Harvesting in the Winlaw Creek Watershed

Complaint Investigation 040582

FPB/IRC/108

June 2005

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The Investigation

On August 6, 2004, the Winlaw Watershed Committee (the complainant) submitted a complaint to the Board about British Columbia Timber Sales' (BCTS) harvesting in the watershed. Winlaw is about 20 kilometres south of Slocan. Many Winlaw residents obtain water for their homes, farms, and businesses from wells or from surface water within the drainage of Winlaw Creek.

The complainant has been involved in a planning process with the Ministry of Forests (MOF) since 1999. It expected BCTS to consult with it before logging in the watershed. However, in July 2003, a BCTS licence holder notified the complainant one week before starting to log in the upper reaches of the watershed. The complainant asked MOF and the licence holder to modify the planned logging. MOF said that it could not change the plan, because the timber sale licence is a binding contract and any changes would require the consent of the licence holder. The licence holder made concessions the complainant felt were minor and the block was logged in summer 2003.

After viewing the site in July 2004, the Winlaw Watershed Committee complained to the Board that: BCTS had misled it, BCTS had prepared an inappropriate prescription for the cutblock, and the licence holder's logging had damaged water sources. The Board investigated these three issues.

Background

In summer 1998, Small Business Forest Enterprise Program[1] (SBFEP) staff contracted a forestry consultant to develop a harvest plan for this relatively undeveloped watershed. This exercise involved finding both immediate and long-term timber harvesting opportunities. As well, the harvest plan considered the relative importance of other resource values such as water, soils, fish, wildlife, recreation, aesthetics, and social goals. The forestry consultant identified 13 potential cutblocks and prepared draft silviculture prescriptions (SPs) for them.

The SBFEP showed 3 of the 13 potential cutblocks in the headwaters of the north fork of Winlaw Creek, as proposed category A cutblocks in the 1999-2004 forest development plan (FDP). The FDP showed access to TSL 59994 BLK 1 from the Trozzo Creek watershed to the north, going over the watershed divide. The review and comment period for the FDP ran from March 1 to April 30, 1999. In February 1999, the SBFEP sent referral letters for the FDP to Winlaw Creek water users, and the complainant asked the SBFEP for a briefing on its FDP. The SBFEP met with the complainant in March 1999. The complainant did not submit

[1] The Small Business Forest Enterprise Program is now known as BC Timber Sales.

written comments during the review and comment period, and the district manager approved the FDP in June 1999.

In addition to the harvest plan, the SBFEP also commissioned a hydrologist to do a watershed assessment for Winlaw Creek. In July 1999, the SBFEP, the complainant, and the hydrologist held an initial watershed assessment meeting in Winlaw. The SBFEP and the complainant met several times that fall. The complainant stated that if it were going to support harvesting in the watershed, it wanted a "whole watershed plan that respects ecological principles, values and resources other than timber."[2]

The hydrologist held a final watershed assessment meeting and completed the watershed assessment report in November 1999. The analysis in that report included the three cutblocks approved in June. The hydrologist concluded this cutting model would not result in a detectable change in peak flow or annual water yield. The hydrologist did not conclude what would happen to low flows[3].

In April 2000, the complainant contacted the SBFEP for an update on plans for the watershed. The SBFEP acknowledged that it had not been working on the previously requested watershed plan, however it committed to drafting a plan that would "be a practical document for prescriptions, assessments, and on-the-ground activities in the watershed."[4] The SBFEP committed to developing the plan and involving the complainant at regular and frequent intervals.

In September 2000, the SBFEP sent a draft table of contents for the watershed plan to the complainant. The SBFEP wanted to complete the plan by spring 2001, so it could use the plan for road and cutblock development during the 2001 field season. Due to forest health priorities in other areas, staffing changes, and program changes, the SBFEP never completed that plan.

The SBFEP and the complainant continued dialogue through the winter and early spring of 2001. In the summer and fall of 2001, the SBFEP extended the road in Trozzo Creek over the watershed divide to access TSL A59994 BLK 1, as approved in its FDP. The SBFEP explained to the complainant that the road was to access the approved blocks, but that it did not intend to use the road to access any more of the Winlaw Creek drainage.

In August 2002, the district manager approved the SP and, in October 2002, the SBFEP sold Timber Sale Licence TSL A59994 BLK 1.

[2] Letter from Winlaw Watershed Committee to Ministry of Forests dated November 8, 1999

[3] Low flow is the average water flow in a stream over a defined period in the driest part of the year.

[4] Letter from Ministry of Forests to Winlaw Watershed Committee dated April 20, 2000

In spring 2003, the government changed the SBFEP into a new organization known as British Columbia Timber Sales (BCTS). BCTS's mission is to "establish market price and capture the value of the asset for the public."[5] In addition, this change transferred the program responsibility from the district manager to the timber sales manager.

In July 2003, the licence holder contacted BCTS and the complainant to advise them that it was ready to log the cutblock. On July 11, 2003, the complainant informed BCTS of its surprise that it would get only one week's notice before logging started. The licence holder held a field trip the same day with the complainant. On the field trip, the licence holder committed to sensitive logging practices in the wetter areas of the cutblock, but did not reduce the size of cutblock or change the clear-cut silviculture system.

In a letter sent following the field trip, the complainant told BCTS that it had expected notification before the blocks "were activated." The complainant asked BCTS for a reserve in a wet zone at the bottom of the block, questioning the economic or ecological rationale for logging in such a sensitive area. BCTS replied that it was not prepared to change the prescription, harvest method, or timber volumes. BCTS stated that it had always voiced its intent to continue with the road building and the logging of these blocks, while proceeding with long term planning for the drainage.

Winlaw Watershed Committee members monitored the cutblock while logging progressed. The committee sent a letter to MOF stating that a clearcut was inappropriate for the area because of the resulting increased evaporation in summer and accelerated melting of the snow pack in spring. It also asked BCTS to relocate a wildlife tree patch to a wetter area. The licence holder made no changes to this wetter area, but voluntarily left a reserve zone on a non-classified drainage[6] close to the wetter area.

In 2003, BCTS detected an outbreak of mountain pine beetle in the headwaters of Winlaw Creek where the three approved cutblocks were located. BCTS proceeded to redesign the other two cutblocks to account for the beetle infestation.

In April 2004, the complainant sent a letter to BCTS explaining that some of its members felt betrayed because they had no input to the SP that BCTS developed for TSL 59994 BLK 1. The complainant wanted to complete its own community plan for the watershed, and asked for a one-year grace period before more logging occurred in the watershed.

In July 2004, the complainant made a field visit to TSL A59994 BLK 1 and reported what it believed were problems. In September 2004, the Board, licence holder, MOF, BCTS, and the complainant did a joint field review of the cutblock.

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[5] http://www.for.gov.bc.ca/bcts/about/bctsbrochure.pdf

[6] A non-classified drainage is a small channeling of water that does not meet the technical Code definition of a stream.

The complainant is concerned that logging of this cutblock damaged water quality and quantity.

The Board investigated if:

1. BCTS and the SBFEP had misled the complainant;
2. the SBFEP prepared an adequate prescription; and
3. logging had damaged water sources.

Relevant Legislation

Operational and Site Planning Regulation

Section 7. There is no public review and comment period required for a silviculture prescription. However, under this section, the district manager may require that a proponent of a silviculture prescription refer it to a materially affected party. The district manager usually does this at the request of the materially affected party.

Sections 20 – 22. These sections give licence holders protection that roads and category A cutblocks, approved in previous plans and amendments, will maintain their approved status.

Discussion

1. Did BCTS and the SBFEP mislead the complainant?

The complainant asserts that BCTS misled it. The complainant believed that BCTS would consult with it before logging the cutblocks. BCTS acknowledged that it is, and that the SBFEP was, trying to develop a management plan for the drainage in consultation with the complainant. However, there is no documentation to show that either organization committed to consult the complainant before logging the three approved cutblocks.

The SBFEP had made a commitment to plan any additional cutblocks with the complainant after 2001. However, shortly thereafter, its priorities for planning shifted to other areas. As well, in 2003, MOF lost one third of its staff through government reorganization and BCTS replaced the SBFEP. BCTS has not completed the management plan for the drainage.

In 1999, the district manager approved TSL A59994 BLK 1, giving it protection under section 21 of the *Operational and Site Planning Regulation*. The complainant knew that the district manager had approved the cutblock in the FDP and that the SBFEP had built the road to the cutblock. The complainant did not ask the SBFEP to send it the SP. The district manager did not require, under section 7 of the *Operational and Site Planning Regulation*, that the SBFEP refer the SP to the complainant. There was no requirement for public review and comment on the SP. The district manager believed that the SP would adequately manage and

conserve the forest resources, including water, and therefore approved it. These actions all complied with the Forest Practices Code.

Although the SBFEP had committed to do a watershed plan for the drainage, in 2003 a pine beetle epidemic broke out in the headwaters of the north fork of Winlaw Creek. BCTS is currently salvage-harvesting the infestation. Even though BCTS has not completed the management plan for the drainage, it believes that harvesting of the damaged timber has not foreclosed future planning options there.

BCTS had no legal obligation to consult with the complainant before selling the approved cutblocks. The SBFEP committed to work with the complainant on a management plan for the drainage, but did not commit to a planning process on the three cutblocks that the district manager had already approved. It is the Board's view that neither the SBFEP nor BCTS misled the complainant.

2. Did the SBFEP prepare an adequate prescription?

The complainant's main concern is that the SBFEP disregarded what it considers basic precautions when logging in the headwaters of a domestic watershed.

The legislation did not require public review and comment for the SP. However, the FDP did undergo a public review. The SBFEP sent referral letters to all licensed water users for Winlaw Creek. The SBFEP advertised the FDP and held open house meetings. The FDP showed that the SBFEP intended to clearcut the cutblock. The FDP stated that a primary objective for development was protection of water quality, water quantity and timing of flow. There were no water-related comments submitted for this block in the review and comment period for the FDP.

Regardless, the SBFEP knew that water was a valuable resource requiring protection measures. Although not required, the SBFEP did a watershed assessment that involved roundtable meetings with the complainant. The cutblock had been included in the analysis of the watershed assessment. The initial fieldwork, including a draft prescription for TSL A59994 BLK 1, was available for review at that time.

The complainant asserts that BCTS should have used basic precautions for the logging technique, the silviculture system, and hazard abatement methods when logging in the headwaters of a domestic watershed. They assert that if such precautions are used, peak flows will not increase, low flows will not decrease, and water quality will not diminish.

2.1 Logging technique

The SBFEP prescribed a ground-based yarding method for the site. The complainant maintains that this prescription is inappropriate in any consumptive-use watershed for the following reasons:

1. Road cuts and soil disturbance from skid trails intercept slow underground flows and increase overland flow. The result is increased peak flows and decreased low flows.
2. Mechanical logging practices increase the likelihood of oil spills on the site.

In 2002, SBFEP staff reworked and completed the draft prescription. SBFEP staff field checked the block, marked small non-classified drainages and streams at the bottom of the block, and prescribed a machine-free zone beside them. The SBFEP specified that the bottom part of the block would have to be harvested using low-ground pressure skidders.

As the complainant states, interception of underground flow can occur when building roads and skid trails. However, to avoid this, the prescription required that spur roads and skid trails be re-contoured, with the original drainage patterns re-established following harvest.

Special conditions, attached to the timber sale licence, required daily inspection of equipment for oil leaks and fuel leaks. The licence restricted fuelling, changing oil, and overnight parking on designated sites. The licence also required impermeable tarps under the parked machines. The equipment needed to have spill kits and, if spills occurred, the licence holder had to remove the contaminated soils from the cutblock. Further, the licence required chainsaws to use vegetable-based oils for chain lubricant.

2.2 Silviculture system

The SBFEP prescribed a clearcut silviculture system for the site. The complainant maintains that this prescription is inappropriate, as a clearcut exposes the site to solar radiation, thereby increasing:

1. evaporation, thus reducing total water yield and reducing low flows; and
2. water temperature, which can cause harmful bacteria to contaminate water.

The 1999 watershed assessment covered all 13 proposed cutblocks from the harvest plan, including the three approved cutblocks in the north fork of the watershed. The prescription for TSL A59994 BLK 1 stated that it was consistent with the watershed assessment for the area. Overall, the watershed assessment concluded that there was a low hydrologic hazard for peak flows, surface erosion, mass wasting, riparian buffers, and channels, with respect to the proposed development.

The effects of logging on watersheds are complex, and it is difficult for studies to isolate the effects of individual treatments, such as roads interrupting underground flow. However, numerous studies have measured results of logging in watersheds like Winlaw Creek. The watershed assessment noted that such studies have shown that there is no measurable effect on water flows, until the equivalent clearcut area[7] (ECA) approaches 20 percent. The ECA in the north fork drainage will be less than four percent when BCTS harvests the three cutblocks. It will be even lower if the area includes the whole drainage. When the change is measurable, the watershed assessment also stated that low flows tend to increase as the area is clearcut. More recent literature shows the same result.[8]

Water temperature increases in a clearcut because there is less shade and more solar radiation reaches the water. Two small streams are adjacent to the cutblock edges, but they both have treed buffers between the stream and the clearcut that provide shade. There are a few springs in the lower part of the block, but they are adjacent to the lowest cutblock boundary, so water flowing from the springs will only be in the open for a short duration. As well, the watershed assessment pointed out that harvesting at elevations above 1400 metres has a low downstream impact on temperature. The elevation of this block is between 1780 and 1880 metres.

2.3 Fuel hazard abatement method

The SBFEP prescribed burning the waste piles to reduce fire hazards. The complainant maintains that:

1. burning the slash changes the soil structure, causing increased erosion and run-off; and
2. burning changes the chemical composition of the water.

Burning changes the physical character and chemical composition of the soil. The soil can become more prone to erosion, and a change in the chemical composition of the soil can cause new chemicals to dissolve into the stream. A high-intensity burn can even make the soil hydrophobic, causing increased overland flow. If a high-intensity fire burned a significant portion of the watershed, then there would be a significant negative effect on the hydrology of the watershed. However, the SBFEP prescribed a relatively small area for burning the waste at landings. Although it is good to maintain the physical character and chemical composition of the soil as much as possible, it is also important to reduce the fire hazard to protect all forest resources including both timber and water.

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[7] The *Coastal Watershed Assessment Procedure Guidebook* defines equivalent clear-cut area as the area that has been harvested, cleared or burned, with consideration given to the silvicultural system, regeneration growth, and location within the watershed. The *Coastal Watershed Assessment Procedure Guidebook* replaces the *Interior Watershed Assessment Procedure Guidebook*.

[8] http://www.forrex.org/publications/FORREXSeries/FS9.pdf and http://www.forrex.org/jem/2003/vol3/no1/art8.pdf

Summary of adequacy of the prescription

The SBFEP knew the complainant's concerns from the FDP review process, watershed assessment process, and subsequent meetings with the committee. The district manager approved the category A cutblock in 1999, giving BCTS permission under section 21 of the *Operational and Site Planning Regulation* to log the cutblock. The basic prescription of clearcut, ground-based logging was consistent with the FDP. SBFEP staff prescribed measures in the SP consistent with the 1999 watershed assessment, to protect water. The prescription and timber licence document contained provisions to protect water. It is the Board's opinion that the silviculture prescription was adequate for the site, and for the water resource.

3. Did logging damage water sources?

The logging practices generally followed the prescription, except that in the lower, wetter portion of the cutblock, where low-ground-pressure skidding was prescribed, the logs were forwarded to skid trails by hoe chucking[9] with a tracked excavator rather than skidding. This alternate method resulted in less soil disturbance than low-ground-pressure skidding, and was consistent with the objective to minimize soil disturbance.

On the complainant's July 2004 field trip, it found:

1. slash burned on or near a spring;
2. oil slicks in pools of water adjacent to the spring at the burn site;
3. exposed soils that had not been re-seeded;
4. wind thrown trees across streams adjacent to the block;
5. wet sites on the block that were not shaded; and
6. permanent deactivation of the access road had not occurred.

Board staff visited the site jointly with all participants in September. Board staff generally concurs with the above findings, except it did not find the oil slicks on puddles of water. It also found that BCTS had mounded a large portion of the cutblock in preparation for planting.

Board staff found that the licence holder had burned a waste pile on a wet area near a spring or non-classified drainage. The burn had changed the physical and chemical character of the soil. The soil had a lost its organic component and the remaining ash had a very low bulk density. Although this made the soil more prone to erosion, the burn was on a flat area and there was no stream apparent within the burn to transport sediment. There were ponds of water on the burn, but little evidence of soil erosion.

[9] Hoe chucking is when an excavator picks up the log and swings it from one location to another.

Although the complainant had taken photographs of an oily substance on small puddles of water near the burn pile, the origin of the substance was unknown. On the joint field trip, the participants could not find the oily substance or puddles of water near the burn pile.

The licence holder had re-contoured the in-block roads. In July, the complainant saw little evidence that the licence holder had reseeded roads. In September, grass seeding of the road had occurred but there was poor germination of the seed.

Wind had blown several trees across a stream in a wildlife tree patch to the west of the cutblock. The complainant is concerned that the downed trees and root wads will divert the stream into the exposed soil, causing increased erosion. It is likely that this will happen. Even so, it is not clear if the trees had blown over because of the logging. The stand contains mature to over-mature trees, which are likely to blow down with or without logging. Although there is an increased risk of some trees blowing down following harvesting, there is little evidence of increased erosion in the reserve. Since the flow in the creek at this point is relatively low, compared to the flow at the water intakes that are more than three kilometres downstream, there is little likelihood that sediment caused by blow down in the headwaters will impact the water intakes of licensed users.

The cutblock had been clearcut, so wet areas of the cutblock were not shaded. However, as the watershed assessment showed, this does not necessarily translate into a negative effect on hydrology.

Neither BCTS nor the licence holder had deactivated, either temporarily or permanently, the road leading into the cutblock. However, BCTS had maintained the road and culverts in good condition. BCTS said that it is waiting until it completes the initial silviculture treatments before it deactivates the road. The Board agrees that this is an appropriate approach.

In conclusion, there is no evidence that the logging damaged or increased the risk to water sources. The investigation found no evidence that sediment or petroleum-based substances had entered the streams. Other effects, such as detrimental increased temperature, or change in chemical composition at points of diversion for domestic water, are unlikely. It is the Board's view that logging of the cutblock did not adversely affect water quality, or quantity of either peak or low flows.

Conclusions

1. The Board found no evidence that BCTS or the SBFEP misled the complainant.

2. The silvicultural prescription the SBFEP prepared for the cutblock was appropriate.

3. There is no evidence that the logging damaged water sources.