Road Slump Near Fiddler Creek
Northeast of Terrace, BC

Complaint Investigation 950090

June 1999

FPB/IRC/17

Summary

The Board received a complaint in September 1996 about a slump of a newly constructed road cutslope into a small, unnamed stream (referred to in this report as "No-Name Creek") approximately 45 kilometres northeast of Terrace, BC in the Fiddler Creek area.

Nature of the Complaint

The complaint asserted that a licensee's road construction activities caused the slump and contravened the Code and that the Ministry of Forests had not enforced the Code appropriately. The investigation focused on three issues:

1. requirements to identify unstable terrain areas in operational planning;

2. requirements to protect the environment during road construction; and

3. the appropriateness of government inspection, investigation and enforcement of the Code and a road permit.

Investigation Findings

The forest development plan that proposed the road did not have to include terrain mapping. There were insufficient indicators on the ground to identify unstable terrain at the slump site during operational planning. However, the licensee received terrain mapping from government just before road construction began. The licensee could have used that terrain stability information to apply slope stabilization precautions, but did not do so.

The Board finds that the factors that contributed to the slump were the licensee's temporary road construction practices – which produced a deep, steep, unstable cutslope – combined with the licensee's decision to leave that unstable cutslope exposed for more than a month. When a heavy, but not unusual, rainfall saturated that unstable cutslope, the cutslope failed. In the circumstances, the licensee should have known that its road construction practices might lead to a cutslope slump and should not have delayed road construction without stabilizing the slope.

The complainant asserted that the licensee failed to stop construction when the slump happened, to take actions necessary to prevent further damage to the environment and to promptly notify the district manager. The licensee did cease work promptly when staff discovered the slump and did begin cleanup to prevent further damage. The district manager was aware of the slump.

The complainant asserted that, as a result of the slump, there was damage to the environment through sedimentation into habitat of the tailed frog. Damage was not confirmed, but the Code does not provide specific protection for the tailed frog or its habitat.

The complainant asserted inadequate government enforcement of the Code as indicated by failure to inspect road construction, inadequate investigation of the slump and an improper determination by the district manager regarding Code contraventions.

The Board finds that district staff recognized that the cutslope did not meet road permit standards but did not take follow-up action to further monitor the road construction near No-Name Creek to ensure that the cutslope was stabilized. The district investigation did not consider all relevant issues, so that the district manager's determination of no contravention and no penalty was flawed.

Conclusions

The Board reached the following conclusions regarding the issues investigated in this complaint:

Identification of unstable terrain areas in operational plans

The licensee did not have to include terrain mapping in the 1995-1999 Forest Development Plan. The district manager could have required the licensee to incorporate information compiled by the district in 1995 but did not do so because district staff did not make him aware of the information.

- The district manager should have been aware that terrain mapping for the No-Name Creek area was available in the district office. He should have required the licensee to complete a terrain stability assessment near No-Name Creek prior to road construction.

The district did not respond promptly to the licensee's request for the 1995 terrain mapping; six months passed from request to delivery.

As a result of poor communication within the district, important terrain stability information in district files was not incorporated into road construction practices. The district is therefore partially responsible for the planning deficiencies that failed to prevent the slump.

Protection of environment during road construction

The licensee could not have recognized indicators of instability on the road segment adjacent to No-Name Creek. However, once the licensee received terrain mapping information from the district, the licensee ought to have known that road construction might result in a slump.

The licensee did not comply with section 45(3) of the Code. By carrying out poor road construction practices (i.e., delaying construction and leaving an over-steepened, over-height cutslope exposed for several weeks), the licensee caused the slump to occur once a heavy, but not unusual, rain event saturated the soil.

The cutslope slump was an estimated 50 to 75 cubic meters of soil, some of which reached an S6 stream that provides habitat for the tailed frog. The Board did not confirm impact on the

environment at No-Name Creek. However, a similar slump at another location could have significant environmental consequences.

Appropriateness of government inspection, investigation and enforcement

District inspection staff carried out a single inspection of the road crossing of No-Name Creek. That was the normal inspection frequency for that area and was adequate to detect the problem in the circumstances.

The construction did not meet road permit standards, so district staff should have ensured stabilization of the crossing of No-Name Creek. District staff failed to take such follow-up action.

The scope of the district investigation was flawed because it was too narrow. It did not consider the full range of possible non-compliance including those brought to the district's attention by the complainant.

- The scope of the district manager's determination was also flawed because it was too narrow.
- The district manager was not biased or in conflict of interest in making his determination.

The Board noted that there was a series of factors (Code transition provisions, communications problems, subtle on-site indicators) that led to a failure to recognize slope stability problems at No-Name Creek prior to road construction. The slump resulted because the licensee did not take precautions to stabilize the cutslope prior to suspending construction for more than a month. Standard procedures are recommended by the *Forest Engineering Guidebook*. Before shutdown, a site should be inspected to ensure it is stable. The drainage should be controlled to ensure that no subsequent adverse impacts occur, and protective measures should be carried out in the localized work area.

The Board also concluded that the importance of effective communication between concerned members of the public and senior staff at the district must be emphasized. Better communication between the complainant and the district manager in this case may have addressed a number of the complainant's concerns without involving the Board.

Recommendations

1. The Board recommends, as a general principle, that licensees incorporate the most current terrain mapping information regardless of when that information becomes known and regardless of whether plans and permits have previously been approved. Districts have the same responsibility if district staff or district managers become aware of terrain mapping information.

2. The Board recommends that district managers, when investigating possible contraventions of the Code, should consider any submissions from the public that are relevant to the circumstances.

3. In regard to this specific complaint, the Board recommends that Kalum district review its internal information-sharing protocol. The instability near No-Name Creek was known to some district staff, so the slump may have been prevented with more effective internal communication. Likewise, Kalum district did not provide the information to the licensee in a timely manner. Procedures to ensure provision of information to licensees also require review.

4. The Board recommends the Kalum district ensure that staff be directed to follow up all issues of concern noted during inspections.

5. The Board recommends that Kalum district revise its investigation procedures to ensure that enforcement effectively considers a full range of possible Code violations and that all facts are revealed. Assistance or guidance from regional personnel may be appropriate.

The Board requests that the Kalum District advise the Board by October 31, 1999 of the actions taken to implement these recommendations.

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The Investigation

On October 21, 1996 the Board received a complaint from an individual on behalf of the Lax'skiik (Eagle Clan of the Gitxsan people) in Hazelton, BC. According to the complaint, a slump of soil material flowed into an unnamed stream (referred to as "No-Name Creek") along the Fiddler Main Road in August or September of 1996. The slump consisted of 50 to 75 cubic meters (approximately five to seven dump-truck loads) of soil material that slid from a road cutslope onto a newly constructed road surface. It was never determined how much of the material reached No-Name Creek, but some sedimentation occurred.

The Fiddler Main Road was constructed by Skeena Cellulose Inc. (the licensee) on the west side of the Skeena River, approximately 45 kilometres northeast of Terrace, BC in July and August of 1996. The complaint asserted that the licensee's road layout, road construction and road maintenance activities at the location of the slump on the Fiddler Main Road contravened the Code.

The complainant also stated that the Ministry of Forests had failed to consider contraventions of the Code, failed to enforce appropriate administrative remedies and failed to carry out appropriate inspections during construction. The complainant requested that:

- the Ministry of Forests administer appropriate remedies;
- the road permit be suspended until detailed terrain assessments were completed and recommendations implemented;
- all terrain assessments be reviewed by a professional engineer to determine if road and bridge designs required changes; and
- the Ministry of Forests implement any recommendations from the Board.

The complainant also asked that the Lax'skiik be involved in any further determinations and in the administration of penalties regarding this matter.

The Board's investigation focused on three issues:

1. identification of unstable terrain areas in operational plans;
2. protection of the environment during road construction; and
3. government inspection, investigation and enforcement of the Code.

Two minor issues (concerning stability of a slash pile and application of the *Forest Road Regulation)* were resolved during the investigation.

Investigation Findings

1. Identification of Unstable Terrain Areas in Operational Plans

Terrain Stability Information in the Licensee's Forest Development Plan

The licensee proposed the construction of the Fiddler Main Road in a 1995-1999 Forest Development Plan. That plan was approved on October 30, 1995. This was during a transition period of Code implementation when forest development plans did not have to meet the content requirements of the Code, including terrain mapping requirements[1]. Thus, there was no general obligation to include terrain stability information in that plan.

> **Finding 1:**
>
> The forest development plan that included the proposal to construct the Fiddler Main Road was approved on October 30, 1995. At that date, the licensee was not required by the Code to collect terrain stability information, nor to include such information in the forest development plan.

Although inclusion of terrain stability information was not specifically required, the district manager had authority under section 25(2) of the *Operational Planning Regulation*[2] to require it if the district manager considered that information to be necessary. No such requirement was imposed, but the Board considered whether it should have been.

Some old terrain information indicated that there were some terrain stability concerns in the area. Regional Ministry of Forests staff had conducted reconnaissance level terrain mapping over No-Name Creek near the current location of the Fiddler Main Road in 1981. That mapping showed an area adjacent to No-Name Creek as "potentially unstable." However, that information had been submitted to the district. The licensee's staff were not aware of its existence. District staff were also not aware of it.

The district had much more recent and detailed information on hand. The district Small Business Forest Enterprise Program (SBFEP) had completed terrain mapping in 1995 for the Small Business chart area. Those maps included portions of the adjacent Skeena Cellulose forest license chart area. The terrain maps, based on aerial photograph interpretation supplemented by field review, designate areas with similar potential for instability as map polygons. There are five

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[1] After December 15, 1995 (and until June 15, 1997), more stringent content requirements ("substantial compliance") applied. Terrain stability information would have been required under that regime.

[2] Note that the 1995 *Operational Planning Regulation* applied in the circumstances of this complaint. There were significant changes made in the replacement *Operational Planning Regulation* which came into force in June 1998.

terrain stability classes: stable, mainly stable, moderately stable, marginally stable and unstable. The map showed a polygon of 'unstable" terrain approximately 20 meters south of the point where the Fiddler Main Road crossed No-Name Creek. Such a rating does not mean that the area will show physical indicators of unstable terrain throughout the polygon. Instead, the entire polygon receives a single overall stability rating. The map legend described the polygon as "showing evidence of recurrent, natural mass movements or significant small-scale instability." Nevertheless, the information indicated for that polygon was not incorporated into the licensee's 1995 Forest Development Plan, even though the information was available in the district offices.

The Board determined that the licensee was not aware of the unstable terrain near No-Name Creek when it submitted the 1995 Forest Development Plan. District staff did not inform the licensee that the mapping was available until early 1996, well after the plan was approved. While the Code does not require such sharing of information, the Board considers information exchange to be essential for adequate management and conservation of forest resources.

Finding 2:

The district had 1995 terrain mapping that indicated unstable terrain near No-Name Creek. District staff did not inform the licensee that the information was available. As a result, the licensee's 1995 Forest Development Plan did not incorporate the terrain stability information.

Terrain Stability Information Prior to Road Construction

The terrain mapping information near No-Name Creek did not have to be included in a forest development plan in the circumstances. Nevertheless, the licensee could have assessed stability in connection with road layout or construction. Construction of the Fiddler Main Road did not begin until July of 1996. By then, Code terrain stability provisions applied to the road.

The *Forest Road Regulation* sets a series of conditions to determine whether a detailed terrain stability assessment is required. Section 3(5) requires an assessment before a road is constructed if the area:

(a) has been identified in a forest development plan as having
  (i) a moderate or high likelihood of landslides, based on detailed terrain stability maps,
  (ii) unstable or potentially unstable terrain, based on reconnaissance-level terrain maps if no detailed terrain stability mapping has been done, or
  (iii) slope gradients greater that 60%, if no detailed terrain stability mapping or reconnaissance-level mapping has been carried out;

(b) has indicators of slope instability, or

(c) has been identified by the district manager as requiring a detailed terrain stability assessment.

The forest development plan did not identify any of the criteria in clause (a).

Under clause (b), assessment is required if the area has "indicators of instability." Indicators of instability are defined in the *Mapping and Assessing Terrain Stability Guidebook*. These indicators are physical signs that would indicate that there is a potential for slope instability at a particular location.

Finding 3:

The licensee was required to complete a terrain assessment near the point where the Fiddler Main Road crossed No-Name Creek if indicators of instability were detectable on site prior to road construction.

The Board therefore considered whether indicators of instability were present and, if so, if they were detectable in the circumstances. Although preliminary road construction began on July 8, 1996, it did not reach No-Name Creek until August 1. The cutslope down to the creek was excavated on August 20th and 21st, but was then left until September 14th when construction at the crossing resumed.

During preliminary road construction at the end of July, the licensee's staff found no indicators of instability precisely at the slump site. However, there were concerns noted on nearby areas as road construction hazards in a map submitted with the application for the road permit. Road construction was to involve full bench construction and end hauling prescriptions[3] to address stability concerns. The licensee did recognize indicators of instability near the slump site, but not precisely at the site.

Ministry staff examined the site prior to road construction in January and February 1996 but did not identify indicators of instability at or near No-Name Creek. (However, that review occurred in the winter when snow on the ground would have impeded observation.) Four terrain experts conducted assessments of the site after the slump and all agreed that there were indicators of instability such as fine textured clays underlying sands and some upslope failures and other minor erosions within 150 metres. However, there was disagreement about whether the indicators were sufficiently obvious to a non-expert, such as a road layout crew.

In summary, the regulation requires a detailed terrain stability assessment if an area has indicators of instability. The Board interprets that to mean "reasonably detectable indicators." In this case, the Board finds that there were no reasonably detectable indicators to warn of a potential problem on the ground or of the need to make the detailed assessments required by the *Forest Road Regulation* prior to construction.

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[3] Both are road engineering practices appropriate to steep slopes. "Full bench construction" is utilized on steep or unstable slopes by cutting the entire road width into the slope (rather than using fill for the outslope half of the road). 'Endhauling' is the transport of material cut from the cutslopes to stable locations to avoid dumping the material on a steep downhill side of the road where the material could cause stability problems.

Finding 4:

There were no reasonably detectable indicators of instability at the slump site to have recognized a slope stability problem at the crossing.

Areas Identified by District Manager

Section 3(5)(a) of the *Forest Road Regulation* [4] required a detailed terrain stability assessment to be carried out in a third circumstance[5], if required by the district manager. In the circumstances, the district manager identified no areas, so there was no legal requirement on the licensee under this criterion either. However, the Board considered whether the district manager should have required a terrain stability assessment at No-Name Creek in the circumstances.

The licensee applied to the district for the approval of the Fiddler Main Road permit in February 1996. District staff could have become aware of terrain stability concerns near No-Name Creek during their review of the road permit by consulting the 1995 terrain mapping on file in the district office. The district manager should have been aware that district maps indicated unstable terrain at the slump site near No-Name Creek. The terrain map legend recommended on-site geotechnical advice before constructing a road through such a map polygon. Knowing that, the district manager could have required the licensee to complete a detailed terrain stability assessment. Such an assessment would likely have detected a problem and led to road construction practices that would have prevented the slump. However, although the district staff who processed the road permit knew about the 1995 terrain mapping, the information was not conveyed to the district manager.

The district manager has the responsibility under the Code to identify areas requiring detailed terrain stability assessments, and he must rely on staff advice. Staff must ensure that all relevant information is reviewed when processing plans or permits. In the circumstances leading to the road permit approval, the district manager was not advised of the 1995 terrain stability mapping by his Small Business Program staff who actually had the maps.

[4] Note that the 1995 *Forest Road Regulation* applied in the circumstances of this complaint. There were significant changes made in the replacement *Forest Road Regulation* which came into force in June 1998.

[5] The previous discussion has indicated that the first two criteria (i.e., identified in a forest development plan, showing indicators of slope instability) were not present.

Finding 5:

The district had recent maps that indicated unstable terrain near No-Name Creek. That information, if known to the district manager, may have resulted in the district manager requiring the licensee to carry out a detailed terrain stability assessment. Unfortunately, in this instance, communication among district staff was poor. District staff did not review relevant terrain maps. The district manager was not informed of the availability of this terrain information, nor did he seek the information independently, and so did not require the licensee to carry out detailed assessments.

Road Construction in Areas with Likelihood of Landslides

Even if detailed terrain stability assessments were not required in operational planning, there was a requirement to maintain slope stability during road design or construction in some circumstances. Section 7(1)(g) of the *Forest Road Regulation* required that design specifications contain measures to maintain slope stability where a road crossed an area with a moderate or high likelihood of landslides. Section 11(1)(g) required that a person who constructed a road had to carry out a specific construction practices when constructing the subgrade on an area recognized as having a moderate or high likelihood of landslides. Although the licensee did carry out precautionary practices (full bench construction and endhauling) on construction of the road bed, practices to maintain slope stability were not applied to the cutslope adjacent to No-Name Creek. However, the area was not designated as having a moderate or high likelihood of landslides, so in the circumstances of this complaint, detailed terrain stability assessments were not required.

Finding 6:

As neither the Act nor the district manager required completion of a terrain stability assessment, slope stability precautions in the *Forest Road Regulation* applicable to areas with a potential for landslides did not apply.

2. Protection of the Environment During Road Construction

To this point, the Board has noted that the district had terrain map information in early 1996 that could have led to anticipating the slump. In the circumstances, neither the licensee nor the district manager were made aware of that in time to ensure that detailed terrain stability assessments were carried out. The slump occurred.

The next issue is whether road construction or other practices failed to comply with general environmental protection provisions of the Code. There are two aspects to environmental protection under the Code. First, the Code imposes some obligations on a licensee to prevent damage and to stop work and report if damage occurs. Second, the Code prohibits some actions that cause damage to the environment.

Prevention of Damage

Section 45(3)(a) of the Code states:

> "A person must not carry out a forest practice if he or she knows or should reasonably know that, due to weather conditions or site factors, the carrying out of the forest practice may result, directly or indirectly, in (a) slumping or sliding of land."

The test in this case is whether the licensee knew or should have known that the road construction might cause a slump.

The Board investigated whether the licensee's construction practices or the weather contributed to the slump. Then, the Board considered that information with other information available to the licensee to determine whether the licensee should reasonably have known that road construction might result in the slump.

The Board considered whether construction practices may have contributed to the slump. The Board investigator and two professional geoscientists examined the slump site in November 1997 and identified two factors which contributed to the slump.

1. The road was cut deeper than the final grade approved in the road permit in order to access a temporary bridge. Such a deep road cut increased the height of the exposed cutslope face and reduced the stability of the slope.

2. The cutslope was also steeper during construction than its final slope angle. Increased steepness also reduced stability.

The licensee maintained that the cutslope angle and deep road cut were normal road construction standards. However, normal practices may not have been appropriate here, given the mapped indications of unstable terrain. The Board finds that the risk of a slump was exacerbated by a road cut that was temporarily deeper and steeper than allowed in the road permit.

Finding 7:

The road cutslope was deeper and steeper during construction than the final grade. Both undermined the stability of the cutslope and contributed to the slump.

A related aspect of construction practices was a construction delay. The road past No-Name Creek was pioneered in early August, but the licensee removed construction equipment on August 21, 1996, and left the newly-established cutslope for three weeks. The licensee provided a number of reasons for the removal of equipment, including delayed delivery of bridge materials, need for equipment at other projects and wet weather creating an environmental risk if construction had continued. In any event, the licensee did not take any steps to temporarily stabilize the cutslope before leaving it. Construction did not resume until the licensee brought in a bridge building contractor on September 14, 1996 who then discovered the slump.

The licensee was solely responsible for the delay in road construction. Even if wet site conditions caused the licensee to remove equipment, the licensee should have stabilized the cutslope prior to leaving the site. That was not done. The four to six week delay in completing road construction left a deep, steep cutslope vulnerable to the elements. The delay extended the construction season into mid-September when significant rainfall could be anticipated.

Finding 8:

The licensee contributed to the slump by suspending completion of construction for four to six weeks and leaving the cutslope in an unstable condition.

The Board then considered the effect of weather. There was a heavy rain on September 2 and 3, 1996. A regional terrain expert assessed rainfall data from the Terrace weather station (the closest data source to the Fiddler Main Road). Rainfall during August and September 1996 was average, not unusual. The specific rain event of September 2nd to 3rd was also not unusual. The regional terrain expert's opinion was that stable slopes would not have been made unstable by the rainfall levels recorded in the late summer and early fall of 1996.

Finding 9:

A heavy, but not unusual, rainfall event occurred on approximately September 2 to 3, 1996 and triggered the slump. However, stable slopes would not have become unstable due to that rainfall.

Finally, the Board considered whether the licensee had information to forewarn of a slump risk. Earlier in this report, it was explained that terrain mapping had been completed for the SBFEP in 1995 and that the information extended into the forest licence at No-Name Creek. The 1995 terrain map indicated unstable terrain near No-Name Creek and the map legend advised that a detailed geotechnical evaluation should be completed before road construction.

Although the terrain mapping information could not be incorporated into the licensee's forest development plan in 1995, the licensee learned of the mapping in January 1996. The licensee requested a copy of the map at that time, but did not receive it until late June, very shortly before road construction near No-Name Creek began on July 8th.

The licensee stated that the maps, as received in late June, could not be used because of inconsistencies in map scale and unclear map labels. The licensee took until early August to rework the maps and then learned that the Fiddler Main route crossed terrain mapped as unstable. In contrast, Board staff, district staff and the complainant found the maps to be of high quality and easy to read; none had difficulty in discerning that the Fiddler Main crossed an unstable terrain map polygon.

Finding 10:

The licensee knew generally of the existence of the terrain mapping near No-Name Creek in early January of 1996 and received that mapping in June, just before road construction toward No-Name Creek began. The licensee did not apply that terrain stability information to implement slope stabilization precautions at the crossing of No-Name Creek in early August.

The Board concludes that the factors that contributed to the slump were the licensee's temporary road construction practices (which produced a deep, steep unstable cutslope), combined with the licensee's decision to leave that unstable cutslope exposed for more than a month. When a heavy rainfall saturated that unstable cutslope, the cutslope failed.

The Board also concludes that the licensee should have known that its road construction practices might lead to a cutslope slump. The licensee should reasonably have known that the road site conditions might result in a slump. In addition, the licensee knew of a terrain hazard near No-Name Creek but did not seek a professional assessment of that hazard. The licensee should not have carried out road construction across No-Name Creek, and more importantly, should not have suspended construction without applying soil stabilization precautions.

Finding 11:

At the time of road construction the licensee ought to have known that construction practices in the vicinity of unstable terrain might result in a cutslope slump. By creating an oversteepened cutslope and then leaving it in an unstable condition for several weeks, the licensee did not comply with section 45(3) of the Act. The licensee's road construction practices caused the slump.

Damage to the Environment

Damage from the Slump

The complainant asserted that the slump had caused environmental damage, contrary to the Code, by causing sedimentation of No-Name Creek and damaging habitat of the tailed frog.

The tailed frog is considered by the Ministry of Environment, Land and Parks to be a sensitive or vulnerable species. The introduction of sediment could adversely affect it. However, the 1996 Code did not provide specific protection for the tailed frog, its habitat or any other species of wildlife[6]. There was no government policy concerning the tailed frog, or amphibians in general, at that time. Consequently, the Board had no basis to focus on the tailed frog specifically. Instead, the Board could only consider the possible effect of introduced sediment on the environment.

Section 45(1) of the Code states that "a person must not carry out a forest practice that results in damage to the environment." The slump had deposited sediment into No-Name Creek. However, there was no agreement about whether there was actual damage. The Board did not determine whether the slump and associated sedimentation had actually caused damage to the environment.

Finding 12:

Although the slump may have damaged the habitat of the tailed frog, there was no specific protection afforded to such species in the Code. The Board did not confirm actual damage to the environment or to forest resources as a result of sedimentation from the slump.

Damage Unrelated to the Slump

The complainant asserted that slash and debris had been deposited into No-Name Creek and that the road crossing was not located to minimize channel and streambank disturbances.

Slash in No-Name Creek

On September 11, 1996, a week after the slump, the complainant noted slash in No-Name Creek to such an extent that needles and branches obscured the streambed. The complainant asserted that such deposition was in violation of the Code.

District staff visited the site on September 16, 1996, and confirmed that there was slash in No-Name Creek, but also noted that the water was running clear. The Board examined photos taken on September 11th by the complainant and on September 16th by the district. There were obvious branches and needles in the creek, but no large diameter debris. Nevertheless, the deposition of any debris was prohibited by the *Forest Road Regulation* [7] at the time.

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[6] There is provision in the *Operational Planning Regulation* for protection of "identified wildlife" and their habitats. No such species had been designated at the time this complaint arose. However, the tailed frog was one of 36 species and subspecies of wildlife that were announced to be designated as identified wildlife in the spring of 1999.

[7] Note that the 1995 *Forest Road Regulation* applied in the circumstances of this complaint; no slash was allowed to be deposited into a stream. There were significant changes made in the replacement *Forest Road Regulation* which came into force in June 1998, including a change to the law concerning slash deposition in a stream; the new regulation includes consideration of the consequences of the debris deposit.

The licensee stated that large debris had been cleaned out of No-Name Creek by machine during subgrade construction in early August. Hand clearing had not yet been done because there was still no road access for a creek cleaning crew. Furthermore, the licensee prioritized stream clearing and No-Name Creek as a class S6 stream had a lower priority for cleaning. The company considered the late summer and early fall season to be a period during which stream cleaning could safely be deferred, provided that material was removed before winter rains began in November. The Board accepts the reasoning behind the delay in hand clearing.

Finding 13:

Slash was deposited by the licensee into No-Name Creek. Such deposition was prohibited by section 10(6)(a) of the *Forest Road Regulation*. However, there was no risk of environmental damage as a result. In the circumstances, it was reasonable to delay hand clearing.

Damage Due to Stream Crossings

Section 3(1) of the *Forest Road Regulation* requires a person to select and locate stream crossings so that channel and bank disturbances can be minimized during road layout. The licensee's bridge construction plans for No-Name Creek were signed and sealed by a professional engineer. The licensee obtained professional advice for the bridge crossing and considered the need for geotechnical consultation to maintain stream bank stability. The Board finds that that the road was properly located to minimize stream bank or channel disturbance.

Finding 14:

The licensee located the Fiddler Main Road crossing of No-Name Creek so as to minimize stream bank damage and maintain stream channel stability.

Notification of the District Manager

The complainant asserted that the licensee violated section 45(4) of the Act by not stopping road construction that contravened section 45(3) and by failing to notify the district manager that the slump had occurred. Section 45(4) required the licensee to stop construction when the slump happened, to take actions necessary to prevent further damage to the environment and to promptly notify the district manager.

The licensee discovered the slump when a bridge construction crew went to the site on Saturday, September 14th. Clean-up began on Sunday, September 15th. However, by that time district staff had already been notified by the complainant who had discovered the slump on September 13th. District staff were on site by Monday, September 16th. A formal district investigation of the slump events occurred on September 18th, and district staff issued immediate directions for corrective action - to clean the debris out of the creek and to clear drainage structures. They also

required that the bridge approaches, once constructed, were to be armoured and the exposed slopes seeded. This chronology indicates that the licensee did cease work promptly when staff discovered the slump and did begin cleanup to prevent further damage. The licensee did not inform the district manager as required by section 45(4), but the district manager was already aware of the slump.

Finding 15:

The licensee did not notify the district manager as required by the Code but took the required steps once the slump had occurred to stop work and prevent further environmental damage. The district manager was already aware of the slump and district staff were on site on the next working day, so formal notification was unnecessary.

3. Government Inspection, Investigation and Enforcement of the Code

The complainant asserted inadequate government enforcement of the Code as indicated by failure to inspect road construction, inadequate investigation of the slump and an improper determination by the district manager regarding Code contraventions associated with the slump.

Inspections of the Road Before the Slump

The complainant asserted that the district failed to carry out appropriate inspections of the road during construction. In this complaint, the Board considered "appropriate" to be an inspection regime that is responsive to the risks of slope instability and environmental damage. Such a regime should provide that inspections occur sufficiently often to detect potential problems due to road construction. There should be more frequent inspections where construction occurs in unstable terrain.

In the circumstances of this complaint, road construction began on July 8, 1996, and reached the area adjacent to No-Name Creek on August 1, 1996. The district was aware, or should have been aware, that mapping indicated unstable terrain along the Fiddler Main Road. The first review of the Fiddler Main Road occurred on July 15th, but the first actual road inspection near No-Name Creek did not occur until July 25th, just before the road reached No-Name Creek. There was a second[8] inspection on August 20, 1996 with a regional audit team. That was the first inspection of the cutslope that subsequently slumped. District staff noticed then that the cutslope was taller and steeper than specified on the road permit. However, because the objective of that audit visit was compliance monitoring and road construction was clearly still in progress, neither the district

[8] There were actually four visits to the road by district staff: a review of the road on July 15th, a road inspection on July 25th, another road review on August 15 and an inspection of the cutslope near No-Name Creek on August 20th. Only the August 20th visit involved an inspection of the cutslope at No-Name Creek.

staff nor the audit team commented. They did not recognize that the cutslope had a potential to slump.

Finding 16:

District inspection staff inspected the Fiddler Main Road crossing of No-Name Creek just before construction was suspended for several weeks. They noticed that the cutslope had a steeper slope and taller face than what was specified on the road permit. However, they chose not to comment upon the state of the cutslope because road construction was not complete and they did not recognize an immediate problem.

The fact that the cutslope did not meet the road permit specifications ought to have triggered follow-up actions, even if the slump hazard was not recognized. District staff did not follow up with further actions. The slump occurred ten days later.

The district did only a single inspection between August 1, 1996 (when the road was constructed past No-Name Creek) and September 13th (when the slump was reported). District staff did not take the known terrain hazard near No-Name Creek into account in taking follow-up actions.

Finding 17:

District staff did not carry out appropriate periodic inspections of the road during construction. They were aware that the road construction did not meet the road permit specifications. Inspection staff should also have been aware of the terrain hazard at this location through terrain mapping available at the district. In addition, district staff did not take follow-up action to further monitor the road construction near No-Name Creek to ensure that the cutslope was stabilized.

Investigation and Enforcement After the Slump

The complainant asserted that the district failed to investigate all indicated or probable contraventions arising from the slump.

The slump was reported to the district on Friday, September 13, 1996 by the complainant and discussed on site with district staff on September 16th. District compliance and enforcement staff investigated the slump site on September 18th and submitted an investigation report on September 19th. On October 15, 1996, the district manager sent the licensee a notice of an opportunity to be heard at a hearing into possible contraventions associated with the slump.

The complaint to the Board asserted more Code violations than were considered in the district investigation. The complainant discussed possible contraventions on site and also sent a copy of the complaint to the district manager on October 21st. Those actions alerted district staff to

additional possible contraventions. District investigators could have requested an adjournment of the hearing so that they could examine the additional information provided by the complainant, such as whether the licensee had continued to work despite weather or site conditions. However, the compliance and enforcement investigators chose not to do so, narrowing the scope of the investigation. The licensee had an opportunity to be heard on October 24, 1996.

Several possible findings of non-compliance with the Code as identified by the complainant were not considered at the hearing. Most significantly, non-compliance with section 45(3)(a) which prohibits carrying out forest practices that might result in a slump (which the Board finds was not complied with) was neither identified, investigated nor considered. No determination on that possible contravention was made by the district manager.

Finding 18:

The district investigation compliance team did not consider important issues, including a number specifically raised by the complainant.

The district manager made his determination about contraventions and penalties based on evidence provided by the district investigation. The narrow focus of that investigation restricted the scope of the district manager's determination so that it focused only on alleged contraventions of the *Forest Road Regulation*, not section 45 of the Code.

The district manager ultimately decided that the licensee had not contravened the *Forest Road Regulation* because the slump was small, there was little environmental impact on fish or tailed frog habitat, the soils were saturated by a "wetter than normal" summer and because the licensee had demonstrated due diligence with their road hazard ratings and by prescribing appropriate construction techniques. Further, the licensee had voluntarily completed prompt cleanup of the slump and complied with all remedial instructions. There were no penalties imposed.

Finding 19:

The district manager's determination did not consider several important compliance issues specifically brought to his attention by the complainant.

Apprehension of Bias in District Manager's Determination

The complainant noted that possible contraventions were not investigated. The complainant believed that the licensee's construction practices had contributed to the slump. The complainant was thus surprised that the district found no contraventions at all and imposed no penalties. The complainant concluded that the determination result showed that the district manager was biased in favour of the licensee.

Bias is normally not allowed; a decision maker must not only be neutral but must also avoid making decisions where there is a perception of bias. However, there is an exception: a decision maker can act despite a possible perception of bias if a statute explicitly allows it. Such an allowance exists in section 117 of the Code. The district manager oversees the various forest tenure holders, including the licensee. He also can decide if there have been contraventions and impose penalties. The Code thus authorizes the district manager to act as both an enforcement official and an administrator, an overlap of functions. Some perception of bias is allowed, although actual bias is not.

The Board investigation considered the allegation of bias in three possible areas:

1. Bias due to a business relationship (a cost sharing agreement) between the licensee and the district for the construction of the Fiddler Main Road.

2. Bias due to an adversarial relationship between the district and the complainant.

3. Bias due to the possibility that district staff may be indirectly responsible for Code contraventions by permitting forbidden actions.

There was a cost sharing business agreement between the licensee and the district where both contributed directly to road construction costs[9]. However, there was no indication of any direct or personal interest of the district manager in that arrangement. While the district as a whole might benefit from cost-sharing with the licensee, this relationship is too remote to create a direct interest on behalf of the district manager.

There has been a history of adversarial relations and philosophical differences between the district and the Lax'skiik First Nation. However, such relationships between government agencies and individual organizations are not uncommon. The determination process did not consider the complainant's assertions, but there was no evidence that the scope of the compliance and enforcement actions were narrowed due to any bias against the complainant.

The possibility that district staff might have some responsibility in a chain of events leading to a possible contravention of the Code is also a remote basis for alleging bias against the district manager. There was no evidence that the district manager altered the compliance and enforcement investigation to avoid evidence of staff complicity in possible Code contraventions.

Finding 20:

There was no evidence of a conflict of interest or bias on the part of the district manager in making determinations regarding the licensee's compliance with the Code.

[9] The cost sharing involvement by district was more than just off-set against the licensee's stumpage, because the road was in part constructed for the Ministry for the Small Business Forest Enterprise Program.

Conclusions

The Board reached the following conclusions regarding the issues investigated in this complaint:

1. Identification of unstable terrain areas in operational plans

- The licensee did not have to include terrain mapping in the 1995-1999 Forest Development Plan. The district manager could have required the licensee to incorporate information compiled by the district in 1995 but did not do so because district staff did not make him aware of the information.
- The district manager should have been aware that terrain mapping for the No-Name Creek area was available in the district office. He should have required the licensee to complete a terrain stability assessment near No-Name Creek prior to road construction.
- The district did not respond promptly to the licensee's request for the 1995 terrain mapping; six months passed from request to delivery.
- As a result of poor communication within the district, important terrain stability information in district files was not incorporated into road construction practices. The district is therefore partially responsible for the planning deficiencies which failed to prevent the slump.

2. Protection of environment during road construction

- The licensee could not have recognized indicators of instability on the road segment adjacent to No-Name Creek. However, once the licensee received terrain mapping information from the district, the licensee ought to have known that road construction might result in a slump.
- The licensee did not comply with section 45(3) of the Code. By carrying out poor road construction practices (i.e., delaying construction and leaving an over-steepened, over-height cutslope exposed for several weeks), the licensee caused the slump to occur once a heavy, but not unusual, rain event saturated the soil.
- The cutslope slump was an estimated 50 to 75 cubic meters of soil, some of which reached an S6 stream that provides habitat for the tailed frog. The Board did not confirm impact on the environment at No-Name Creek. However, a similar situation at another location could have led to a slump that had significant environmental consequences.

3. Appropriateness of government inspection, investigation and enforcement

- District inspection staff carried out a single inspection of the road crossing of No-Name Creek. That was the normal inspection frequency for that area and was adequate to detect the problem in the circumstances.
- The construction did not meet road permit standards, so district staff should have ensured stabilization of the crossing of No-Name Creek. District staff failed to take such follow-up action.

- The scope of the district investigation was flawed because it was too narrow. It did not consider the full range of possible non-compliance including those brought to the district's attention by the complainant.

- The scope of the district manager's determination was also flawed because it was too narrow.

- The district manager was not biased or in conflict of interest in making his determination.

The Board noted that there was a series of factors (Code transition provisions, communications problems, subtle on-site indicators) that led to a failure to recognize slope stability problems at No-Name Creek prior to road construction. The slump resulted because the licensee did not take precautions to stabilize the cutslope prior to suspending construction for more than a month. Standard procedures are recommended by the *Forest Engineering Guidebook*. Before shutdown, a site should be inspected to ensure it is stable. The drainage should be controlled to ensure that no subsequent adverse impacts occur and protective measures should be carried out in the localized work area.

The Board also concluded that the importance of effective communication between concerned members of the public and senior staff at the district must be emphasized. Better communication between the complainant and the district manager in this case may have addressed a number of the complainant's concerns without involving the Board.

Recommendations

1. The Board recommends, as a general principle, that licensees incorporate the most current terrain mapping information regardless of when that information becomes known and regardless of whether plans and permits have previously been approved. Districts have the same responsibility if district staff or district managers become aware of terrain mapping information.

2. The Board recommends that district managers, when investigating possible contraventions of the Code, should consider any submissions from the public that are relevant to the circumstances.

3. In regard to this specific complaint, the Board recommends that Kalum District review its internal information-sharing protocol. The instability near No-Name Creek was known to some district staff, so the slump may have been prevented with more effective internal communication. Likewise, Kalum District did not provide the information to the licensee in a timely manner. Procedures to ensure provision of information to licensees also require review.

4. The Board recommends the Kalum District ensure that staff be directed to follow up all issues of concern noted during inspections.

5. The Board recommends that Kalum District revise its investigation procedures to ensure that enforcement effectively considers a full range of possible Code violations and that all facts are revealed. Assistance or guidance from regional personnel may be appropriate.

The Board requests that the Kalum District advise the Board by October 31, 1999 of the actions taken to implement these recommendations.

Appendix

Chronology of Events, Fiddler Creek Road

Date	Event
July 10, 1992	Road Permit R06041 Issued (stations 0+000 to 4+100)
October 3, 1994	R0691 Amendment # 1 Issued (stations 4+100 to 13+345)
Fall 1994	Road layout for stations 12+634 to 20+240
December 9, 1994	1994 FL A16835 FDP approved
February 14, 1995	Overview terrain mapping submitted to the district by a geotechnical consultant covering SBFEP chart area and a portion of the licensee's forest license
October 30, 1995	Licensee's 1995 FDP A16835 approved
January and February, 1996	District and licensee field review of Fiddler Main Road Permit Amendment # 2
February 19, 1996	Licensee applies for Road Permit Amendment # 2
late June, 1996	Licensee receives terrain mapping prepared by geotechnical consultant from the district
June 20, 1996	Road Permit Amendment # 2 approved
July 8, 1996	Licensee begins road construction starting from stn. 12+634
July 15, 1996	District staff review Fiddler Main road construction (not an inspection)
July 15, 1996	District staff and licensee meet to discuss road cost sharing agreement, construction budgets and bridge scheduling.
July 25, 1996	District inspection of Fiddler Main road construction. Road was not yet constructed to No-Name Creek.
Early August, 1996	Licensee cross-references Fiddler Main road development with district terrain mapping which also extended into the licensee's forest license.
August 15, 1996	District staff review Fiddler Main road construction (not an inspection)

Date	Event
August 20, 1996	Regional Audit Team and district inspection staff visit Fiddler Main including the first inspection of the cutslope adjacent to No-Name Creek.
August 21, 1996	Licensee completes subgrade construction to 14+853, operations cease
September 6, 1996	Complainant observes road cutslope slump at No-Name Creek
September 12, 1996	Complainant attempts to contact district staff to report the slump
September 13, 1996	Complainant reports the slump to district staff
September 14, 1996	Licensee's bridge contractor begins bridge construction and discovers slump. The slump is reported to Licensee staff in the evening
September 15, 1996	Licensee clean-up continues
September 16, 1996	Complainant and district staff visit slump. Discussions with licensee staff already on site.
September 17, 1996	District staff meet with licensee staff for an office meeting to discuss the Road Permit and slump
September 18, 1996	District staff conduct an investigation of the slump. A FS 242 is written and signed on-site by the licensee
September 19, 1996	District staff prepare an Investigation Report
September 19, 1996	Licensee provides a written summary of the slump
October 15, 1996	District informs licensee of "Opportunity to be Heard Hearing" (determination hearing)
October 21, 1996	Board receives Notice of Complaint from complainant
October 24, 1996	District manager chairs determination hearing
December 18, 1996	District manager makes determination in the matter of the slump