



**Forest
Practices
Board**

Road Construction and Harvesting in a Woodlot near Carter Creek

Complaint Investigation 080850

FPB/IRC/154

June 2009

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The Investigation

On October 6, 2008, the Concerned Carter Creek Water Users (the complainant) submitted a complaint about proposed forest development on Woodlot 491 (WL 491), located near Argenta in the Kootenay Lake Forest District. WL 491 includes a portion of the Carter Creek watershed.

The complainant asserted that effective communication between the water users, the woodlot licensee (the licensee) and the Ministry of Forests and Range (MFR) had broken down and, despite a request to the licensee to do so, the licensee did not notify the complainant of the application or issuance of a road permit for the woodlot. The complainant also believes that the licensee did not adequately consider professional assessments when planning its forestry activities, specifically the potential impact of road construction and harvesting on the hydrology of the Carter Creek watershed.

Background

Carter Creek is a relatively small stream. However, there are five domestic and irrigation water licences in the Carter Creek watershed that serve more than a dozen water users. Two water licences are on the creek and three are on nearby springs. Carter Creek and the springs are fed by underground aquifers¹ which are replenished through recharge areas.²

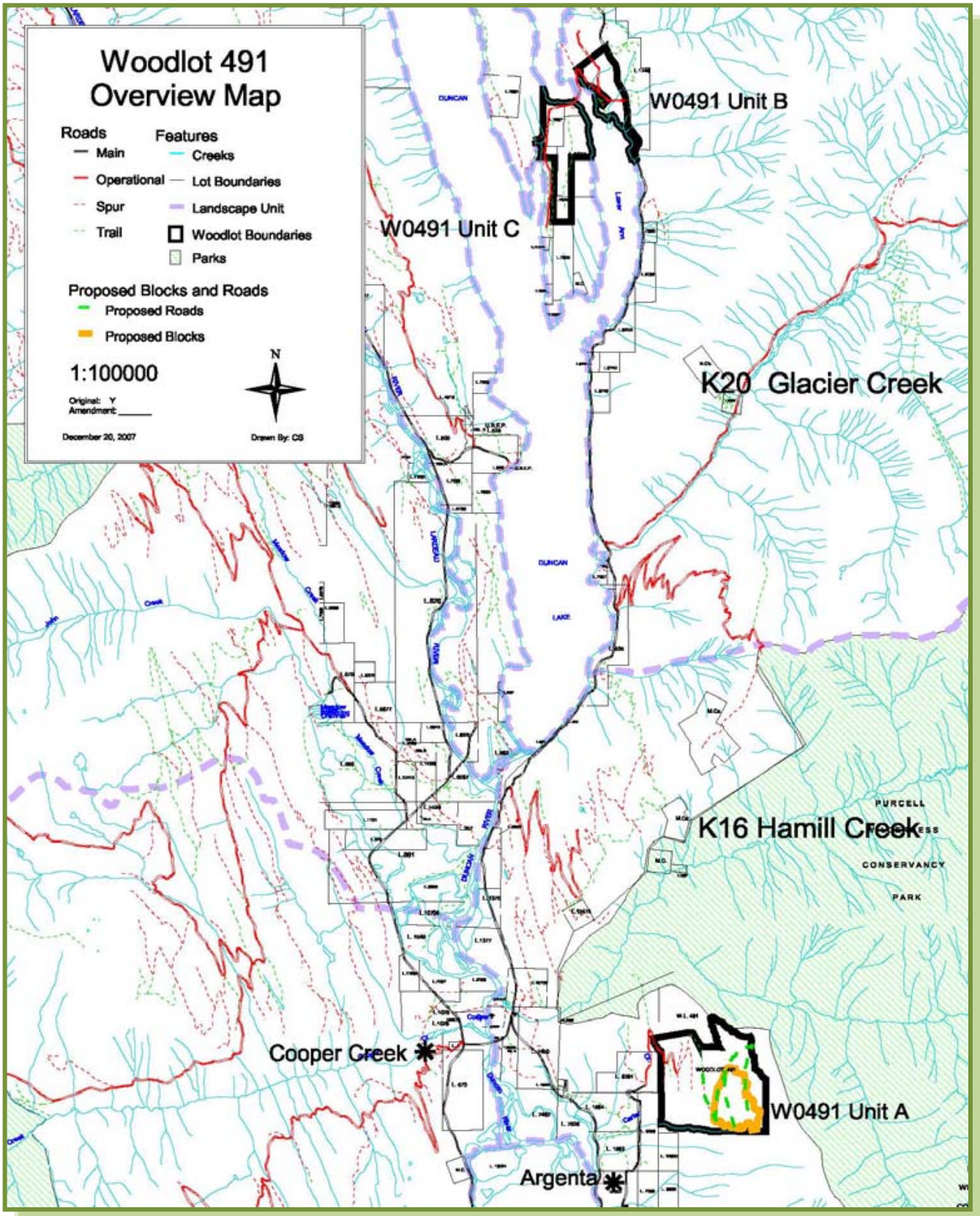


Device used for measuring water flow, Carter Creek.

¹ An aquifer is a saturated underground area that yields a usable quantity of water to a well or spring.

² A recharge area is where water from precipitation collects and seeps downward into an aquifer.

Map 1 Overview of woodlot 491



Woodlot 491 is approximately 600 hectares in size and is comprised of three geographically separated units: A, B and C (see map on page 4). Unit A is about 375 hectares and includes a significant portion of the Carter Creek watershed and therefore it is the unit of interest for this complaint.

WL 491 was awarded in 1988 and was operated by one licensee until 2006. The current licensee acquired WL 491 in 2006 and, in June 2008, submitted a woodlot licence plan (WLP) to the MFR for approval under the *Forest and Range Practices Act* (FRPA). The MFR approved the WLP on August 14, 2008.

On August 21, 2008, the complainant asked the new licensee to send it copies of road and cutting permit applications before the licensee submitted those applications to MFR for approval. At the same time, the complainant asked to meet with the licensee in Argenta to discuss its concerns. The licensee declined both requests.

Between 1983 and 2008, eleven reports were completed for WL 491. These reports presented reviews of resource values, terrain stability and hydrology (refer to appendix A).

In January 2008, the MFR developed a Watershed Contingency Planning and Responsibilities document specific to WL 491. The document outlines the accountability and responsibilities of the woodlot licensee, water licensees and the MFR. It also provides an outline of what can be expected in a contingency plan. Although it does not set out operational constraints, it does provide mitigation strategies should something unforeseen occur.

On September 3, 2008, the licensee submitted a road permit (RP) amendment so it could build new roads to access the upper area of Unit A. The MFR approved the amendment on September 9, 2008.

In October 2008, the complainant filed a complaint with the Board. By January 2009, the licensee had built a section of road, including some rockwork in preparation for further road building, and had applied to the MFR for a cutting permit focusing on pine killed by, or susceptible to, mountain pine beetle in Unit A.

Discussion

While investigating this complaint, the Board considered the following questions:

1. Was communication between the complainant, the MFR and the licensee effective?
2. Should the licensee have notified the complainant about the road permit application and issuance?
3. Did the licensee adequately consider professional assessments during its layout and operational activities?

Before discussing these questions, it is important to review the regulatory changes that took place when government replaced the *Forest Practices Code of British Columbia Act* (the Code) with the *Forest and Range Practices Act* (FRPA). The move to FRPA has had a significant impact on the roles and responsibilities of government, licensees and the public. Under the Code, MFR was directly involved with forest management activities and decisions. Under FRPA and the *Woodlot Licence Planning and Practices Regulation* (WLPPR), this is no longer the case.

In the Board's May 2006 special report, *A Review of the Early Forest Stewardship Plans Under FRPA*, the Board recognized that the shift to the new regulatory regime represents a significant culture change. Under FRPA, government and industry resource professionals are more interested in on-the-ground results and resource protection than process and paperwork. Government sets objectives and desired outcomes, and it is up to licensees to prepare woodlot licence plans that propose results or strategies that reflect these. FRPA gives licensees the flexibility to meet objectives in their preferred way, but in turn, the responsibility for stewardship of public forest lands now rests more with forestry professionals and licensees, and much less with the regulatory staff who used to have more direct control.

With government no longer directly involved, it is now up to the public to work with licensees to ensure that their concerns about proposed plans are heard. Licensees must consider these concerns when developing operational plans, and MFR no longer mediates disagreements between the public and the licensee. MFR's role is now more that of monitoring licensees' achievement of results and strategies through a compliance and enforcement regime. They now deal only with specific matters that require regulatory decisions.

Was communication between the complainant, the MFR and the licensee effective?

The complainant asserts that communication between it, the MFR and the licensee was not effective. The complainant used the licensee's refusal to meet as an example. The complainant considered that action counter-productive to establishing a working relationship with local residents.

Two aspects of communication are considered in this report: legal requirements contained in the *Woodlot Licence Planning and Practice Regulation* (WLPPR) and the principles of effective communication as outlined in the *Board Bulletin, Volume 3 – Opportunity for Public Consultation under FRPA*.

The legal requirements are outlined in the WLPPR, Section 17, which stipulates a requirement that the licensee advertise a WLP and provide a public review and comment period of 30 days from the date of first publication. The licensee met the requirements of section 17 and provided for an extension of the review and comment period at the request of the complainant.

In *Board Bulletin, Volume 3 – Opportunity for Public Consultation under FRPA*, the Board stated that openness and accountability in forest practices are achieved, in part, through effective public

consultation. Public consultation benefits the forest industry by identifying important resources and community values so that forest companies can address them during the planning and conduct of forestry operations. The public also shares responsibility for ensuring effective public consultation by staying informed and focusing on substantive matters. The success of the public review process under FRPA depends on the commitment and attitude of the people involved; in this case, the complainant and the woodlot licensee.

The Board's view is that the public should have an opportunity to access and provide input at all planning levels, from strategic through to operational, depending on their specific interests and how those interests are affected by forest operations. The Board bulletin on public consultation refers to eight components of effective public participation. Applying them to the circumstances of this complaint:

1. The opportunity for involvement should occur while plans are in formation and can still be changed, rather than after the woodlot licensee has made significant investment and committed to a plan.
2. Sufficient time should be allocated for the complainant's involvement, proportional to the complexity and scope of the planned forest activities.
3. Adequate resources should be made available so that the complainant can participate effectively alongside the licensee and any professionals representing the licensee.
4. All interested parties should be provided an opportunity to comment, particularly those whose interests are directly affected by planned forest activities.
5. Sufficient and understandable information should be made available to enable the complainant to make an informed comment.
6. The licensee should document its response to the complainant's input, demonstrating that it understands the issues raised and has taken those issues seriously.
7. The licensee should be able to demonstrate that the commitments made have been delivered on the ground.
8. Trust established should be maintained by communicating and engaging with the licensee throughout the lifetime of the forest activities in question.

The previous licensee lived in the community and spent a great deal of time building relationships and communicating with the complainants and the residents of Argenta. That licensee carried out public consultation in the spirit of the Board's interpretation of effective public consultation. This included inviting residents of Argenta and the MFR on field reviews with specialists to discuss proposed development, providing information when requested, conducting numerous public meetings and responding to letters. Some members of the Carter Creek Water Users attended a few meetings initially, but their attendance decreased over time. Despite those efforts, some residents blockaded the previous licensees' activities in 1995 and 2002.

The current licensee explained that he declined to meet with the complainant because he was already aware of the complainant's concerns. The licensee had copies of correspondence

between the previous licensee and the complainant that, in the licensee's view, documented those concerns. The licensee considered that the previous licensee's attempts to communicate and resolve issues with the complainant were largely unsuccessful and that continuing such communication would not be productive. As a result, communication between the licensee and the complainant became more distant, relying on letters and e-mails rather than direct meetings and discussion. The licensee also mentioned that communication is complicated because he receives mail from all the complainant's members so he cannot decide whether to respond individually or collectively.

The MFR has maintained open communication with both the complainant and the licensee. The MFR has met with the complainant on several occasions, attended field reviews and responded to letters and e-mails. The MFR has also encouraged the complainant and the licensee to work together to resolve the complainants' concerns. However, the MFR has withdrawn from trying to mediate such discussions, citing its reduced responsibility for public communication and involvement under FRPA.

There is no provision under FRPA requiring a licensee to provide a specific level of public communication about woodlot forest activities. There is only a general requirement to let the public review and comment on a licensee's proposed WLP. The complainant had that opportunity in 2008. However, the complainant did not have an opportunity to access information and provide input to forestry activities at all planning levels, from strategic through to operational.

It is the Board's opinion that communication between the complainant and the current licensee is not, and has not been, effective. However, effective communication could still be established if:

- The licensee could refer operational plans to the complainant prior to finalizing such plans. The licensee could also make an additional effort to explain to the complainant how harvesting strategies and retention objectives would protect the complainant's water interests.
- The complainant could focus its review and comment on operational plans rather than seeking to review and comment on road permits and cutting permits.
- Both the licensee and the complainant could specify one "point person" responsible for coordinating communication between them and distributing the correspondence/information back to the group they represent.

Finding

Communication between the complainant and the licensee is not effective. In order to become effective the licensee and the complainant must recognize each other's rights and concerns. The licensee has a right to harvest timber and the complainant has a legitimate concern about the impacts of harvesting on water quantity. If neither, or only one, of these is recognized, then effective communication will not occur.

Should the licensee (or the MFR) have notified the complainant about the road permit application and issuance?

The complainant is concerned that, although it asked for copies of the licensee's road and cutting permit applications, no such information was forthcoming. The complainant believed that concerns it considered important (i.e., how the licensee plans to deal with recharge areas) were not addressed in the licensee's approved WLP, but would be dealt with under these permits or associated planning.

The concern was examined from three perspectives: legal requirements; whether or not the request was reasonable in the circumstances; and whether the requested notification would provide the complainant the necessary information to assess the licensee's management strategies.

Neither FRPA nor the WLPPR contain any requirement for notification, or to provide application information, for road or cutting permits.

The MFR told both the complainant and the licensee that the ministry would not refer or provide copies of road and cutting permit applications to the complainant. Permit issuance is an administrative function. Simply, if an application complies with applicable legislation, regulations and is consistent with the approved WLP, the MFR has no other option but to issue a permit.

In addition, the ministry reasoned that the permit application stage is not the time for public comment on forest issues. If the public has concerns about planned practices, it must explain its concerns to a licensee well before the licensee submits a road or cutting permit application to the ministry. At the permit application stage, a licensee has typically completed most of its fieldwork, development logistics, reports and assessments. This approach is consistent with FRPA and the WLPPR, which, through the WLP public review and comment provisions, encourages the public to communicate their concerns to the licensee early in the planning process.

If concerns are communicated early on, the licensee can then consider and address those concerns during its planning and operational activities in a logical and efficient manner. The operational strategies of the licensee may not be what the complainant prefers, but FRPA focuses on results, not a prescribed process. For example, if the objective is to prevent sediment from entering Carter Creek, the success is determined by whether or not sediment enters the creek, not by how the licensee chooses to prevent it.

Road permit and cutting permit documents contain little operational information to review, and it is operationally too late to make significant changes. Nevertheless, it would not have been an onerous task for the licensee, or the MFR, to at least notify the complainant of the road permit

application. These documents are part of the public record and are available to any interested person under the *Freedom of Information and Protection of Privacy Act* (FOIPPA).

Finding

The request for notification of the road permit application was reasonable, although the request for the application and permit documents themselves would have provided little benefit to the complainant. There is no requirement to either notify or refer permit documents, and those documents would provide the complainant with minimal operational information. In the circumstances of this complaint, the Board finds that referral of road permit application and approval would provide minimal benefit to the complainant. However, simple notification would have made communication more effective.

How thoroughly did the licensee consider professional assessments during layout and operational activities?

The complainant asserts that the licensee has not adequately considered professional assessments regarding impacts of harvest levels and road construction on the hydrology of the Carter Creek watershed. Specifically, the complainant is concerned about identification of recharge areas, the amount of proposed harvesting, and the potential effects of road construction. Prior to discussing these concerns, the Board reviewed the legal requirements for managing water quality.

Legal requirements for managing water quality

Legal requirements for managing water quality are described in the WLPPR and the WLP. Under the WLPPR, a woodlot licence holder must maintain natural surface drainage patterns on the area both during and after construction for temporary and permanent access structures.³

The previous licensee maintained natural surface drainage patterns. The most recent terrain assessment (Deverny, 2008) reviewed 5,350 metres of road being proposed for construction and did not identify any watercourses or dry gullies. Therefore, there are no surface drainage patterns to maintain along the proposed road.

A woodlot licence holder must also ensure that harvesting, silviculture or road activities do not cause material that is harmful to human health to be deposited in, or transported to, water that is diverted for human consumption by a licensed waterworks.⁴ In this case, the development does not cross any watercourses that may transport material to Carter Creek.

The WLP requires that terrain stability inventories and field assessments be carried out by a qualified registered professional (QRP) where development is proposed in potentially unstable

³ WLPPR, s 28.

⁴ WLPPR, s 47.

terrain or where development could impact terrain stability.⁵ A licensee should follow the qualified, registered professional's recommendations from these inventories and assessments and incorporate them into operational plans for timber harvesting and road construction. Here, a terrain stability field assessment (TSFA) was completed for new development, and the licensee indicated the results will be incorporated into operational plans.

The WLP has other requirements for S5 and S6 streams within domestic watersheds.⁶ Operations must maintain a 30-metre streamside management zone for S5 and S6 streams. However, in this instance, there are no S5 or S6 watercourses along the new sections of road or areas proposed for harvesting.

Finding

The Board finds that in this case, the licensee has met all of the legal requirements of managing water quality. In addition, the licensee considered eleven hydrologic and terrain stability reports prepared between 1983 and 2008 by six authors. Seven were formal reports: one initiated by the complainant, four initiated by the previous licensee, one by the licensee and one by the MFR. The remaining four were informal.

Identifying recharge areas

The complainant is concerned that road construction and harvesting activities may influence infiltration of surface water into recharge areas which may adversely affect spring discharge and ultimately the flow of Carter Creek. The Board considered whether recharge areas should have been identified.

A recharge area is an area where precipitation percolates down to an aquifer. The percentage of precipitation that reaches the water table depends on vegetation cover, slope, soil composition, depth to the water table, the presence or absence of confining beds and other factors. If a recharge area becomes damaged by soil compaction, less water may infiltrate the soil. Due to the importance of recharge areas in replenishing aquifers, the complainant asked the licensee to identify recharge areas before further development takes place.

Specific identification of recharge areas is difficult and expensive (Isaacson, 1995), involving boring holes or digging pits. In addition, such assessments do not definitively identify all the recharge areas, since they are likely to be dispersed.⁷ An alternative to trying to specifically identify recharge areas in this way is to estimate the general recharge area. Isaacson (1995) identified a concave landform, along a proposed road segment between two switchbacks, as a likely location for a recharge area. He recommended not constructing the road in that area, unless it could be built without intercepting subsurface water.

⁵ WLP, s 7(f).

⁶ WLP, s (7i).

⁷ Depending on subterranean conditions, the recharge areas could be outside of the Carter Creek watershed (Kootenai Nature Investigations (KNI), 1996, William H Wells Consulting (WHWC), 1998 and Isaacson, 1995). It is also likely that recharge areas within the Carter Creek drainage may be replenishing areas outside of the Carter Creek drainage.

The licensee chose to address recharge areas by conducting operations in accordance with recommendations about road location contained in reports by Integrated Hydropedology (IHP) (1995) and Kootenai Nature Investigations (KNI) (1996).

Their recommendations are that road locations should avoid concave depressions, and try to stay on small ridges and on the outside of benches. In this case, the road was constructed through the concave landform identified by Isaacson, but there was no indication of any subsurface water being intercepted.

Corresponding harvesting strategies were not prepared at the time of the investigation. However, harvesting strategies should include avoiding the use of heavy machinery in wet areas, minimizing compaction in depressions or wet areas and rehabilitating any compaction that prevents infiltration in wet areas. Such proactive operational strategies should minimize impacts on recharge areas.

Finding

The licensee's choice to constrain operations in accordance with consultant's recommendations, rather than trying to identify recharge areas, was reasonable.

Proposed harvesting

The complainant asserts that the proposed harvesting does not adequately consider professional assessments related to equivalent clearcut areas (ECAs).⁸ An ECA is a guideline for assessing hydrological recovery. The Board examined whether operations were consistent with the ECA comments made by one of the hydrologists.

Many factors come into play when assessing an area for hydrologic recovery after disturbance, including topography, vegetation, residual stand structure, soil, exposed rock, disturbances, road densities, precipitation and snowmelt regime. There is no generally accepted ECA threshold; ECAs are a conservative estimate of how much area can be cleared without changing the hydrograph.

IHP (1994) stated that, if the ECA in the Carter Creek drainage remained below 10 percent, there should not be any significant change to the hydrograph of Carter Creek, but this was a conservative estimate; other guidelines suggest that a greater ECA is acceptable. For example, the Forest Practices Code's Community Watershed Guidebook suggested not exceeding an ECA of 30 percent in a community watershed. The Kootenay Lake Forest District had a guideline of 25 percent for domestic watersheds. Research done in watersheds with a snowmelt-dominated hydrograph showed that there was no detectable increase in the hydrograph until the ECA exceeded 30 percent. Other research indicates timber harvesting in ground water dominated

⁸ *Equivalent clearcut area* (ECA) is the area that has been harvested, cleared or burned, with consideration given to the silvicultural system, regeneration growth, and location within the watershed.

systems will result in wetter soils and a greater catchment water yield, which will result in a rise in the water table.⁹

Carter Creek is fed primarily by aquifers and replenished through recharge areas, which makes estimation of an acceptable ECA even more complicated. Three authors surmised that some or all of the recharge areas for Carter Creek may be located outside the Carter Creek drainage and WL 491. If so, the effect of forest harvesting (increased ECA) on water flow in Carter Creek drainage may be insignificant.

In any event, since the harvesting on WL 491 focuses on pine killed by, or susceptible to, mountain pine beetle, there is marginal value in completing an ECA. An ECA calculation will provide some baseline information, but it is unlikely to affect the salvage of the lodgepole pine. Whether the equivalent area is comprised of logged land or land with dead pine, the ECA is likely to be greater than 10 percent.

The licensee did not calculate an ECA for the development, since harvesting is towards the salvage of lodgepole pine. The licensee indicated that operations would retain silviculturally acceptable understory and non-pine species, where feasible.

Finding

It is likely that an ECA greater than 10 percent from salvage logging in the Carter Creek watershed will not adversely affect the recharge of local aquifers.

Proposed Roads

The complainant is concerned that the hydrology of the area was not appropriately considered when road development occurred. Roads are a significant issue in this area, because cuts made into the hillside may intercept subsurface flow. If this occurs, it could affect the hydrological function of Carter Creek and the springs on the hillside. The Board considered whether the licensee adequately considered existing hydrological reports.

A section of road between two switchbacks was a particular concern. This section is below the concave landform that was identified as a potential recharge zone for the aquifer. Isaacson (1995) recommended that the main road system not be extended beyond the lower switchback, unless it could be done without intercepting water. No other hydrologists that reviewed the proposed road location made similar recommendations. Contrary to that recommendation, the licensee constructed a pilot trail and road between the two switchbacks with cut banks up to 2.5 metres deep. However, there has been no indication of any subsurface flow being intercepted as a result.

⁹ Brian D. Smerdon, B.D, T.E. Redding, and J. Beckers An overview of the effects of forest management on groundwater hydrology, *BC Journal of Ecosystem Management*, 10(1):22-44



Photo 1 (above) 2007 upgraded pilot trail between two switchbacks (November 6, 2008).

Photo 2 (below) 2007 pilot trail, no subsurface drainage was intercepted (November 6, 2008).



Reports by IHP (1995), KNI (1996) and Deverney (2008) contained the following construction recommendations to minimize the potential impact on the recharge areas:

1. Maintain good drainage control on the road systems (culverts located at all draws and seepage areas, with cross drain culverts spaced at approximately 100 metres).
2. Do not concentrate runoff.
3. Reintroduce intercepted water onto the same slope segment.
4. Road locations should avoid concave depressions and try to stay on small ridges outside of benches during road construction.

The previous licensee had conducted field reviews with consultants while developing the proposed road system. His layout considered all available reports and assessments. The current road location follows the original route laid out by the previous licensee and is consistent with the reports. Further, in the Board's opinion, the road layout and construction implements the four recommendations listed above. Therefore, the previous licensee complied with the legislated requirements and followed the professional recommendations.

When WL 491 was transferred to the new licensee, all assessments and other information outlining recommended construction techniques were provided. The new and the previous licensees reviewed the reports and recommendations as well as the existing layout. The licensee maintains that the proposed road construction is consistent with the information in the assessments, and the Board found no evidence to the contrary.

Finding

The Board finds that the licensee proposed to follow the road location established by the previous licensee, which did appropriately consider the hydrology of the area.

Conclusions

This complaint is largely the result of a government policy/decision that the forests on the hillside in question are part of the provincial timber supply and are open to logging, provided it follows the legislative requirements. The complainants are long-standing members of the community who have lived and operated an organic farming business in the Carter Creek drainage for decades. Their domestic needs and their livelihood are dependent, to some extent, on maintaining a safe supply of water from the watershed. Their concerns about the possible impacts of logging and roads on the hillside above them are understandable.

Communication

The current and former licensees are fully aware of the complainants' interest in what happens on the hillside in question. The previous licensee did extensive work to consult with, and accommodate the needs of, the community and the complainants in particular. However, the current licensee and the complainant are communicating in a barely-acceptable manner. Communication can be made more effective by directing it to a review of operational plans and field reviews, but away from permits and permit issuance.

Notification of the road permit application

While the investigation concludes that it would have been appropriate for the current licensee to notify the complainants of the permit applications, the licensee has met and exceeded the legal obligations government places on him for managing his woodlot.

Consideration of professional assessments

The current forest practices legislation takes a results-based approach. The responsibility for stewardship of public forest lands now rests more with forestry professionals and licensees. Eleven reports were completed for this area and the licensee and previous licensee reviewed these reports and recommendations. The licensee proposed strategies to achieve government's objectives, including maintaining water quality, and is expected to achieve those results. Unfortunately, as is the case in other watersheds, water users bear most of the risks should something go wrong.

By all indications in this investigation, the licensee is doing the right things to minimize the risk of impacts to water supply and quality. However, 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

Reports Completed and Reviewed by the Board for Woodlot Licence 491

Deverney N., P.Eng, Deverney Engineering Services Ltd., Terrain Stability Assessments, Block 1A and Associated Roads, Woodlot 491, March 2008

Isaacson J. Allan, Hydrology Report for Woodlot 491, Unpublished Report for Kootenay Cooperative Land Settlement Society, Argenta, B.C. 1995.

Isaacson J. Allan, Letter to S Smith, May, 1996

Salway, Dr. Anthony A., P. Geo, Integrated Hydropedology Ltd., Hydrology of the Argenta Slope, Unpublished Report for the B.C. Ministry of Forests, Kootenay Lake District. Nelson B.C., 1983.

Salway, Dr. Anthony A., P. Geo, Integrated Hydropedology Ltd., Hydrological Impact Assessment of Woodlot 491, Carter Creek, March 1994.

Salway Dr. Anthony A., P. Geo and Wehr, Raymond J., P. Ag, Integrated Hydropedology Ltd., Terrain and Erosion Hazard Summary With Hydrological Interpretation for Woodlot 491, March 1995.

Toews Dave, RPF, MFR Research Hydrologist, Carter Creek Hydrology and Soils Reports, Unpublished Report for the B.C. Ministry of Forests, Kootenay Lake District. June 17, 1996

Toews Dave, RPF, MFR Research Hydrologist, Carter Creek – Woodlot 491 – Field Trip on July 10, 1996, Unpublished Report for the B.C. Ministry of Forests, Kootenay Lake District. August 2, 1996

Utzig G., P. Ag, Kutenai Nature Investigations Ltd., Impact Assessment for Proposed Road Construction and Forest Harvesting in Woodlot 491, February 1996

Utzig G.F., P. Ag, Kutenai Nature Investigations Ltd., Impact Assessment for Proposed Road Construction and Forest Harvesting in Woodlot 491 – Cutting Permit C, J, November, 1997

Wells William H, P. Ag, William H Wells Consulting, Letter to The previous licensee, May 1998



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