Information Meeting 6 of 9
Referral Group, CANFOR & Forest Service
26 February 2016

PARTICIPANTS

Forest Service: ROB SCHWEITZER
CANFOR: AL ANDERSEN, STEFAN BORGE, MIKE MILNE (hydrologist)
Referral Group Chair, recorder: TREVOR
Referral Group: FRANK, GEORGE, RENE, TAY

Note 1: Ministry of Forests, Lands and Natural Resource Operations is here referred to as "Forest Service."
Note 2: B.C.'s 2004 Forest and Range Practices Act is abbreviated FRPA.

AGENDA: (FREE-RANGING MEETING WITH CANFOR HYDROLOGIST MIKE MILNE)

- **Formal Question 1:** Guarantees of no damage?
- **Formal Question 2:** Possible impacts of climate change?
- **Formal Question 3:** Response to slope instability concerns?
- **Formal Question 4:** Legal recourse in case of damage?
- **Formal Question 5**: Unprofessional bias?
- **Formal Question 6**: Block-specific questions.

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TREVOR: Calls meeting to order: welcome, agenda!

GEORGE: Provides MIKE MILNE (as hydrologist) with historical background subsequent to 1991/92 logging near Fage Creek above his property, pointing to hydrological impacts, personal hardship and poor follow-through by Ministry and industry despite repeated commitment to mitigate the damage done – even to the present time.

TREVOR: Explains to MIKE MILNE that we're engaged in a process to ensure that nothing like what George describes ever happens again. The Guiding Principles document was established in part to ensure this. It was intended to allow for only salvage logging and small incursions, not large industrial clearcuts. Area G is the largest area of interest covered by the Guiding Principles, with the most complexity owing to concerns over water, viewscapes and the future of Wells Gray's Mountain Caribou. The Referral Group has a responsibility to the community to gather and pass along information, hence we need answers to questions, some of which are pointed; nothing personal.

MIKE MILNE: Invites question and has prepared answers ahead of time, in part with Ministry hydrologist Rita Winkler. Describes his own background and credentials as hydrologist and touches on some of his previous work all over the province. **Expresses surprise at how little**

work was done to rectify the situation outlined by George "at a time when there was a huge FRBC budget". As a result, there are still "significant water management problems on old non-status roads." Asks to know what outcome is being sought.

TREVOR: We have a commitment to the community to ensure that the Guiding Principles are respected and upheld with regard to any future decisions made in Area G. We're gathering information that will be brought forward at a future public meeting. There's a lot of heat around these issues, so we need to ensure we do our job.

MIKE MILNE: Has worked in field for about 20 years. Has undergraduate degree in geomorphology from U of Calgary, followed by Masters in Water Management at U of Waterloo (Ontario). Sees himself as one of BC's most "operational" hydrologists: hands on: often turns up things others miss. Also works for Forest Practices Board, knows Glen Pilling. No set methods being used, though I use the "Land Management Handbook 61" (LMH61: online link sent to participants prior to meeting: https://www.for.gov.bc.ca/hfd/pubs/docs/lmh/Lmh61.htm). New Water Act won't affect us. A lot of issues in Area G. Will provide an overview report as well as a block by block report. Notes that Fage Creek is classified as S5 non-fish-bearing, should have been protected from logging, but wasn't.

GEORGE: Actually, Fage Creek is fish-bearing.

FRANK: Grouse Creek is bigger than Fage Creek.

MIKE MILNE: Haven't looked at Grouse Creek, but no tributaries in Area G. Grouse bigger than Fage, but Fage much more powerful.

TREVOR: The Canyon Creeks are also bigger than Fage.

MIKE MILNE: Agrees. Will walk the blocks that drain into Fage Creek.

TREVOR: This is good lead-in material for our questions, but at some point, we'll need to go through the questions one by one.
GEORGE: Are blocks T125 and T157 going to increase water into Grouse creek?

MIKE MILNE: No.

FRANK: Many years ago, there was a large slide on Road 10 (near old jail site) that may have been caused by water from upslope logging. Apparently, it seeped into the ground until it hit bedrock and then slid. The slide did a lot of damage. Could the same thing happen in other sites underlain by lava?

MIKE MILNE: Most common root of problems is due to water being directed in the wrong spot. Landslides are very rare in the interior when there is no diversion of water. Maintaining natural drainage is key. This event may have resulted from water diverted down the ditch line in the clearcut above. Unlikely to be related to logging alone. However, the whole road network in Area G has problems and needs a major upgrade. The road north of Third Canyon may be non-

status: nobody's responsibility: failing culverts, not enough of them. Nearly all landslides I've seen in BC interior are related to road drainage problem.

Rob: Non-status logging roads is a problem throughout the province.

MIKE MILNE: The prescriptions for Area G are all in place. Everything's ribboned, GPSd, sized all the culverts. This is what's needed to put the water back in place.

TREVOR: Getting back to the slide above the old jail: (1) there were a few 'natural' slides in Spahats from that same rain event; (2) my impression is that this slide was more related to logging and removal of moss/duff layer, not to ditching. Maybe this could be checked. [**ACTION: TO DO**]. Also, Spahats, First and Second Canyon Creeks as well as Fage Creek and Grouse Creek all tore out or damaged their bridges after logging, so you can see why there's concern about logging about portions of the valley where people have private property and homes.

MIKE MILNE: Geotechs have already looked at the old jail slide using aerial photos taken at different times. They concluded that this slide was caused by a long ditch line. Returning to Frank's question: the main consideration is, will there be a major debris flow 'event' on one of these streams? This is what the terrain specialists and I are looking at. There can be flooding, debris floods, and debris flows, the last being the most destructive. The question is, What would it take to unleash one of these events in Area G? Looking at the old aerial photos, we know that the only system that 'went' after the fire of 1926 was Fage: a debris flow that went right through the park road. After a hot fire on a steep slope, you often get hydrophobic soil that can become saturated and run. There were a number of those, but only one channelized event, which was Fage. This tells us that most of the streams in Area G didn't respond even after a big fire event.

RENE: Was Spahats a debris flood or flow?

MIKE MILNE: Like a debris flood where it hit the highway. Next we look at fans. How did they form? Most I've seen are 'relic fans' created shortly at the end of the last ice age. They're created from the glaciers melting.

TREVOR: But that's not the way it works. It's the valley glaciers that melt last; the glaciers higher up, except at alpine elevations, are gone long before. Except for Third Canyon, the glaciers that fed these creeks from above would have been gone long before the valley glacier was gone. To say that these 'relic fans' happened post glacial is not to say it was glacial meltwater that formed them. Maybe so, but probably not in this case. More likely there have been events over the past 10,000 years that were severe enough to create the fans we see today. The question is, Is it possible that such an event could happen in the future?

MIKE MILNE: No, I think there was an ice-free band and that the creeks drained down to the ice contact.

TREVOR: North of Grouse Creek I've counted a dozen successive benches, marking levels where water has sat for some time. But you don't see benches on the fans south of there. If the

fans had flowed into water, they'd be steeper than they are. [MIKE MILNE makes sketch]. I'd argue that if there was so little valley ice left when the fans formed that there would have been no glaciers left at the heads of the creeks, Third Canyon excepted.

MIKE MILNE: Yes, there was probably a run-off regime different from what we have now.

TREVOR: The reason all this is important is that we're now moving into a time of tremendous climate change. Logging is a hundred-year cycle, but a century from now the climate here will be very different from what it is today or what it's been for the better part of the past 10,000 years. It's important to err on the extreme side of caution. We need to look at what has happened historically, and those remnant fans are part of that history.

MIKE MILNE: I'd like to see more of the fans.

TREVOR: For the record, I did send out a note to valley residents after our last meeting to let everybody know about CANFOR's wish to look at the fans.

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FORMAL QUESTIONS FOR MIKE MILNE:

> **Formal Question 1**: Given the past history of logging-related washouts in the Clearwater Valley, what guarantees can you give us that your assessments will not cause downstream problems in years to come?

MIKE MILNE: There is a chance I could miss something. Strategically review the site but cannot guarantee. Take a conservative approach.

TREVOR: This question is really asked on behalf of George. **People in industry and government are too often confident their actions will cause no problems, but then something goes badly wrong, and here's George who then has to live the rest of his life with the consequences somebody's poor judgement. The answer to the question is that you *can't* guarantee no problems will arise from your prescriptions**.

MIKE MILNE: Agrees, but says he's taking a conservative approach.

TREVOR: Here's a scenario. **The southern Clearwater Valley experiences more days with thunderstorm activity than anywhere else in Canada. In early days the valley was a crazy quilt of forests of different ages, though that changed with the great fire of 1926. As the climate continues to change there will at some point be wildfires here, perhaps even a repeat of 1926. In the past, fires burned the slopes and some parts of the bench above but left large areas of oldgrowth. It's the mid- to high-elevation oldgrowth that has in effect protected us from severe flooding. If some future wildfire does burn the slopes, and assuming the oldgrowth by then is mostly logged off, there goes a critical element in what has until now sheltered us from the worst flooding events. With the coming of climate change, such a scenario must be factored into your prescriptions.**

MIKE MILNE: I'm not in the business of making guarantees, but I am in the business of advising people in cases like this. There's always a chance that things are going to go sideways. We're trying to minimize the chance of something bad happening.

TREVOR: Yes, and the best way to do that is to refrain from logging.

MIKE MILNE: You mentioned the existence of a mosaic of different seral stages prior to 1926: that's where I'm going to go with some of my answers.

TREVOR: Research shows that after logging the chance of fire increases, at least in moist areas like our valley.

> **Formal Question 2**: We seem to be entering a period of extreme weather events. When you assess a particular stream for potential effects of logging, how do you factor in the unknowns of climate change?

MIKE MILNE: Take a conservative approach. According to Rita Winkler (Ministry hydrologist), the models suggest more precipitation in this region. I interpret this as more rain on the lower slopes and more snow above.

TREVOR: That's not at all how climate change works. What the models are really saying is that we'll have more extreme events. So yes, you can have an overall increase in precipitation, but year to year this will play out as more extreme weather events, with more extreme droughts on the one hand and more extreme precipitation events on the other. This is the scale at which wildfire and floods operate: from year to year. In periods of drought you can expect more and more severe wildfires, while in years of severe rain events you can expect more and more severe flood events. Overall trends in precipitation have little or nothing to do with how things play out on the ground.

MIKE MILNE: This is why I went to talk to Rita. She already thinks we're seeing an increase in snow at elevation.

TREVOR: I don't like to undermine the authority of people who are experts in their field, but with due respect to Rita that's simply not relevant to what I've just said. Anyhow, at a practical level the question is whether you as hydrologist take a cookie cutter approach to your work, or whether you adapt to local conditions and, more than that, take into account changing climate.

MIKE MILNE: Sure, to address that it's important in smaller drainages to develop a diversity of seral stages. The industry has already had one pass; so for climate change reasons, for water supply reasons, we need to maintain a certain degree of opening as the forests start to regenerate.

TREVOR: In the 90s a study out of UBC was unable to find evidence that the high-elevation oldgrowth forests on Battle Mtn just north of Area G have ever experience major stand-replacing fire. This flies in the face of conventional wisdom which says that these ESSF forests burn periodically. The conclusion was that these forests at least do not, but have possibly stood in place since the return of trees following deglaciation. So, your suggestion that creating seral

stands of diverse ages creates resilience simply isn't borne out in the ESSF. In the ICH yes, but not in the ESSF, at least not here.

MIKE MILNE: For climate change, I still think it's good to develop different seral stages, even in the ESSF.

TREVOR: Why? Do the caribou benefit? Who benefits? And besides, different seral stages in Area G have already been created by past logging. Why do more? Note that the Guiding Principles permit some salvage logging here, but specifically disallow logging of oldgrowth.

TAY: It takes a long while to reforest in the ESSF, generations.

MIKE MILNE: Yes, the forests are struggling up there. CANFOR has heard a fair bit about the amount of logging in the ESSF. As a result, the plans have been significantly scaled back. For various reasons. Not just climate change or seral stage, but also peak flow and water quantity. There have been significant changes to the plans as a result of some concern with the amount of development that was planned at upper elevations**. [ACTION: LET'S EXAMINE THIS CLAIM AT OUR UPCOMING MEETING IN APRIL].**

TREVOR: But again, what justifies from a hydrological perspective liquidating more of the existing high-elevation oldgrowth? Besides money or ideology, I mean. You've made a claim but haven't yet given any reasons to support it. How can it possibly help anything to log forests that may have been standing in place since deglaciation? As I've said, we're moving into a period of increasing weather extreme.

MIKE MILNE: I'm not the one who makes decisions on where to log. My job is to say that in my opinion the effects of cutting some ESSF oldgrowth is fairly limited from the point of view of hydrology. CANFOR takes that information, then they make their decision on how to proceed. Integrity comes from diversity.

TREVOR: But surely it's possible to create too much diversity, in which you risk losing some of the ecosystem benefits that accrue from ecosystems that have been in place for thousands of years.

TAY: The ESSF is by nature more stable over time than say a Pine forest of the IDF. So, when we're trying to make land-use decisions, and trying to model after prevailing conditions in different biogeoclimatic zones, it makes sense to create different seral stages at lower elevations, but not so much in the ESSF.

RENE: What is ESSF and ICH?

TAY: ESSF is Engelmann Spruce – Subalpine Fir Zone, which occurs in higher areas and doesn't vary in age very much. ICH is the Interior Cedar – Hemlock Zone and occurs at lower elevations, and varies greatly in age. IDF is the Interior Douglas-fir Zone, a drier zone more prone to fire.

STEFAN BORGE: If you look biogeoclimatic zones and at natural disturbance types and at the Kamloops Land Resource Management Plan, and then look at the patch size analysis we've had done for the entire area, we're supposed to be targeting large to medium patch sizes up in Area G. But we're not doing that because of the Guiding Principles. At our last meeting, RENE: suggested that if we shift our logging southward that might be a good idea. But you, TREVOR, informed me that this is all oldgrowth [north of Buck Hill], but in the south, there are little retention patches that didn't get burned.

TREVOR: Some more history: If you look in the burned areas in the south you'll find that there are almost no young cedar coming up, yet there are old cedar snags all over the place. What does that tell you?

MIKE MILNE: There must have been cedar there at one time.

TREVOR: So, before the 1926 there must have been a period of long continuity, i.e., there must have been old forests standing there for a long, long time. What happened in 1926 was an anomaly. The reason the area to the north of Buck Hill has been logged is that it escaped the 1926 fire; and the reason for that is Buck Hill, which cast a 'fire shadow' as the fire burned northward and eastward. So, logging interests in Clearwater have benefited greatly from Buck Hill. And now they want to take more. Now look at the oldgrowth management areas which were intended primarily for caribou, right?

ROB SCHWEITZER: They were intended for multiple values, but caribou could be included in that.

TREVOR: True, Pine Marten also benefit.

AL ANDERSEN: Let's let MIKE MILNE talk about hydrology.

MIKE MILNE: After reading about George's concerns for Fage Creek, the proposed cuts were scaled back.

[BREAK]

TAY: [Regarding Stefan's comments about targeting medium to large patches in Area G ESSF], I need to say I believe in the consensus approach to decision making. The Guiding Principles were developed under the auspices of the Kamloops LRMP. You can't make your argument based on the Kamloops LRMP unless you're going to put equal weight on local use plans like the Guiding Principles.

AL ANDERSEN: [Concerning the proposed cutblocks in the ESSF], MIKE MILNE didn't direct us to do anything up there. We've included the ESSF in our cutting plans because at the end of the day it's in our profile. It's available to us. What this looks like today is based on what MIKE MILNE has told us as a hydrologist. Caribou are maybe another matter.

TAY: Need to keep in mind that CANFOR's plans are just one pass. You'll be back for more later, right? It seems silly to niggle over specific clearcuts when we know you'll be back for the rest later.

STEFAN BORGE: ccc If there is a time line for that, it's a long time line. In the meantime, we're trying to establish wildlife corridors under the guidance of our biologist. Studies show that caribou use Age Class 4 or greater.

TREVOR: Let's hold this off to a separate meeting on Mountain Caribou, and get back to hydrology.

> **Formal Question 3**: What specific adjustments have you made in light of Dr. Cathie Hickson's warning regarding the special hydrological concerns on volcanic terrain?

MIKE MILNE: We took a good look at this. If I understand, Cathie's concerned there could be a problem with infiltration down to volcanic bedrock and charging whatever groundwater is moving through. From a hydrological perspective, the question is, where does the water come out? We asked the geotech about how to deal about gentle over steep. Is logging up high going to create a problem below? I'd be concerned if we see evidence of emergence below or trailed [?] or both together; but we don't. The water must be emerging somewhere else.

TREVOR: Cathie will attend our next meeting, so perhaps we can get some more details then.

> **Formal Question 4**: In the event that local residents do experience serious downstream perturbations to water flow or quality in consequence of your recommendations to CANFOR, is it legally possible for us to name you and/or your company in a class action suit or other legal redress?

TREVOR: We ask this question because FRPA relies so heavily on the judgement of professionals. George had no recourse back when his livelihood was damaged by logging around Fage Creek? But things have change. What recourse do we have if things go bad?

MIKE MILNE: I operate with liability in mind at all times, so absolutely. I try to advise logging companies on what kind of trouble they might get into. If I make a mistake in judgement, and call something a low-risk block and then later there's a problem, "then absolutely it should hang on me".

TREVOR: OK, so let's say we get what used to be thought of as a once-in-a-thousand-year rain event – something increasingly likely with climate change – and as a result somebody's house gets washed away, the blame can be laid on you, right?

MIKE MILNE: If it can be proven that I've made an error of judgement, then absolutely. If responsibility under FRPA doesn't hang on the professionals, "then what are we doing?" The

reality is that we're dealing with nature, and it would be complicated to prove things one way or another. But nobody wants a court case. The last thing I want is to be implicated in something like this.

TREVOR: And the last thing the valley wants if for something like this to happen.

> **Formal Question 5**: When Dave Dobi first met with the Referral Group in 2012, he described you as a personal friend. More recently we've had further evidence that you may be biased in CANFOR's interests? How do you counter this?

MIKE MILNE: I try to work with facts. I make sure I let people know about the potential effects of things. And I tell everybody the same thing. I have a lot of clients that are friends.

> **Formal Question 6**: The following questions were raised during our January review of CANFOR's preliminary logging plans. The context for each is provided in the draft minutes attached to this e-mail.
>
> - **T157, T160**: What do you mean by 'light instream work'?

MIKE MILNE: A bit of shovelling. There may be some hand-cleaning of debris if something jams up and diverts the channel. I think that these blocks are going to have an insignificant effect on things. If there's a problem it will be lower down. Sooner or later the stream will jump its bank down on the fan**.** Logging above won't make it any less likely, let's put it that way.

> - **T157, T160**: When assessing oldgrowth forests, what emphasis do you place on the water-retentive capacity of a well-developed moss layer?

MIKE MILNE: I phoned Darryl Carlyle-Moses at TRU. He agreed with my gut feeling that the effect of mosses on hydrology would be insignificant relative to the big hitters like changes in snow accumulation and snow melt rate and reduced moisture use by trees.

TREVOR: OK, if you're not doing hydrology using a cookie cutter approach, if you're adapting to conditions in this particular valley, then you need to understand that snowmelt isn't a major contributing factor to any of the recent big floods – the ones that washed out the bridges. First Canyon and Second Canyon flooded in July 1997, Spahats went out on 8th July 1999, Grouse Creek knocked out its bridge in July 2001. Finally, Second Canyon almost knocked out the road as second time in May 2014. Also, Philip Creek washed out in May 1947. So, May is snowmelt, but July for the most part is well past usual high water. My point is that the culverts and bridges were in place at Spahats, First and Second Canyon Creeks for three decades, almost four. Then when you log, you remove not just the trees but the accumulated moss and duff that had tremendous absorptive capacity. I first saw the effects of this at Sicamous Creek, and submit that this phenomenon is enormously important in wetter portions of the ESSF, though not in drier portions, and certainly not in the Montane Spruce Zone where the moss layer and humus is thinner. As long as we're talking about rain events, not snow melt, this is a major contributing factor to the events that have costs millions of dollars to repair. So far as I know, the studies

haven't yet been done to confirm this; but once they're done, I believe this is what they'll find. It's something you need to be cognizant of when you advise on high elevation logging in the Clearwater Valley.

MIKE MILNE: A similar event at Sicamous Creek in 2012 is linked to rain over snow, so we'd need to check how much snow was around in the years of the big washouts.

TREVOR: Sure, go ahead. I think you'll find those weren't big or late snow years. Also, you need to understand two additional things. First, June is typically the wettest month of the year here, meaning that rain over snow is a real threat. And second, the Clearwater Valley runs perpendicular to the prevailing westerly and southwesterly storm flow here at the eastern edge of the Interior Plateau, where the land transitions to highlands and mountains. Because of this the Clearwater Valley is subject to periodic long storms that last for days – a rarity even in Clearwater, only a few kilometres south. This is what I mean about cookie cutter: the eastern flank of the Clearwater Valley is subject to weather events you can only know about if you've lived here long enough. They can cause potential problems not foreseen by somebody coming in from outside.

MIKE MILNE: We call this runoff response. Different areas respond differently. The approach I've taken is largely around hydrologic response. If moss plays a role, it should be captured in Rita Winkler's prior research. At a 50% cut, she can show us an obvious shift in the regime and a much more damaging peak flow. But nobody would ever cut 50% of a drainage. I think the information we have now is really good.

TREVOR: Again, in my view ground moss doesn't have nearly as much absorptive capacity in oldgrowth high-elevation forests in the dry interior as it has in the moist interior or the wet interior. To say that you can take Rita's results from drier ecosystems and apply them here is problematic.

MIKE MILNE: Agreed. RENE, when do you get your peak on your Pelton wheel?

RENE: May and June primarily, then it starts to taper off in July. And sometimes I need to shut off one nozzle in August, which has happened in twice, in 2003 and 2015. Most years I'm at full capacity until Labour Day.

TREVOR: MIKE MILNE, as part of your studies, I assume you've looked at the historic maximum rainfall events in the valley, which months they occur in, right? Do you know what month had the maximum recorded rainfall for the valley? You can look it up. It's on line. The answer is September 1976, when 7" of rain fell in Clearwater, and no doubt more up this way. This tells us that the weather here isn't predictable, and that we should expect the unexpected – especially now with global climate change. Note that the driest month of the year is usually March, and that September is the second driest month. But not that year.

FRANK: I can vouch for that. June, July, August and September that year was very wet. That was the year I built my house. The one day it didn't rain was the one day we didn't work. By the

way, there used to be a weather station at the prison camp. Maybe the records are still around somewhere. We also used to measure the water level of Spahats Creek.

TREVOR: I should also mention that I kept weather records here – including monthly rainfall – over a ten-year period. The data still needs to be summarized but can be made available at some point. Anyhow, 6" in a month isn't unheard of here. All this comes to bear on your prescriptions for Area G.

MIKE MILNE: We know about hydrologic response, we know about big snowpack, we know that we have intense convective rain events. So, what do you do? You make sure you've got big culverts.

TREVOR: But what concerns us is really what happens downstream.

MIKE MILNE: I'm notorious for prescribing lots of culverts, and big ones.

TREVOR: I appreciate that. I've asked you hard questions because I see this as necessary on behalf of the community. People will ask additional questions when we bring this to a public meeting, but we need to cover as much ground here as possible.

GEORGE: I need to ask about your CSA standard. You're supposed to model as close as possible to natural forest succession. But if I understand correctly, you're ahead of forest succession up in Area G. This isn't just about CANFOR. The Guiding Principles need to be respected here. Maybe the forest shouldn't be logged quite as aggressively as you're proposing. What the Guiding Principles say about water is that there should be no more logging unless you can definitively say there's not going to be any serious modification in the amount of water flow, in its volume, in its quality and in the timing of flow. Those things are what's critical in this area right now. If we can come to an agreement on how that might be done, I can see that being quite a success story.

[**ACTION: GEORGE WILL SPEAK MORE ABOUT THIS AT A FUTURE MEETING, BUT NEEDS TO LEAVE AT THIS POINT**].

T147, T167: What exactly do you mean by 'low risk'?

MIKE MILNE: In the risk-based model, we try to speak in terms of hazard and consequence. Low risk is low likelihood of something bad happening to something you care about. For risk to go up, you either have to have higher hazard, which means, say, a higher likelihood of a big flood or debris flow or higher consequence, which means something that is vulnerable. Low risk should be no detectable effect. These blocks are deferred because they took my information and acted on it.

TREVOR: That was duly noted, but it was also noted that these were deferred, and they may be up for logging later.

- **T120, T111**: George Briggs feels that your assessment here will impact his ability to irrigate. Response?

MIKE MILNE: I don't think this will have a significant impact on this watershed. Originally not all the drainages were accurately mapped. Shook drainage totally changed once we began to walk it. Our data continues to improve.

TREVOR: Thanks for that. Now I have two additional questions:

First question: What's your relation to the Herb Hammond school of thinking? His shtick is that if logging is done right, there will be no noticeable change in water quality below the cut. Is that what you hope to achieve?

MIKE MILNE: Absolutely. The question is, How do we leave enough that we have something to come back to and avoid messing things up? My starting point is that we're going to manage these forests over time. Is that bias?

TREVOR: Look, I'm to lichens and oldgrowth as you are to hydrology. That's what I've spent 30 years thinking about. When you say there's some benefit to cutting oldgrowth in the ESSF, that it's a good thing to have stands of different ages, I automatically bristle. An ecosystem works because of what it is. So, if an ecosystem consists primarily of oldgrowth, then the species tuned to that have come to depend on old forests. You change that, and you change the whole structure of the ecosystem – to the tremendous disadvantage of species that depended on it in its original state, in this case oldgrowth.

Second question: You haven't really addressed how you as a hydrologist factor climate change into your prescriptions. Climate change, especially in the form of more extreme weather events, is what we'll live with from this time forward. Already it's estimated that climate change is a contributor to one in five major weather events. Sooner or later there are bound to be floods like we've never seen before.

MIKE MILNE: I asked Rita about this. She said she was kind of hoping I might tell her how what the plan should be. But first of all, you want to maintain a certain amount of forest cover. We're taking a precautionary approach to forest development here. I've suggested that CANFOR start to lay things out and we'll talk about this again as we learn more.

TREVOR: To me the following would constitute a satisfactory answer to my question: *Nowadays hydrologists apply the precautionary principle much more broadly than in the past, because we recognize that land use decisions made in forest ecosystems today are likely (as climate change plays out) to intersect with weather events more intense than anything we've experienced so far.* Remember that your prescriptions will still be felt a century from now – by which time, according to some leading climatologists, the Earth may have warmed by as much as 3 or even 4 C. This is almost inconceivable.

MIKE MILNE: But more broadly compared to what?

TREVOR: Compared to standard used in your field prior to 1988, when climate change became public knowledge.

MIKE MILNE: It's site specific. It comes down to risk. When there's fairly low consequence, is there a lot of time being spent being careful? No. In the Clearwater Valley, CANFOR is being more careful than I've ever seen them. The devil's in the details. We can talk all we want, but when the excavator begins to rattle down the road, that's when we're going to know. So yes, they're being more careful here, partly based on my advice. But follow-through is important. I hope to watch every one of those culverts go in. Things better be right. What's going to burn us will be a road-related problem, which is easiest to blame on the company.

RENE: It strikes me that this must be one of the most expensive set of cutblocks you've been involved in. Is it worth all the expense? Aren't there cheaper places to go?

AL ANDERSEN: No. There are other places we could operate that are cheaper, but this is necessary, it's part of the profile. This is an area we need to go to access timber. We don't have somewhere else we can go to replace this. It's worth it, as well, to do make sure we do it right. That's why we're putting time and money to hire MIKE MILNE and meet with you folks. But you're right, it's expensive.

TREVOR: So those are the questions we wanted to ask you, MIKE MILNE, though I have to say you still haven't given a satisfactory answer to the climate change question; maybe you can't, because how can you know what's come.

MIKE MILNE: Not satisfactorily maybe. There are a lot of unknowns. Caution. More caution than we've seen anywhere else.

TAY: Second Canyon Creek remains a real problem. It almost washed out the road a few years ago.

MIKE MILNE: That recent event was caused by a slide upstream. From a hydrological perspective, this area doesn't worry me.

TREVOR: At our next meeting, I'd like to see us discuss the possibility that logging could perhaps take place on the bench above the canyon in a way that has neither hydrological impacts nor impacts on the Geopark proposal, which we've heard about at an earlier meeting. [**ACTION: TO DO**].

STEFAN BORGE: We'd planned to start logging in the south this summer, but that's not going to happen because we haven't got our permit for these blocks.

TAY: So why isn't it happening.

STEFAN BORGE: Because we're going through this process.

[GENERAL DISCUSSION: HIGHLY INTERESTING BUT NOT PERTINENT TO CANFOR'S PROPOSAL. MIKE TAKES HIS LEAVE.]

TREVOR: Minutes taking: Will Leanne be available for the next meeting?

TREVOR: Future meetings. First, Cathie Hickson has agreed to talk to us at our next meeting and is available in the early afternoon of 6 April. I propose we make that our next meeting.

ROB SCHWEITZER: The question is how often should meeting?

TAY: How far along are we?

AL ANDERSEN: When we first started, I didn't expect the meetings to go on this long.

TREVOR: It comes down to this: The Referral Group has a responsibility to ensure CANFOR fully understands the concerns of local people. It's important for us to deal with all the layers of concern. Hydrology seems to be the concern CANFOR's given most attention to, but it's by no means the only concern. We need to meet with Cathie Hickson because there was no real engagement with her letter to Rick Sommer. A meeting will ensure that everybody has a chance to ask questions and get answers.

STEFAN BORGE: I'm hoping you'll take this map to the public and get a little bit of feedback, hopefully by the next meeting.

TREVOR: The feedback will be that this is atrocious.

AL ANDERSEN: We know people aren't going to like our plan. But we're looking for operational feedback. You mentioned that if there are opportunities for trails or if trails already exist, we need to know about it, that's easy for me to tackle. How much of this kind of thing is out there to talk about?

TREVOR: I'm prepared to talk until 4:00 AM if you want to.

STEFAN BORGE: What I'm getting at is that you're willing to talk, but the whole purpose of the Referral Group is that you're supposed to disseminate this information. Is that happening?

TREVOR: How can it happen? We discussed this at our last meeting, it's in the minutes. You and Al agreed that there's nothing really to show yet because you're still hearing the valley's concerns. So, you're bound to hear and understand our concerns and address them or not. It your map is unchanged at the end of this process, then that up to you. But until then it's up to us to share the valley's concerns, and that's what we're doing. At the end of that process, we'll take the conclusion to the valley and tell everybody that their concerns were communicated to CANFOR with whatever result we'll by then have in hand to show them.

STEFAN BORGE: From our understanding, that's not the intent of the Guiding Principles.

TREVOR: But the Referral Group was set up to act as gatherers and dispersers of information. That's precisely what we're doing; but the process isn't complete yet. Again, we're trying to fill you in on the concerns of valley residents. You're either respond to these concerns meaningfully and in the spirit of the Guiding Principles, or you will not. And this is entirely your call. But to take this map to the people without having finished communicating their concerns accomplishes nothing, it simply gets everybody mad to no effect. The Referral Group entered this process with CANFOR on the understanding there would be some give and take – remember I said I don't want this to be a tea party? But we haven't seen any give and take yet. We've seen only take. If that's where we are at the end of the process, then so be it. But let's at least get to the end of the process, having come this far.

ROB SCHWEITZER: But there have been some adjustments.

TREVOR: Actually no. This is the only map we've seen since DAVE DOBI's map back in January 2012. We're giving you our concerns based on this map, and so far there have been no adjustments based on those concerns.

STEFAN BORGE: Actually, this is the second map you've seen, and we have incorporated some concerns. We've said that after our hydrological review we're not going to go after two cut blocks, not right now. They're too high risk. So those are some accommodations we've made. But from our perspective it would be beneficial to take something to the public.

TREVOR: Actually, we've already done this – twice in fact. And it accomplished nothing, except to waste a lot of our time organizing the meetings and then people saying "No, this isn't good enough: we want to see the Guiding Principles respected." People want to see some evidence that their concerns are being taken seriously. You point to these two cutblocks you've deferred, but as we know from our last meeting this had more to do with "RENE's world" and a potential law suit. That's doesn't look much like accommodation, in fact it looks quite the opposite: that you move on the basis that RENE: can hire a lawyer isn't the same as saying that you're listening to our concerns. The map as it stands simply won't fly. At the very least we need to be able to say that we did our job in communicating the valley's concerns. This should have happened years ago, but the process as you know went off the rails for a long time. That wasn't our fault. Just understand that there are two sides to this; and our side goes back much farther than CANFOR's side. One last time: Our job is to communicate the valley's concerns, and yours is to hear them and either accommodate them or else to disregard them, as you see fit. All this aside, this is a terrible time of year to meet with valley residents, as nearly half of them are away and won't be until say May.

ROB SCHWEITZER: I'm glad you brought that up. So, is that what we want to do, to start working toward that date?

TREVOR: Working toward a meeting date sometime in May is perfect, because everybody should be back by then.

ROB SCHWEITZER: So, between now and then, the Referral Group could come up with a plan of what information needs to be shared, so you'd be ready to take it to the public in May.

TREVOR: Yes. We've already got a list of questions that the Ministry and CANFOR need to answer, and beyond that we can certainly finish sharing our final concerns, perhaps even with just one more meeting. Tonight was about hydrology.

AL ANDERSEN: Tonight was good. I got a lot out of the conversation?

RENE: Do you see the meeting being attended by the three of you [i.e., Stefan, Al and Rob] or is it just the Referral Group presenting to valley residents?

TREVOR: We haven't got there. In principle I have no opposition to you being at the meeting, but we haven't discussed this yet. Having put considerable effort into these discussions, and having transcribed reams of pages of minutes, I'm quite comfortable that we can handle the meeting on our own.

AL ANDERSEN: We'd be willing to attend a meeting.

TAY: This meeting will be different from the two earlier ones. We've got a lot more detail now. I'm trying to wrap my head around what a meeting would look like with just the Referral Group present.

STEFAN BORGE: What would our intent be in attending the meeting? Let's just say hypothetically that this is the plan we want to go with. Is there any point in having further meetings with the Referral Group, or should we just have the public meeting?

TREVOR: Well, CANFOR agreed to take part in this process; and after so much effort and time spent, for my part would take umbrage if you suddenly decided to walk away from it.

STEFAN BORGE: I don't want to walk away from the process.

ROB SCHWEITZER: It's the same question I had. I know we're not making any decisions, we're just suggesting some scenarios.

RENE: What if there's an angry reaction to CANFOR's plans?

TAY: That's my concern. What we're likely to get is a visceral reaction to the map. The only way this could possibly work is to have a map of the original proposal and to compare it to the final version of the latest map and to explain why things did or didn't change.

[**ACTION: LET'S HAVE A COPY OF BOTH MAPS AT OUR UPCOMING MEETING AND MAKE THIS PART OF OUR DISCUSSION**].

FRANK: We also need to ask whether the meeting shouldn't also include people in Clearwater who may want to be involved in any decision.

TREVOR: I'm glad we're having this conversation, but the problem is that the process we're engaged in is around the Guiding Principles; so to go beyond that is outside our present scope.

FRANK: Yes, but once we get to the point where the Action Committee is involved, then this needs to become a more general issue, right?

TREVOR: The Referral Group has a duty to call a meeting, but after that it will be fair for the Action Committee to take it from there if need be.

FRANK: At some point I think this discussion needs to go beyond Upper Clearwater.

TREVOR: This would need to be something that CANFOR agrees to. The Referral Group's terms of reference pertain only to the Guiding Principles.

ROB SCHWEITZER: Again, I think we should work toward a deadline. That would help us focus.

TREVOR: Agreed. So, let's meet at the Forestry Office starting in the early afternoon and continue on past supper into the night. With luck we might be able to get most or all of our business attended to.

AL ANDERSEN: If there's more we can do to help you get ready, I don't mind that.

TREVOR: Great. Let's plan to meet on 6 April starting at 1:00 PM at the Forestry Office in Clearwater.

AL ANDERSEN: Thinking ahead, could we have an open house?

TREVOR: I'd say there needs to be a meeting in Upper Clearwater as per the terms of the Guiding Principles. But there's no reason there couldn't be another meeting, or open house, in Clearwater at some later date.

AL ANDERSEN: A second question: If we attend a meeting in Upper Clearwater and local people become agitated, what would we get from that? I know that people will be angry. But what I don't want to miss are specific questions like, "Nobody came and talked to me about my water intake" or "I know there's a spot here that's feeding that creek" or "Could you fix that while you're up there. Things like that. If we want to build a small parking lot for tourists while we've got machinery there, that can be done. But if people are upset, we might not get that.

TAY: If we made this a meeting between Upper Clearwater residents and the Referral Group, we could do the ground work that would help prompt those kinds of question.

ROB SCHWEITZER: Here's what I've got: next meeting April 6, 1:00 PM, Clearwater Forest Office. Cathie Hickson will be on the agenda. A break for dinner. Then on into the evening.

TREVOR: Will CANFOR supply dinner?

Stefan and AL ANDERSEN: Definitely.

ROB SCHWEITZER: Let's plan for a second meeting on 10 May, with a view to having a public meeting later that month.

STEFAN BORGE: CANFOR has some harvest activities that will start on the west side of the valley. We've shared this through stakeholder referrals.

TREVOR: I haven't heard about this until now. If you plan to log north of Spahats, please don't do it.

STEFAN BORGE: There will be a couple of small openings that will be visible, but we'll manage for visuals.

TAY: Who do you consider your stakeholders?

STEFAN BORGE: I'll clarify that.

TREVOR: Please don't log north of Spahats. Let's engage Referral Group in that decision. You'll be tampering with the million-dollar viewscape. That area is critical to Clearwater's future as gateway to wilderness.

[**ACTION: TO DISCUSS AT NEXT MEETING**]

[**STEFAN BORGE** hands out computer visuals of proposed clearcuts as seen from different viewpoints].

MEETING ADJOURNED AT 10:14 PM.