to evaluate risk flawed?

The complainants cited the Board's special investigation report, *Managing Landslide Risk from Forest Practices in British Columbia*^[1]. They interpreted the report as concluding that the system used to evaluate risk for terrain stability assessments (TSAs) is flawed.

However, the report did not conclude that the TSA system is flawed. Instead, the investigation found that the frequency of landslides decreased from early in the study period to later due to licensees following the recommendations in TSAs. Such recommendations included better road locations, improved road-building techniques, reserves around stream escarpments and gullies, proactive deactivation, and increased use of professional engineers and geoscientists. The report

^[1] [Managing Landslide Risk from Forest Practices in British Columbia](http://www.fpb.gov.bc.ca/assets/0/114/178/186/358/010669b7-28b7-48ac-8ebe-d45ed427f9d8.pdf) located at <http://www.fpb.gov.bc.ca/assets/0/114/178/186/358/010669b7-28b7-48ac-8ebe-d45ed427f9d8.pdf>

also concluded that when licensees followed recommendations in TSAs, landslides were less likely to occur.

The Board did recommend that:

The Ministry of Forests and Range regional offices should establish quantitative criteria for classifying landslide hazard in terrain mapping. A landslide hazard class should be defined by the probability or expected frequency of landslides per unit area, rather than by a subjective description.

Government did not accept that recommendation, arguing that FRPA left the responsibility to the licensee to achieve the result of not causing a landslide that harms the environment.

The Board accepted that response.

Are the measures prescribed in the terrain stability assessments adequate?

BCTS did TSAs in cutblocks 3 and 4 before doing them in cutblocks 1 and 2, so the report will discuss them in that order.

Cutblocks 3 and 4

Before finalizing the timber sale for cutblocks 3 and 4, BCTS did TSAs because terrain stability mapping had shown that these cutblocks were partially within an area mapped as potentially unstable, and because of the amount of planned new road construction.

Along with a two-day field review, a qualified professional specializing in terrain stability reviewed air photos, maps showing roads, harvest boundaries, contours and the geology of the area.

The assessment prescribed measures that, in the geophysicist's opinion, would make the "likelihood of occurrence for a small landslide low throughout the proposed harvest area." The recommendations for both blocks included: limiting machine traffic to slopes of less than 50 percent, requiring designated crossings and machine-free zones on water features, rehabilitating trails and stream crossings, maintaining drainage patterns at all times, and constructing back-up cross drains on the access trail at culvert locations. A specific design for the designated crossing was recommended.

The professional estimated a partial residual risk⁵ associated with the roads and cutblocks to the following elements: private land, private infrastructure, domestic water supplies and power transmission lines. The estimation was that if the recommendations were followed, the

⁵ 'Residual risk' is a technical term that means the chance of injury or loss that remains after all risk control strategies have been applied. 'Partial residual risk' is the residual risk applied to a specific element at risk such as a highway, land and human life. For a more detailed description of partial residual risk see *Land Management Handbook 56, Chapter 2*. This text can be found at <http://www.for.gov.bc.ca/hfd/pubs/Docs/Lmh/Lmh56.pdf>

likelihood of a landslide would be low. However, risks to other downslope elements, such as human life, were beyond the scope of the assessment, so if such risks actually materialized, BCTS would have to deal with liability issues. Those risks were acceptable to BCTS, so BCTS proceeded with development and sale of the cutblocks. Following the sale of the cutblocks, BCTS had the geophysicist prepare an addendum to the TSA which determined that the residual risk to human safety was low.

The investigation found that the geotechnical assessments were done by qualified professionals, met the current industry standard and considered all relevant factors.

Cutblocks 1 and 2

As mentioned, BCTS first completed assessments for cutblocks 3 and 4, but did not assess cutblocks 1 and 2 for terrain stability before selling them, which concerned the complainants. Under the Code, when original fieldwork was done, if overview mapping showed an area to be unstable or potentially unstable, then a detailed TSA had to be completed. But unlike with cutblocks 3 and 4, terrain stability hazard mapping did not show unstable or potentially unstable areas in cutblocks 1 and 2, so BCTS did not do TSAs for those two blocks. However, according to the Silviculture Prescription Guidebook (valid at that time), a detailed TSA was required if indicators of slope instability were found on site. The guidebook describes a landslide as an indicator of slope instability. The complainants pointed out that a landslide had occurred in cutblock 1.

In 1999-2000, BCTS submitted a development proposal for cutblocks 1 and 2 that included an option to put a road between the two cutblocks, and as part of this process, BCTS had the area evaluated by a forestry consultant. The consultant submitted a reconnaissance report that stated cutblock 1 had, "flat over steep terrain along its western boundary. Gradients to the west of the proposed boundary exceed 60 percent and contain slope instability indicators."

The consultant also prepared draft silviculture prescriptions for the cutblocks, and the field crew's notes and silviculture prescription map both documented the slide that the complainants were concerned about. Ultimately, the report recommended that a geotechnical assessment be done.

Following the reconnaissance report, a BCTS forest professional reviewed the area, did not think the area required the recommended assessment and BCTS decided not to do one. As well, the proposed road between block 1 and 2 was dropped.

In 2002, when forestry legislation changed from the Code to FRPA, site plans replaced silviculture prescriptions as the industry standard for cutblock-level operational plans. Site plans contain fewer requirements than silviculture prescriptions and the TSAs were no longer required under FRPA.

In 2008, BCTS hired another forest professional to create site plans for cutblocks 1 and 2, based on the work done in 1999-2000 by the original consulting forester. This new consultant visited

the site and saw the slide, and considered it more of an indicator of poor road building and road deactivation practices than an indicator of slope instability. Not seeing a need for a TSA at that time, he completed the site plans without having TSAs done. In the supporting documentation for the site plans for cutblocks 1 and 2 he said,

The recommendations in regards to the NCD/S6 crossing and deactivation of skid trails contained in the TSA report for A80259 block 3 and block 4 should be followed for this block.

However, due to the interest of, and information supplied by, the public following the awarding of the timber sale, BCTS did hire a geotechnical professional to do a TSA and prepare a drainage plan for cutblocks 1 and 2. During this Board investigation, the licensee explained that where it plans to harvest on slopes greater than 50 percent, it will hand fall and line skid so there is no need to cut trails on steep slopes.

The professional did an office review which included examination of:

- Site plan maps, harvest plan maps and road permit maps.
- Large scale maps showing points of diversion, orthographic information, contours and equivalent clearcut areas.
- TSAs for cutblock 3 and 4.
- The hydrology report for all cutblocks.
- Geotechnical assessment done for subdivision north of block 4.
- Other geotechnical information on the surrounding area.

The geotechnical consultant also did a field review of the area.

Concerning the landslide in cutblock 1, the geotechnical professional said the slide,

“initiated as a fill slope failure...along an existing road as a result of water diversion along the road...**To reduce the likelihood for such an event to reoccur, some post harvest drainage control on the existing old roads and trails within the proposed harvest area is recommended as outlined in Section 4.4 and 4.10.**”

The professional prescribed measures to reduce the risk of a small landslide to low. Those recommendations include:

- Limiting machines to 50 percent slopes.
- A five-metre machine-free zone on each side of a stream or non-classified drainage (water feature).
- Not allowing excessive logging slash to be left in water feature areas, skid bridges (that must be rehabilitated) on water features if they are to be crossed more than once.
- Fully rehabilitating new skid trails.
- Water barring existing trails as indicated by a qualified professional post-harvest.
- Out-sloping of trails during harvest.
- Maintaining surface drainage patterns during harvest.

- Installing a new culvert for stream 1-2.
- Pulling back the fill slope on the last 250 metres of the existing old trail (the trail where the slide had occurred).

The TSA also recommended that a professional do a post-harvest review to assess whether drainage control is sufficient.

These partial residual risks were again acceptable to BCTS. BCTS contacted its TSL holder who agreed to implement the measures prescribed.

Summary of terrain stability

The forest and geotechnical professionals examined the areas, did appropriate assessments, considered relevant factors, and made recommendations. The Board investigated the site and found no reason to doubt the assessments made by the professionals. The Board concludes that the assessments, professional recommendations, and site plans are reasonable and appropriate.

2.2 Visual quality

A visual quality objective (VQO) is a resource management objective for the visibility and aesthetic quality of harvesting and road building. Some of the complainants were concerned that logging will be too visible for an area like the Slocan Valley, and so the Board examined visual quality in the area.

In 1995, VQOs were debated and agreed on at the planning tables, and at this time government released the Kootenay Boundary Land Use Plan, which gave scenic areas in Slocan Park a VQO of “partial retention.”

In 1999, government established a VQO for the area in the Kootenay Boundary Land Use Plan Higher Level Plan Order.

In October 2002, government re-affirmed the “partial retention” VQO established in that order under the *Government Actions Regulation*.

Although the definition was less precise a decade ago, it was still essentially the same as today. Now, however, “partial retention” is formally defined in legislation under FRPA as:

consisting of an altered forest landscape in which the alteration, when assessed from a significant public viewpoint, is

- (i) easy to see,
- (ii) small to medium in scale, and
- (iii) natural and not rectilinear or geometric in shape;

In 1999, the proposed cutblocks were designed and assessed by a qualified professional, and met the definition of partial retention as it was defined then.

At that time, under the Code, BCTS was required to have a visual impact assessment (VIA) done. Upon completing the VIA, it was determined that the scenic area would meet the VQO of partial retention following logging.

Now, under FRPA there is no requirement to do a VIA. The focus is on results and compliance with the visual quality objective is measured following logging.

Even so, a common practice is to assess the design elements of cutblocks— and the proportion of disturbance that will be visible in perspective view on the landform— to get an idea if the visual quality objective will be met following harvest. In general, a landform should have less than seven percent of its area visible as recent harvesting in order to meet a partial retention visual condition. That number can be exceeded if the cutblock shows elements of good visual design.

The visual quality assessment done in 1999 showed the landform would have 2.4 percent recent harvesting visible. The cutblock design incorporated irregular boundaries and residual tree retention as elements of good design. Recently, BCTS has produced computer simulations that show planned forest harvesting will meet the partial retention objective.

This Board investigation found that qualified forest professionals used industry standard to assess the visual impact of the cutblocks, BCTS used elements of good design and the area that will be exposed to view will be small to medium in scale, so the resulting landform will likely meet the definition of partial retention.

2.3 Hydrology

The complainants assert that:

- There are a number of other cutblocks planned in the watershed and that, even if there were not, there should be a more specific site assessment done to ensure that there will be no adverse impact to their water supply.
- Logging will increase peak flows of streams and cause creek avulsions and flooding.
- Logging will cause low flows to decrease.

To address hydrologic concerns, BCTS completed a hydrological assessment and ensured that measures to protect water supplies were included in the site plans.

What was BCTS required to do?

Under FRPA, a 20-metre riparian management zone (RMZ) on a S6 stream is required. Timber harvest is allowed in a RMZ.

Additionally, the Kootenay Boundary Higher Level Plan Order contains requirements for licensees to reduce the timber harvesting impacts on streams licensed for human consumption;

licensees must describe specific measures to safeguard water licensed for human consumption when conducting activities within a 30-metre stream side management zone of an S6 stream. For consumptive use streams the BCTS FSP says,

1. plan and design harvesting and road construction to ensure these activities result in necessary stream crossings located greater than 100- metre [slope distance] upslope of known and licensed water intakes unless there is no other practicable option and,
2. plan and design harvesting within the applicable streamside management zone in accordance with Section 4.1.2.4 of this plan.⁶
3. ensure all excavated or deactivated trails, cut banks, and fill slopes resulting from actions conducted above will be re-seeded, within one year following disturbance.

Hydrologic assessment

As stated above, there is no legal requirement for BCTS to do a hydrologic assessment of the harvest proposal. Even so, following the sale of the cutblocks, a professional hydrologist reviewed all four cutblocks in the field to consider possible impacts to water resources (surface and subsurface) down slope of the proposed development.

The assessment included:

- A review of the TSAs done for blocks 3 and 4
- A review of surface water rights diversion points
- An inventory of water wells
- An assessment of the geology, geography and stream morphology
- A review of the harvest plans for the site
- A walk through all four blocks

The assessment concluded that there is a low risk to both surface and subsurface water supplies if harvesting is done as planned.

What did BCTS do that will address the complainant's concerns about cutblock 1?

Some licensed water users get water from springs downslope of cutblock 1. They are concerned that the forest harvesting will disturb their water quality and quantity. The complainants would like a 100-metre riparian reserve on two streams in particular, known on the site plans as 1-3 and 1-4.

First, it must be noted that no streams, as defined by the *Forest Planning and Practices Regulation*, that flow directly through any of the cutblocks have water licences on them. There is a water

⁶ Section 4.1.2.4 requires the management zone to contain "greater than or equal to 0 trees in the management zone." In this case, the SPs required that all larch and ponderosa pine greater than 17.5 centimetres in diameter at breast height are reserved from logging on the whole block. Where it is practicable, all trees less than or equal to 12.5 centimetres in diameter at breast height are and brush is reserved from harvest within the RMZ.

licence on a spring below cutblock 1 that most likely has a direct subsurface connection (underground stream) to the stream 1-3. The legislation specifies that a stream⁷ must have a continuous length of 100 metres. For that length, it may contain overhanging vegetation or soil mats. Stream 1-3 goes sub-surface just above the power line in the cutblock. However, where it goes sub-surface, its channel is more than merely soil mats covering the underground flow. Stream 1-4 may also influence this spring, but there is no surface connection to the licensed point of diversion.

The underground stream between the cutblock and the licensed point of diversion does not meet the definition of a stream according to the legislation. Therefore, there is no non-compliance with the legislation or the higher level plan. Even so, the rest of this section will look at the likely impacts of logging cutblock 1 on that spring. The most likely impact to the complainant's water would occur if the water flows in stream 1-3 or 1-4 were redirected by an excavated trail or disturbed by a machine track.

The site plan shows a 20-metre RMZ. Although the management zone is marked at 20 metres, rather than 30 metres, as is appropriate in the higher level plan order, the harvest plan and field result under either plan would be the same. In other words, there would be no change in management within the RMZ and the remaining portions of the blocks in this circumstance. The site plan support document prescribes a five-metre, machine-free riparian zone, except at designated crossings. To be clear, the only difference would be that the boundary of the zone would be marked 10 metres further away from the stream; the prescription would be the same. Machines could travel over the same area and the same trees would be cut.

There are no designated crossings specified in the site plan for these two streams, but there is an old road that will be used for yarding the timber. This road and the haul road have existing culverts that are to be either upgraded or maintained when the cutblock is logged.

The timber sale licence reserves all ponderosa pine and larch greater than 17.5 centimetres in diameter at breast height from harvest. So, any trees not reserved from cutting can be harvested as long as the licensee does not move machinery to within five metres of the stream. The licensee plans to keep out of the machine-free zone. Instead, it will reach in with a feller-buncher to cut the trees, bunch the trees on coarse textured soil ridges between the streams and grapple skid the timber to the roads on the ridges.

⁷ The definition of stream is in the *Forest Planning and Practices Regulation* and is as follows: "stream" means a watercourse, including a watercourse that is obscured by overhanging or bridging vegetation or soil mats, that contains water on a perennial or seasonal basis, is scoured by water or contains observable deposits of mineral alluvium, and that

- (a) has a continuous channel bed that is 100 m or more in length, or
- (b) flows directly into
 - (i) a fish stream or a fish-bearing lake or wetland, or
 - (ii) a licensed waterworks

The terrain stability field assessments completed for BCTS put the risk to the water supplies at “moderate” and prescribed measures to reduce the risk to water supplies to “low.” Specifically, they require that drainage is maintained and skid bridges are used where there are possible impacts to water supplies downslope. The BCTS TSL holder has agreed to implement these recommendations.

The investigation revealed that the terrain specialist’s recommendations were implemented in the field and that the streams, machine-free zones and RMZs have been marked. The investigation found that the planned riparian protection is adequate and there should be a low risk of impact to water supplies if these recommendations are followed during harvest.

Will the logging increase peak flows and decrease low flows?

Some complainants were concerned the logging the four cutblocks would increase peak flows and decrease low flows.

First, BCTS and MFR confirmed that there was no logging planned in these specific watersheds, other than the four cutblocks. However, this does not mean that more area will not be developed for timber harvesting in the future. But, presumably any new planned cutblocks will have to take into account the state of the forest as it exists at that time.

The hydrology report prepared for BCTS discussed this issue. Concerning the four cutblocks, the report said,

Due to the southwest aspect of the study area, some advancement of snowmelt may occur within the blocks during spring. This is unlikely to affect flow regimes downslope as the block areas are minor relative to the total drainage area. Peak and late summer flows will be dominated by drainage from the catchment area above the proposed blocks. Changes in surface runoff and subsurface (groundwater) contributions are expected to be insignificant.

and that

Water users are concerned that upslope forest harvesting will reduce summer low flows and the availability for water for irrigation at key times. Research has shown that stand canopy removal in a snowmelt dominated coniferous forest will generally result in no change or a slight increase in annual water yield and in late season low flows.

The harvest area is a Douglas-fir and larch dominated forest in a low elevation band that likely has a relatively low snowpack. As well, for these streams, peak stream flow is generated by snow melt from higher elevations. Research has shown that harvesting in such areas can result in slight increases in annual water yields and late season flows. Where relatively small areas of

the watershed are harvested, the research does not find measurable changes in stream flow.⁸ Some of the complainants do not believe the conclusions of that research and cited other information.⁹

However, the professional's conclusions are consistent with observations made by Board staff regarding snow accumulation and melt on the hydro line immediately below the cutblocks. During the spring of 2009, snow cover from the hydro line had completely melted before stream flows started to increase, and by the time the stream flows increased, the snow had melted in even the highest parts of the cutblocks.

When cutblocks are exposed to sunlight from canopy removal, snow melts even earlier. Further, it appears that these blocks are too low in the watershed and too small an area in relation to the entire watershed, to have any measurable effect on peak flows or low flows.

Forest Practices Board experience

Logging in domestic watersheds has been a common source of complaints to the Board. A survey of past complaints concludes:

Complainants with water-related issues appear to be much less tolerant of risks to water from forest practices than the law and current forest policy allow. This is not an easy issue for the Board to resolve, because the risk to water does appear to have been well managed and quite low. No one in our survey reported an example where actual damage to water occurred following a complaint investigation.¹⁰

2.4 Assessments summary

Under FRPA, licensees and BCTS are not required to complete assessments. Instead, they are expected to make competent stewardship decisions, and are responsible for the impacts of these decisions. The decision to do a formal assessment is made between them and any consulting licensed professional who has been retained to provide advice.

In this case, the investigation found that the assessments that were done, and the measures that they contain to identify hazards and minimize the risk of adverse effects, can reasonably be expected to do so.

⁸ [Pike and Scherer – Low Flow](http://www.forrex.org/jem/ISS15/JEM_Vol3_No1_Full.pdf#page=45), located at http://www.forrex.org/jem/ISS15/JEM_Vol3_No1_Full.pdf#page=45 and [Pike and Scherer - Effects of Harvesting](http://www.forrex.org/publications/forrexseries/FS9.pdf), located at <http://www.forrex.org/publications/forrexseries/FS9.pdf>

⁹ Chapter 12, "Watershed Management, Balancing Sustainability and Environmental Change," Robert J. Naiman, Editor; and to "Seeing the Forest Among the Trees, The Case for Wholistic Forest Use," Herb Hammond, Author, pp.27 – 28 , pp 56 – 57, pp 118 – 122

¹⁰ [Effectiveness of Investigations](http://www.fpb.gov.bc.ca/assets/0/114/178/184/360/1538ad47-16c2-4012-bd00-0954d204cfbf.pdf) (<http://www.fpb.gov.bc.ca/assets/0/114/178/184/360/1538ad47-16c2-4012-bd00-0954d204cfbf.pdf>) page 3.

3. Will there be an unacceptable increase in fire risk?

One complainant was concerned that the harvest operation and the slash left behind will cause the fire hazard to increase.

Slash and debris from harvest operations can increase fire risk. Section 7 of the WA requires a licensee to “conduct fire hazard assessments” and “abate” any fire hazard it creates. Section 6 of the WA prohibits logging unless it can be done “at a time and in a manner that can reasonably be expected to prevent fires,” and if a fire starts, to “carry out fire control and extinguish the fire.”

The *Wildfire Regulation* requires that, if the licensee is harvesting in the months between March and October (inclusive), it needs to have sufficient fire tools on hand for the crew to fight a fire. When the fire danger increases, the licensee must restrict operations to specific periods of the day and provide a fire watcher after the operations cease for the day.

When operations are suspended or completed, the licensee is required to assess and abate any fire hazard that it created.

The Board recently published a report¹¹ that found very few timber sale licence holders were doing fuel hazard assessments and that none were doing fire risk assessments. Despite that, the fuel hazard was often abated through common operational practices such as piling and burning roadside slash. That investigation did find some cutblocks in a condition that elevated the fuel hazard and fire risk, but these were mainly timber sales that had topped and limbed the trees near where they were felled.

The licensee for these four cutblocks has indicated that it intends to use a feller-buncher to fall and bunch trees, to do full tree grapple yarding, to top and limb the logs at the landing, and to pile debris and burn the next fall. This clean skidding method should reduce the fuel hazard and fire risk.

MFR compliance and enforcement staff will be monitoring the operations and have the option of ordering the licensee to address the slash should there be a problem.

So, although it is likely that the fire hazard will be elevated for a short period following harvest, the licensee is required to follow the WA, and the proposed harvest method should minimize the risk of fire resulting from the harvest operations.

¹¹ [Fire Hazard Assessment and Abatement](http://www.fpb.gov.bc.ca/assets/0/114/178/186/358/523f8210-410b-4c2f-8ff8-92563bf48352.pdf) (http://www.fpb.gov.bc.ca/assets/0/114/178/186/358/523f8210-410b-4c2f-8ff8-92563bf48352.pdf)

4. What is being done to ensure compliance with legislation and to mitigate impacts?

Some of the complainants do not accept the BCTS commitment to mitigate damages. They think it is vague, they do not trust that BCTS will assess any damage fairly and they think BCTS will only do the minimum that is required.

Both the Arrow Boundary Forest District and BCTS will be monitoring the harvesting separately. The district has ranked the area as “high” on its inspection priority list, and BCTS has offered to conduct joint inspections with participants, who will have to contact BCTS to schedule a visit. Further, BCTS has made a commitment that, if there are impacts to terrain stability, fire hazard risk, or to domestic water sources from logging, BCTS will mitigate the impacts.

The Board has recently received another complaint in the same valley where road building impacted a domestic water supply. BCTS has taken measures to mitigate the impacts. The Board will report on that investigation in the near future.

5. What has been the BCTS response to the complaint?

Besides the offer to conduct joint inspections with the complainants, in response to this complaint, the local BCTS office has initiated a new procedure where it refers operating plans for proposed new road and cutblock development to the public, providing at least a 30-day review and comment period. This process is not required by FRPA.

In addition to First Nations consultation, the plans are now advertised in the nearest local newspapers. As well, notification letters are sent to nearby water licensees, adjacent private land owners and to other known stakeholders.

BCTS has also added a second step to check for administrative errors and delays, and all operating plan maps are posted for viewing and download on a BCTS website.

Conclusions

1. Did BCTS provide an effective opportunity for review and comment on the proposed cutblocks?

BCTS met the legal requirements for public review and comment in its FDP and FSP, but BCTS did not meet its intent to send referral letters to all water users in the area. In any event, the review and comment processes were inadequate to elicit a response from the public early in the development process, which ultimately launched the complaint. It would have been more effective for BCTS to have found a way to engage local residents before doing field planning for the cutblocks. It is commendable that BCTS has initiated new procedures to make its public review and comment process more effective.

2. Were assessments and subsequent measures prescribed reasonable?

Licensees and BCTS are not required to do assessments under FRPA. However, now that licensees and BCTS make their own stewardship decisions, they are also responsible for impacts of the decisions. BCTS did assessments for terrain stability, visual impact and hydrologic effects. The assessments were done to industry standards, considered relevant factors and where done by qualified professionals. The TSAs were detailed and contained a number of recommendations that, if followed, should minimize the risk to other resources. Those assessments and recommended measures appear to be reasonable.

3. Will there be an unacceptable increase in fire risk?

It is likely that fire hazard will be elevated for a short period following harvest but the proposed harvest method should minimize the risk of fire to an acceptable level. The Board expects the licensee to assess the fire hazard concurrent with, and following, harvesting and where the hazard is elevated, abate the fire hazard.

4. What is being done to ensure compliance with legislation and to mitigate impacts?

The district and BCTS will monitor operations. If requested, BCTS will schedule joint monitoring inspections. If impacts result from harvest, BCTS has promised to mitigate them.

By all indications in this investigation, BCTS and the licensee are doing the right things to minimize the risk of impacts to the residents of Slocan Park. However, a number of the complainants are still very concerned about what might happen. Therefore, the Board invites the complainants to contact us should they see any negative impacts resulting from the approved harvesting and road building, and we will investigate the results on the ground.

Appendix A

File: 97250-20/080872

March 20, 2009

Dear Participants:

Re: Notification of Decision - File 080872 / Slocan Park BCTS Cutblocks

Kirstin Olsen, a resident of Slocan Park, submitted a complaint to the Forest Practices Board on December 18, 2008. A number of other people from the Slocan Park area joined the complaint submitting more concerns. Their assertions are as follows:

1. BCTS did not contact all the water licence holders who may be affected by the logging in their watersheds;
2. there was no terrain stability study done before harvest blocks were sold;
3. the riparian protection is inadequate;
4. the hydrology reports are inadequate;
5. BCTS risk assessments were faulty;
6. the access roads put public safety at risk;
7. the logging will reduce property values;
8. BCTS and MFR did not adequately consider the visual impact;
9. land use planning needs to be re-assessed due to effects of climate change;
10. the logging will increase peak flows and decrease low flows;
11. there was inadequate consultations with first nations;
12. the residents cannot rely on professionals hired by BCTS;
13. the roads will allow public access to private property; and
14. there will be an unacceptable elevated fire risk.

Five of the assertions can be dealt with at this stage rather than waiting for the final report on all issues, which is expected to be completed in the fall.

There was inadequate consultation with First Nations – We have not received a complaint from any First Nations, so we will not investigate this assertion further.

The logging will reduce property values – The Board can only investigate complaints about compliance with the *Forest and Range Practices Act*, which does not deal with effects on property values, so we will not deal with this assertion.

The access roads put public safety at risk - Because the roads that run through the residential areas are gazetted, this issue is also beyond the Board's jurisdiction to investigate. However, BCTS requires all its licensees to be Forest Safety Council certified.

Land use planning needs to be re-assessed due to effects of climate change - There is no need to investigate this any further. All parties to the complaint agree with this assertion. The Board has already reported that land use planning is now done on an as-needed basis and the Ministry of Forests and Range is examining how climate change may affect forest policy and regulation.¹²

The roads will allow public access to private property – The investigation has shown that this assertion is not substantiated, because BCTS has confirmed that all roads will be closed following harvest.

The Board will continue to investigate the other assertions made by the complainants and will report in due course.

If you have any questions or concerns, please contact me.

Yours sincerely,



Ben van Drimmelen for Glen Pilling
Manager, Audits and Investigations

¹² [Future Forest Ecosystem Initiative](http://www.for.gov.bc.ca/hfd/library/ffe/) see <http://www.for.gov.bc.ca/hfd/library/ffe/>



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