



Province of
British Columbia

Environmental Appeal Board

Fourth Floor 747 Fort Street
Victoria British Columbia
Telephone: (250) 387-3464
Facsimile: (250) 356-9923

Mailing Address:
PO Box 9425 Stn Prov Govt
Victoria BC V8W 9V1

APPEAL NO. 2003-WAT-002(a)

In the matter of an appeal under section 40 of the *Water Act*, R.S.B.C. 1996, c. 483.

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|---------------------------------|--|---------------------|
| BETWEEN: | B.C. Cattle Co. Ltd. | APPELLANT |
| AND: | Assistant Regional Water Manager, Land and Water British Columbia Inc. | RESPONDENT |
| AND: | Fish and Wildlife Branch, Ministry of Environment | THIRD PARTY |
| AND | Cutter Ranch Robert Willis C & A Mink Ranch Cleave Cattle Co. Inc. Linda Manning Mann Creek Ranch | PARTICIPANTS |
| BEFORE: | A Panel of the Environmental Appeal Board Lynne Huestis, Panel Chair | |
| DATE: | July 12, 2005 | |
| PLACE: | Kamloops, BC | |
| APPEARING: | For the Appellant: Warren Koster For the Respondent: Kevin Dickenson and Mike Edwards For the Third Party: Robert Bison For the Participants Cutter Ranch: Peter Boeda Robert Willis: Robert Willis | |
| WRITTEN SUBMISSIONS: | For the C & A Mink Ranch: a letter from Lawrence Joiner, received July 12, 2005 and read into the record at the hearing For the Cleave Cattle Co. Inc.: a letter from Jim Cleave, received July 7, 2005 and entered into the record at the hearing For the Mann Creek Ranch: a letter from Dave and Beatrice Gatacre, received July 11, 2005 and read into the record at the hearing For Linda Manning: a letter from Linda Manning, received July 11, 2005 and read | |

into the record at the hearing

APPEAL

The B.C. Cattle Co. Ltd. appeals the December 11, 2002 refusal of its water licence application that would have allowed it to divert and use water out of Big Bar Creek, Fiftynine Creek, and Fiftyseven Creek. The decision to refuse the licence was made by Kevin Dickenson, Assistant Regional Water Manager, Southern Service Region, Kamloops Service Centre, Land and Water Management Division, Land and Water British Columbia Inc. ("LWCB").¹

The authority for the Environmental Appeal Board to hear this appeal is found in section 93 of the *Environmental Management Act* and section 40 of the *Water Act*. Pursuant to section 40(6) of the *Water Act*, the Board may:

- (a) send the matter back to the comptroller, regional water manager or engineer, with directions,
- (b) confirm, reverse or vary the order being appealed, or
- (c) make any order that the person whose order is appealed could have made, and that the board considers appropriate in the circumstances.

The Appellant asks the Board to approve its water licence application, or send the matter back to the regional water manager with directions to reconsider the water licence application.

BACKGROUND

The Appellant submitted a water licence application on January 15, 1988, seeking approval to divert, during spring freshet (before June 30 each year), 1000 acre-feet of water from Big Bar Creek, Fiftynine Creek, and Fiftyseven Creek for irrigation and conservation purposes. These creeks are located near Clinton, British Columbia.

The application proposed a point of diversion at Fiftyseven Creek, with the water then transported by ditch in a general northwest direction, culverted through Mann Creek, to join Fiftynine Creek. Water from a second point of diversion at Fiftynine Creek would then be transported by ditch to join the Big Bar Creek upstream of Big Bar Lake. A third point of diversion would be created between Big Bar Lake and Little Big Bar Lake and the water transported by ditch along the south side of White Lake for storage in Long Lake, where an earth fill dam would be constructed 10 feet high and 50 feet long. Water stored in Long Lake would then be released into Indian Meadows Creek, a tributary of Canoe Creek, and then re-diverted from Canoe Creek onto the appurtenant lands of the Appellant for irrigation purposes.

¹ Effective June 16, 2005, Land and Water British Columbia Inc. became part of the Ministry of Environment.

A site inspection was made of the proposed ditch route from Big Bar Creek to White Lake on November 29, 1989. Mike Edwards, an engineer with the Water Management Branch of the then Ministry of Environment and Parks, prepared a technical report on the Appellant's application, as amended, entitled "Engineer's Report on a Water Licence Application" and dated February 16, 1990 (the "1990 Engineer's Report"). Mr. Edwards' summarizes his findings as follows:

- a) There are approximately 254 acre-feet of water available for storage from Fiftyseven Creek.
- b) There is no water available for storage on Fiftynine Creek.
- c) There is no water available for storage on Big Bar Creek.
- d) The valley through which the proposed ditch would be constructed is heavily glaciated. The area lies within the IdFb biogeoclimatic zone and has a northeasterly aspect. It is expected that the soils in this area will be medium to good draining soils, particularly along the sidehills where the proposed ditch route is located. This is further indicated by the presence of lodgepole pine.

The bulk of the freshet flow for Fiftyseven Creek occurs between May 15 and July 15 as shown in Figure 2. In order to divert 254 ac. ft. from May 15 to June 30 a flow of approximately 3 cfs [cubic feet per second] would be required. From the chart of ditch seepage losses vs. discharge shown in Figure 8, it can be seen that for a medium soil and a discharge of 3 cfs the seepage loss would be approximately 7% per mile of ditch and for a light soil would be approximately 10% per mile of ditch. As the total length of the ditch would be 25 km (15.5 miles) the seepage loss of the ditch would be in the range of 108-155%.

The proposed storage reservoir (Long Lake) has a surface area of approximately 90 acres. The net annual evaporation is estimated to be 350 mm (13.8 inches) resulting in an annual evaporation loss of 103 ac. ft. Due to the low level of Long Lake and the alkali nature of the water in Long Lake substantially more than 254 ac. ft. would be required to raise the level of the lake so as to overflow and also flush the system.

- f) Fiftyseven and Fiftynine Creeks have a history of water shortages, complaints and problems. This is further indicated by the numerous objections to this application.

...

The report ultimately recommends that the application be refused.

The 1990 Engineer's Report was reviewed in 2001, and James Davies, P.Eng, Water Allocation Engineer, prepared an addendum report dated July 23, 2001 (the "2001 Addendum Report"). The 2001 Addendum Report jointly

assessed the application of the Appellant together with another water licence application by the Canoe First Nations filed on February 1, 1988. While the two licence applications do not mention the other party, the two applications were treated as joint works by LWBC for the purposes of the 2001 assessment because they both proposed to use the same point of diversion on Big Bar Creek and the same ditch line from Big Bar Creek heading to Long Lake.

Concerning the Appellant's application, the 2001 Addendum Report concurs with the recommendations in the 1990 Engineer's Report that the application be refused.

On December 11, 2002, Kevin Dickenson, the Assistant Regional Water Manager, wrote to the B.C. Cattle Co. Ltd. advising that the application was refused. In the letter, the Assistant Regional Water Manager states, in part:

Investigation has shown that Fiftynine Creek is fully recorded for all purposes including storage except small domestics, therefore, under existing licence there is insufficient water in the source to enable me to grant a new licence.

Section 5 of the *Water Act* states that a licence entitles the holder to 'divert and use water beneficially for the purpose and during the time stipulated the quantity of water specified in the licence.' Therefore, it would not be possible to use the 254 acre-feet diverted from Fiftysseven Creek beneficially for irrigation purposes.

In view the foregoing, your application is hereby refused.

The Appellant filed a notice of appeal with the Board on January 13, 2003. In a letter dated February 10, 2003, the Appellant asked the Board to hold the appeal in abeyance for one year so that it could gather additional information. On February 26, 2003, the Board confirmed that it would hold the appeal in abeyance. The Board also asked the Appellant to provide an update on the status of the appeal by February 26, 2004. No update was received.

On December 22, 2004, the Board wrote to the Appellant requesting an update by January 30, 2005, so that the Board could determine how to proceed. By letter dated January 12, 2005, the Appellant reiterated its objections to the refusal by the Assistant Regional Water Manager to issue the water licence on Big Bar Creek and Fiftysseven Creek on a number of grounds. A notice of hearing was issued on June 6, 2005.

On June 28, 2005, the Assistant Regional Water Manager wrote to the Board to advise that there were 16 original objectors to the water licence application and provided a list of the objectors to the Board. On June 29, 2005, the Board invited the objectors to participate in the hearing as participants. The Fish and Wildlife Branch of the Ministry of Environment was also granted third party status.

On July 6, 2005, the Fish and Wildlife Branch requested a delay in the hearing, which was scheduled for July 12, 2005 in Kamloops, indicating that the Ministry of Environment has significant fisheries concerns in this watershed, and required additional time to prepare the fisheries technical information to present at the hearing. The Board declined to re-schedule the hearing, but invited the Fish and Wildlife Branch to attend the hearing and make an application to the Panel Chair to provide a written submission at a later date supporting their position with respect to the fisheries issue.

In opening remarks to the Panel on the first day of the hearing, the Appellant advised that it no longer takes issue with the Respondent's decision that there is no water available for storage on Fiftynine Creek. The Appellant indicated that its argument now is that there is sufficient unrecorded water available in Fiftyseven Creek and Big Bar Creek to support the diversion of 1000 acre-feet of water for storage in Long Lake. One of the central issues in the appeal is whether estimates of water availability from Big Bar Creek are accurate.

The Respondent indicated that he was prepared to agree with the Appellant that Fiftynine Creek was "off the record" for the purposes of this hearing.

The Appellant now proposes to remove Fiftynine Creek as a point of diversion and, instead, to culvert the proposed ditch from Fiftyseven Creek to Big Bar Creek through Fiftynine Creek. This change constitutes an amendment, albeit a minor amendment, to the application under appeal. The Panel does not have the jurisdiction to amend the application that led to the decision now under appeal. The proper procedure would have been for the Appellant to submit an amended application to LWBC for its consideration, rather than appealing to the Board as it did. However, the Panel notes that the proposed amendment does not affect the issues raised in this appeal, with the central issue being whether sufficient water is available from Big Bar Creek to support the Appellant's water licence application. In addition, a number of people attended the hearing and everyone was prepared to proceed with their case, despite the proposed change. Therefore, the Panel proceeded with the hearing on the basis of the Parties agreement that no water is currently available on Fiftynine Creek. The Panel's decision on the merits of this appeal does not depend on whether water is available from Fiftynine Creek.

In addition to the Appellant's argument that there is sufficient unrecorded water available in Fiftyseven Creek and Big Bar Creek to support the diversion of 1000 acre-feet of water for storage in Long Lake, the Appellant also argues that he is able to make beneficial use of the water available for diversion. On this basis, the Appellant seeks to have the water licence application approved.

The Assistant Regional Water Manager asks the Board to dismiss the appeal and uphold the refusal of the water licence application.

Robert Bison, of the Fish and Wildlife Branch, attended the hearing and made an application to provide a written submission at a later date outlining the Branch's position with respect to the fisheries issue. The Panel Chair granted the application on the condition that the written submission be provided to the Board by July 22, 2005. On July 18, 2005, the Fish and Wildlife Branch wrote to the Board outlining

its position with respect to the fisheries issues associated with the water licence application. All parties received a copy of this written submission. On July 29, 2005, the Appellant provided its reply to the issues raised by the Fish and Wildlife Branch.

A number of objectors were granted participant status at the hearing. Peter Boeda, representing the Cutter Ranch, appeared at the hearing and made an opening statement. Robert Willis attended the hearing but withdrew his objection when he learned that the Appellant's application no longer involved the diversion of water from Fiftynine Creek. Letters from four other objectors were received by the Board immediately before the scheduled hearing and were read into the record of the hearing.

ISSUES

1. Whether there is sufficient water available from Big Bar Creek to support the granting of the water license application.
2. Whether the downstream licensed demand is less than originally believed such that the application should be granted.
3. Whether the public objections are relevant to the assessment of the application.
4. Whether the water available for storage in Long Lake was sufficient in quantity to allow for beneficial use of the water for irrigation purposes.

RELEVANT LEGISLATION

Sections of the *Water Act* that relate to this appeal are set out below.

Rights acquired under licence

- 5 A licence entitles its holder to do the following in a manner provided in the licence:
 - (a) divert and use beneficially, for the purpose and during or within the time stipulated, the quantity of water specified in the licence;
 - (b) store water;
 - (c) construct, maintain and operate the works authorized under the licence and necessary for the proper diversion, storage, carriage, distribution and use of the water or the power produced from it;
 - (d) alter or improve a stream or channel for any purpose;
 - (e) construct fences, screens and fish or game guards across streams for the purpose of conserving fish or wildlife.

Objections to applications

- 11** (1) A licensee, riparian owner or applicant of a licence who considers that his or her rights would be prejudiced by the granting of an application for a licence may, within the prescribed time, file an objection to the granting of the application.

...

Powers of comptroller or regional water manager respecting applications

- 12** (1) With respect to an application, whether objections to it are filed or not, the comptroller or regional water manager may

- (a) refuse the application,
- (b) amend the application in any respect,
- (c) grant all or part of an application,
- (d) require additional plans or other information;

...

- (f) issue to the applicant one or more conditional or final licences on the terms the comptroller or the regional water manager considers proper.

...

DISCUSSION AND ANALYSIS

1. Whether there is sufficient water available from Big Bar Creek to support the granting of the water license application.

The 1990 Engineer's Report reveals that, because the application involved the diversion of water from three sources, two of which (Fiftyseven Creek and Fiftynine Creek) are in the Bonaparte Precinct, and one in the Pavilion Precinct, separate water availability analyses were made for each source. The 1990 Engineer's Report concludes that there was approximately 254 acre-feet available for storage on Fiftyseven Creek, no water available for storage on Fiftynine Creek and no water available for storage on Big Bar Creek.

The 2001 Addendum Report revised the unit freshet runoff for Big Bar Creek, concluding that there was 340.7 acre-feet available for storage on Big Bar Creek.

The Appellant submits that LWBC's estimate of water availability from Big Bar Creek is a conservative estimate, and argues that there is sufficient water to support the water licence application. Specifically, the Appellant argues that:

- LWBC failed to take into account that the actual usage of water under licence by Ducks Unlimited on Big Bar Creek is considerably lower than

the allotted amount, making additional water available in Big Bar Creek that was not taken into account in LWBC's assessment of the water licence application; and

- LWBC's estimate of stream flow measurements for Big Bar Creek is conservative, and that water is available on Big Bar Creek during freshet that was not taken into account in LWBC's assessment of the water licence application.

The Respondent denies that there was any error in its estimates of water availability for Big Bar Creek. He relies, in part, on the water availability analysis done on the watersheds affected by the Appellant's application and described in the 1990 Engineer's Report and the 2001 Addendum Report, both of which were entered into evidence.

Water Usage by Ducks Unlimited

The Appellant argues that the actual usage of water under licence by Ducks Unlimited on Big Bar Creek is considerably lower than the allotted amount, making additional water available in Big Bar Creek that should have been taken into account assessing the water licence application.

The Appellant refers to conservation licences issued to Ducks Unlimited authorizing an annual quantity of water – 706 acre-feet on Fiftyseven Creek, 250 acre-feet on Fiftynine Creek, and 580 acre-feet on Big Bar Creek – that may be diverted, stored and used. These conservation licences were issued prior to the Appellant's application.

The Appellant also submits that Ducks Unlimited routinely fails to use the allotted quantity of water under their conservation licence each year, and that this does not constitute a beneficial use of water.

The Respondent argues that the Appellant is wrong to assume that this water is available and that it should have been taken into account in assessing the Appellant's application. In the Respondent's Statement of Points, he indicates that it is up to the licence holder to determine when and how much of the authorized water needs to be diverted, stored and used each year.

The Respondent concedes that in years when the storage reservoirs are not drawn down, there may be some additional water available. However, the Respondent also stated that it would be wrong to assume that this water is regularly available on these streams. Consideration has to be given to the impacts on downstream users and instream flow requirements before any of this water could be diverted out of the watershed. The Respondent indicated that this would be a key concern in this case because the Appellant's proposed point of intake is upstream of most licenced intakes on Big Bar Creek. The Respondent also pointed out that one of the licensees on Big Bar Creek, who objected to the Appellant's application, had also stated that the Ducks Unlimited conservation projects on Big Bar Creek have affected winter flows.

The Respondent concedes that if a licensee fails to utilize water for three consecutive years, barring drought conditions, a licence could be cancelled. The Respondent also points out that, in times of drought, Ducks Unlimited's conservation licenses do not have high priority and Ducks Unlimited would not be able to replenish its reservoirs if levels go down due to evaporation or seepage. The Respondent states that LWBC considers conservation licences to be a beneficial use of water. The Respondent also indicates that there is no legislative basis to "double licence" available flows, nor have they been approached by Ducks Unlimited and the Appellant with a proposal for joint use of Ducks Unlimited's water allocation, or a proposal to transfer water rights from Ducks Unlimited to the Appellant.

The Panel notes that Duck Unlimited's storage structures are designed such that the reservoirs can be drawn down when required, and replenished from this water allotment. Even if reservoirs are not drawn down, there will be evaporation and seepage losses that are replaced each year. The Appellant alleges that Ducks Unlimited's conservation storage reservoirs on Fiftyseven Creek, Fiftynine Creek and Big Bar Creek are not drawn down each year, but there is no other evidence to support this allegation. Mr. Koster, who gave evidence on behalf of the Appellant, suggested at the hearing that Ken Johnson, a Ducks Unlimited representative, agreed with the Appellant's assessment that some of the water licenced to Ducks Unlimited is not drawn down each year. This hearsay evidence was not disallowed at the hearing; however, the Panel finds that the evidence has little probative value for the reasons set out below.

The Panel finds that there are no grounds to conclude that the water available under Ducks Unlimited's conservation licenses should have been made available to the Appellant. The Panel has no jurisdiction in this appeal to consider the merits of altering the terms and conditions of, or cancelling, Ducks Unlimited's conservation licenses (e.g., for lack of beneficial use), nor did the Appellant explain the basis on which these existing water allocations could be shared between Ducks Unlimited and the Appellant. The Panel accepts the proposition that there is no legislative basis on which to "double licence" available water in Big Bar Creek.

Accordingly, this argument fails.

Stream Flow Measurements for Big Bar Creek

The Appellant submits that the LWBC's estimates of available water in Big Bar Creek are conservative and that there is more water available in Big Bar Creek that should have been taken into account in LWBC's assessment of the Appellant's application. In support of this argument, the Appellant relies on Mr. Koster's 2005 stream flow measurements for Big Bar Creek. Those measurements indicate a very large amount of water going past all users and into the Fraser River during freshet. In a supporting document attached to its Statement of Points, the Appellant provided two flow measurements taken on Big Bar Creek on March 16, 2005 and June 9, 2005. The Appellant provided no stream flow data for Big Bar Creek for other years that would allow for a comparison.

In support of the Appellant's submissions, Mr. Koster testified that these stream flow measurements indicate a high flow for Big Bar Creek. He states that the reason for measuring in March and June 2005 was to substantiate that there was water going past all existing licensed points of diversion and heading for the Fraser River. He also testified that there were no other diversions below the sampling point, other than small amounts for domestic consumption or stock watering. When questioned, Mr. Koster admitted that he could not verify that all licenced diversions were running upstream of the sampling points at the time of the sampling. He states, however, that this data confirms that additional water is available in Big Bar Creek during freshet.

The Respondent agrees with the Appellant that there was a large amount of water in Big Bar Creek in March and June of 2005, but argues that this was such an unusually high flow that it is not indicative of how much water is ordinarily available. The Respondent states that many streams in the Southern Interior exhibited unusually high flows in 2004-2005. While there are no active stream gauges on Big Bar Creek, the Respondent relies on other data to support the argument that 2005 data should not be relied on to assess the Appellant's water licence application. In particular, Fiftyseven Creek lies within the Bonaparte River watershed, and there is a long-term Water Survey of Canada gauging station on the Bonaparte River, below Cache Creek (Station 08LF002). There are 51 years of recorded stream flow data for this station, of which 36 years have flows recorded on March 16 of each year. The data submitted by the Respondent indicates that the flow recording for March 16, 2005 is the highest flow ever recorded, is approximately 25% higher than the previous highest recorded flow in 1996, and is more than 2.5 times the mean March flow of 3.09 cubic meters per second.

The Appellant also relies on a statement made by Mike Edwards in a Ministry report, dated October 24, 1991, and related to a licence application by C. and A. Mink Ranch Limited, as support for its argument that there is available water in Big Bar Creek during freshet. The report contains the following statements:

A freshet availability study for Big Bar Creek upstream of the confluence with Kosterling Creek on file 3000927 determined that there was an excess of water in the creek during the period April 1 to June 30. Since this study was made (June 15, 1987), Conditional Water 34133 (0277799) which authorized the diversion of 3.5 cfs [cubic feet per second] for power purposes has been abandoned (December 16, 1991). As the POD [point of diversion] of CWL 34133 was near the mouth of Big Bar Creek, there is now more water available upstream on Big Bar Creek and tributaries. Therefore the granting of this application will have no adverse affect on licences on Big Bar Creek downstream of the confluence with Kosterling Creek.

The Respondent points out that this freshet availability study for Big Bar Creek was conducted in 1987, and was in relation to the conservation licence application by Ducks Unlimited. These conservation licences were subsequently granted by LWBC. The Respondent argues that the granting of the conservation licenses rendered the observations and conclusions arising out of the 1987 freshet availability study for

Big Bar Creek no longer relevant to the assessment of the Appellant's application. The Respondent submits that Ducks Unlimited's licence application pre-dates the Appellant's licence application, and that Ducks Unlimited's licenses were granted at a time when there was sufficient available flow during freshet to support its licence application.

The Respondent concedes that the Ministry's 1990 assessment that no water was available for diversion and storage on Big Bar Creek may have originally been conservative, and acknowledges that this estimate was later revised in 2001 to conclude that 340.7 acre-feet were available on Big Bar Creek. In this regard, the 2001 Addendum Report states:

The unit freshet runoff for Big Bar Creek was revised, as it was considered conservative. To revise the Big Bar Creek unit freshet, Mike Edwards' estimate was used with the baseflow (April-June) included, to be consistent with the total volume of freshet as used in the "Updated Guide to Low Flow Estimation for Allocation of Water in the Kamloops Region, MELP, September 1993."

However, while different methodologies were used, the Respondent points out that both reports reached the same conclusion with regard to the Appellant's licence application. The 2001 Addendum Report goes on to conclude that only 213 acre-feet of available water would actually reach Long Lake, and that this small amount of water was not sufficient to allow the Appellant to make beneficial use of the water in the manner proposed by the licence application.

The Respondent explained the differences in these two reports by pointing out that the 2001 Addendum Report had the advantage of better analytical tools (such as computer programs) and methodologies, such as the "Updated Guide to Low Flow Estimation for Allocation of Water in the Kamloops Region", developed in 1993 (the "1993 Guide"). The Respondent indicates that the standard for licencing purposes is the 1 in 5 year freshet drought volume (lower than the mean).

The 2001 Addendum Report indicates that the original estimates of freshet runoff on Fiftyseven Creek and Fiftynine Creek *agree* with those calculated using the 1993 Guide. However, the estimates of freshet runoff on Big Bar Creek were revised upward in the 2001 Addendum Report *based on* the 1993 Guide.

Mr. Edwards admits that estimating the freshet drought volume on Big Bar Creek was more of a challenge than some other creeks because there are no long-term flow records for the creek. However, he also testified that all of the creeks involved in the water licence application drain from the Marble range and that LWBC does have flow records for Fiftyseven Creek, Fiftynine Creek, and Clinton Creek. He testified that it is common practice to look at comparable watersheds to determine freshet drought volumes. The original estimate in 1990 made a number of assumptions for Big Bar Creek – since the creek was at a lower elevation, there was likely to be a lower unit runoff and an earlier runoff.

Mr. Edwards notes that James Davies applied a different methodology in the 2001 Addendum Report to arrive at the revised freshet drought volume for Big Bar

Creek. The estimate of unit freshet runoff for Big Bar Creek was revised to 11.3, with the water available for storage on Big Bar Creek re-calculated to be 340.7 acre-feet.

The Panel finds that there are no grounds to conclude that the Respondent erred in its determination of the amount of water available on Big Bar Creek for purposes of assessing the Appellant's application. The Panel accepts the evidence showing that many streams in the southern interior of British Columbia exhibited unusually high freshet flows in 2005, and that the stream flow measurements for Big Bar Creek taken in March and June of 2005 should not form the basis for the Respondent's assessment of the Appellant's application. The Panel also accepts the Respondent's estimate of water availability for Big Bar Creek, as set out in the 2001 Addendum Report, indicating that there is an estimated 69.0 acre-feet of water available in Fiftyseven Creek, no water available in Fiftynine Creek, and 340.7 acre-feet available in Big Bar Creek.

Therefore, this argument also fails.

After considering all of the evidence and arguments on this issue, the Panel concludes that LWBC did not make an error in its estimates of water availability for Big Bar Creek.

2. Whether the downstream licensed demand is less than originally believed such that the application should be granted.

The Appellant argues that the abandonment of a power licence in 1991 made additional water available in Big Bar Creek that was not taken into account by LWBC in the assessment of the Appellant's water licence application. Specifically, Conditional Water Licence 34133 was abandoned on December 16, 1991. This licence authorized the diversion of 3.5 cubic feet per second of water for power purposes. The point of diversion for the power licence was near the mouth of Big Bar Creek, downstream of all other points of diversion except one. The proposed intake for the Appellant's application is approximately 35 km (21.7 miles) upstream of the mouth of Big Bar Creek.

The 1990 Engineer's Report refers to the power licence in the assessment of water availability on Big Bar Creek. At page 6 of the report are the following statements:

The drainage area to the outlet of Little Big Bar Lake is 142 km². Using the unit runoff estimate of 4.5 ac. ft./km² the estimated runoff to the outlet of Little Big Bar Lake is 639 ac. ft. As the licenced demand on Big Bar Creek to the outlet of Little Big Bar Lake is 643.6 ac. ft., there does not appear to be any additional water available for storage. It should be noted that there are many more licences downstream of Little Big Bar Lake including a power licence at the mouth.

The Appellant contends that the 3.5 cubic feet per second formerly allocated to the power licence now goes into the Fraser River, is available for re-allocation, and it

should have been taken into account in the assessment of the Appellant's water licence application.

The Respondent states that the cancellation or abandonment of a water licence does not necessarily mean that the licenced quantity becomes available for additional upstream licensing. The downstream licenced demand, instream flow requirements to support fisheries values, and streambed losses would all have to be considered.

In this case, the Respondent states that there are several streams contributing flows to Big Bar Creek below the Appellant's proposed intake, including Stable Creek, Jesmond Creek, and Kostering Creek. The flows from these streams were available at the intake for the power licence, but are not available at the Appellant's proposed intake.

As well, the Respondent points out that the drainage area to the mouth of Big Bar Creek is approximately 439 square kilometers. Kostering Creek, Jesmond Creek and Stable Creek drain the west side of the Marble Range, which is a much wetter zone than the northeasterly side, and are tributaries to Big Bar Creek downstream of the Appellant's point of diversion. By contrast, Big Bar Creek drains the northeasterly side of the Marble Range adjacent to and north of Fiftynine Creek. The drainage area to the outlet of Little Big Bar Lake, which is also downstream of the proposed point of diversion for the Appellant's application, is approximately 142 square kilometers.

In conclusion, the Respondent argues that the unit flows for Kostering Creek, Jesmond Creek and Stable Creek would be higher than the unit flows on Big Bar Creek upstream of Little Big Bar Lake, and that these unit flows are not available for consideration in the Appellant's application.

The Panel finds that there are no grounds to conclude that the abandonment of the power licence on Big Bar Creek in 1991 should have been taken into account by LWBC in the assessment of the Appellant's water licence application. The Panel accepts the evidence of the Respondent that the unit flows available at the intake for the power licence would not necessarily have been available at the Appellant's proposed intake. Therefore, based on the evidence and arguments presented, there is no basis to conclude that the downstream licensed demand is less than LWBC originally assessed.

3. Whether the public objections are relevant to the assessment of the application.

LWBC received 18² letters of objection to the Appellant's application. The Appellant argues that:

² 18 letters were received, but three of the letters (1a, 1b, 1c) came from three different people that own the same property, and are treated as one objection. Therefore, there are 18 letters, but effectively 16 objectors.

- several of the objections regarding this application were from the same party or licensees, and were irrelevant, and
- proper engineering design would meet Fish and Wildlife Branch's concerns.

Nature of the Objections

The Respondent argues that the large number of objections to the water licence application is indicative of serious concerns by licensees and others regarding the application. Mike Edwards testified that the number of objections was unusual and raised a red flag for LWBC, but standard practice is to review each letter to determine its relevancy to the application.

The Respondent provided a list of the objectors and a brief summary of the reasons for the objection in the Respondent's Statement of Points. The Respondent points out that Amsden (objector #2) and C & A Mink Ranch (objector #18) hold licences on Big Bar Creek downstream of the proposed point of diversion for the application, and that both objectors stated that, at times, there is insufficient water in Big Bar Creek to satisfy their licence requirements. It is not clear from these letters whether these objectors understood that the application only deals with freshet flows.

Amsden (objector #2) also indicated that Ducks Unlimited's conservation projects on Big Bar Creek had affected winter flows of water on Big Bar Creek. Robinson (objector #4), Graham (objector #5), Grawehr (objector #6), Klopp (objector #9), Tapping (objector #11), Schmidt (objector #12), Joiner (objector #15) and Willis (objector # 17) stated that the licensees on Fiftyseven Creek and Fiftynine Creek already experience water shortages and that, since the proposed point of diversion for the application was upstream of their licenced points of diversion, their water rights would be further impacted.

The Respondent also notes that Knudsen (objector #1a), Smith (objector #1b), and Bernard (objector #1c) are the registered owners of District Lot 5155, Lillooet District. They objected to the application as the proposed ditch from Big Bar Creek passes through their property. They also expressed concerns about the impact of low flows on fish and waterfowl in Big Bar Creek. The Respondent treats these three objections as a single objection.

Shenck (objector #8) and Crowhurst (objector #16) were concerned that the application would also divert water from Mann Creek, which is situated between Fiftyseven Creek and Fiftynine Creek.

Due to LWBC's refusal of the application, none of the objectors were contacted by LWBC other than to notify them of the decision to refuse the application.

The 1990 Engineer's Report notes in its recommendations: "In watersheds having a history of conflicts over water use it would not be good water management to authorize diversion of water by means of a double inter-watershed diversion ditch where the expected losses are in excess of 100%."

The Respondent admitted at the hearing that, if the Appellant is no longer seeking to include Fiftynine Creek in his proposed scheme of water diversion, some of the objections originally received would no longer be relevant. As well, the Panel finds that objections related to the possible involvement of Mann Creek do not appear, on the facts, to be relevant to the application. However, the balance of objections is relevant to the LWBC's assessment of the Appellant's application, and the Panel is of the view that the Respondent was entitled to take them into account in assessing the Appellant's application.

The Panel also notes that Mr. Koster admitted at the hearing that the trespass issues raised by Knudsen (objector #1a), Smith (objector #1b), and Bernard (objector #1c), who are the registered owners of District Lot 5155, Lillooet District, are still outstanding. Mr. Koster indicated that he has not yet negotiated with these owners to determine whether he is able to secure access across their property for the construction of the proposed ditches, nor has he determined if it is possible to re-route the ditches to avoid the property.

Objection by the Fish and Wildlife Branch

The Fish and Wildlife Branch filed its original objection to the water licence application on April 27, 1988. The Respondent described the objection of the Fish and Wildlife Branch in its Statement of Points:

On Big Bar Creek, there was concern that there would be insufficient flows for the flushing of Little Big Bar Lake which would affect the water quality of this sport fishery. Similar flushing concerns were expressed for Beaverdam Lake, which is on Fiftynine Creek. There is already a history of fish kills in Beaverdam Lake. Big Bar Lake is a pure culture rainbow trout lake and there is possibility of the transfer of coarse fish from Fiftyseven Creek and Fiftynine Creek into Big Bar Lake. The Bonaparte River already has flow regime problems.

In a letter dated July 18, 2005, the Fish and Wildlife Branch made a further written submission to the Panel outlining its concerns with the Appellant's application. In this letter it states:

The application as proposed poses a risk to the existing recreational fishery at Big Bar and Little Big Bar lakes. The Bonaparte River watershed contains fish species that do not occur in Big Bar lakes while the Big Bar lakes contain only rainbow trout. The potential introduction of species from the Bonaparte watershed would result in a dramatic decline in the rainbow trout population and the fisheries in the Big Bar lakes due to inter-species competition and changes to the aquatic food web. It may also be noteworthy that there is a fishing resort at Big Bar Lake and the fishery supports an estimated \$1.5 million in economic benefits per year. Without special measures, the Bonaparte River species could be diverted at the Fiftyseven Creek POD and at the two culvert crossings across Mann Creek and Fiftynine Creek. Inadvertent or illegal fish species introductions are a growing

issue and concern in the conservation and management of BC's freshwater fisheries.

The Ministry is a licenced water user on the Bonaparte River. In 1993, the Ministry was required to build a storage dam on Bonaparte Lake at a cost of \$500,000 to ensure seasonal stream flows to support salmon, steelhead and trout fisheries values. At that time, the Ministry could only be licenced if the storage structure was built because the Bonaparte River was fully recorded without accounting for instream flow requirements to support fishery values. The Ministry now invests annually in the operation of the dam to ensure seasonal stream flows for the support of biological processes that translate into public fishery values. The Ministry therefore questions an application that proposes to remove water from the watershed after the extraordinary public investment in ensuring those flows for public fisheries.

In a letter to the Panel dated July 29, 2005, the Appellant responded to the Fish and Wildlife Branch's letter by arguing that, with proper engineering design, the Appellant could meet the specifications of the Fish and Wildlife Branch. The Appellant contends that the risk to fisheries values is manageable and low. At the hearing, Mr. Koster testified that it should be possible to design and construct fish screens to keep foreign fish species out of Big Bar Lake, barring sabotage, but he did not provide any further design detail.

Kevin Dickenson testified that, while the 1990 Engineering Report and the 2001 Addendum Report do not expressly address instream flow requirements to support fisheries values, the current practice in preparing engineering reports assessing water licence applications is to have a specific section on instream flow requirements. He stated that the current practice is to make allowances for instream flow requirements to support fisheries values. He agreed that it is provincial policy that, if a water licence application impacts on fisheries values, it is refused.

The Panel finds that the objection filed by the Fish and Wildlife Branch does raise relevant issues that have to be taken into account in assessing the Appellant's application. The Panel accepts the contention of the Fish and Wildlife Branch that the proposed water licence application poses a risk to the existing recreational fishery at Big Bar and Little Big Bar lakes. In addition, while the Appellant recognizes that the concerns of the Fish and Wildlife Branch would have to be met before any water licence could be issued, there is no evidence before the Panel as to whether there is an engineering design that would be acceptable to manage or eliminate this risk.

Accordingly, on this issue, the Panel finds that there are relevant objections to the water licence application that must be taken into account, and finds that the Appellant has not adequately addressed the valid concerns raised in the objections.

4. Whether the water available for storage in Long Lake was sufficient in quantity to allow the Appellant to make beneficial use of the water for irrigation purposes.

The Appellant submits that LWBC erred in concluding that the Appellant could not make beneficial use of the water available for diversion and storage. Specifically, the Appellant submits that:

- LWBC's estimate of water seepage and evaporation from the ditches and Long Lake is excessive;
- the assessment of the water licence application, in combination with the application of the Canoe First Nations, was inappropriate because it implied that the water licence application was for a total of 2000 acre-feet; and
- there is evidence to support the conclusion that alkalinity will not be so high as to prevent the use of diverted water for irrigation purposes.

Water Seepage and Evaporation

The Appellant challenges the Respondent's conclusions regarding estimates of water evaporation and seepage from the ditches and Long Lake, arguing that the estimates are excessive. In its Statement of Points, the Appellant points out that the length of the ditch from Fiftynine Creek to Big Bar Creek would be approximately one mile, not the length estimated by LWBC. The Appellant does not provide evidence contesting the methodology used by LWBC to determine seepage from ditches, nor that used to determine water evaporation.

Regarding the actual length of the proposed ditch from Fiftynine Creek to Big Bar Creek, the 1990 Engineer's Report estimated the length of the ditch as follows:

The proposed ditch route from 57 Creek and 59 Creek to Big Bar Creek was not inspected. From the 1:100,000 map the approximate length of this ditch would be approximately 13.5 km and the total length of ditching for the entire project would be approximately 25 km.

In its Statement of Points, the Respondent estimates that the length of ditches from Fiftyseven Creek and Fiftynine Creek to be 4.8 km (2.969 miles) and 7.0 km (4.319 miles), respectively. The 2001 Addendum Report estimates the length of the ditch from Big Bar Creek to Long Lake to be 10.0 kms (6.209 miles).

The Respondent contends that both the 1990 Engineer's Report and the 2001 Addendum Report conclude that the losses from the ditches would be in excess of 50%. In analyzing the seepage losses from the ditches, the 1990 Engineer's Report estimated that the ditch losses for the project would be in the range of 108–155% depending on the type of soil, and assuming a flow of 3.0 cubic feet per second, stating:

The bulk of the freshet flow from Fiftyseven Creek occurs between May 15 and July 15 as shown in Figure 2. In order to divert 254 ac. ft. from May 15 to June 30 a flow of approximately 3 cfs [cubic feet per second] would be required. From the chart of ditch seepage losses vs. discharge shown in Figure 8, it can be seen that for a medium soil and a discharge of 3 cfs the seepage loss would be approximately 10% per mile of ditch. As the total length of the ditch was be approximately 25 km (15.5) miles the seepage loss of the ditch would be in the range of 108-155%.

The 2001 Addendum Report details the estimated ditch losses and concludes that only 213 acre-feet is estimated to reach Long Lake. The report revised the estimate of water availability on Big Bar Creek upward to 340.7 acre-feet, and used an estimate of 7% per mile of length to calculate the probable water loss from the proposed ditches, and concludes:

With 85 dam³ from Fiftyseven Creek, and 420 dam³ from Big Bar Lake watershed, 263 dam³ or 213 acre-feet is estimated to reach Long Lake. When compared with the 2000 acre-feet, 213 acre-feet is 1/10th of the requested amount.

The 2001 Addendum Report also concludes that this small amount of water "does not appear to be sufficient to flush the alkali waters of Long Lake as to allow the stored water to be beneficially used for irrigation."

Mr. Dickenson testified at the hearing that the "rule of thumb" used by LWBC in estimating the probable loss in an open ditch per mile of length is 10%, assuming a medium soil quality. He also states that the maximum tolerance is normally three miles or a 30% loss. Mr. Edwards indicated that this "rule of thumb" is based on a guide compiled by the Water Rights Branch and printed in 1947 entitled "Practical Information on Irrigation for British Columbia Water Users", an excerpt of which is attached as Figure 8 to the 1990 Engineer's Report.

Mr. Dickenson argues that it would not be good water management to authorize the diversion of water by means of a diversion ditch where the losses are in excess of 30%, as was the case with the Appellant's water licence application.

On cross-examination, Mr. Dickenson agreed with the Appellant that most of the water loss in an earth ditch is through seepage, rather than evaporation. However, he points out that these seepage losses could show up somewhere else in the watershed. He also pointed out that any conclusions about seepage losses in this instance are further complicated by the fact that the proposed ditches go through several watersheds, making it impossible to predict where the seepage losses would show up.

While the Appellant challenges the LWBC calculations as being only estimates of seepage and not based on facts, and argues that the ditches might recharge from underground aquifers, at the hearing the Appellant was unable to provide an alternative estimate of the losses from the ditches. He argues, based on his experience elsewhere, that seepage from the ditches would be limited due to the

impermeable soil type, but did not provide evidence as to the actual soil conditions involved in the proposed ditching. He also did not provide evidence to support the proposition that the ditch losses from seepage would be minimized through recharging.

The Panel is not persuaded that the debate around the length of the proposed ditches alters the overall conclusion reached by LWBC in its assessment of this water licence application. The Panel accepts that estimated ditch losses from seepage for the project would be substantial. There is no evidence to contradict the basis on which estimates of the probable water loss in a ditch are made by LWBC. In this regard, the Panel notes that even with the more generous estimate of only 7% seepage loss, which was used to calculate probable water loss from the proposed ditches in the 2001 Addendum Report, the 2001 Addendum Report still concludes that only 1/5 of the requested 1000 acre-feet (or 1/10th of 2000, see issue below) would reach Long Lake for storage, and that this small amount is still insufficient to flush the alkali waters of Long Lake.

The Appellant also challenges LWBC's estimate of water evaporation from Long Lake, pointing out that Long Lake has no inflow from streams, but is recharged through rainfall and snow runoff. The Appellant argues that if the LWBC's water evaporation estimates were correct, the lake would have disappeared.

The 1990 Engineer's Report considered evaporation losses from Long Lake. Long Lake has a surface area of 90 acres. The report estimated the annual evaporation rate to be 350 mm (13.8 inches), which would result in an annual evaporation loss from Long Lake of 103 acre-feet. The report further states that due to the low level of Long Lake and the alkali nature of the water in the lake, substantially more than the estimated 254 acre-feet available for storage on Fiftyseven Creek would be required to raise the lake so as to overflow and also flush the system.

The 1990 Engineer's Report concludes that in watersheds having a history of conflicts over water use, it would not be good water management to authorize the diversion of water by means of a double inter-watershed diversion where the expected evaporation losses are in excess of 100% and where there is no certainty that the diverted water could even be used for irrigation because of alkalinity.

The 2001 Addendum Report does not consider evaporation losses from Long Lake. The Respondent points out that, assuming the 2001 Addendum Report's estimate of 213 acre-feet reaching Long Lake is accurate, and if the original evaporation estimate for Long Lake of 103 acre-feet per annum is used, the net water available for downstream use in Long Lake would only be 110 acre-feet.

While the Appellant challenges the water evaporation estimates relied on by LWBC in making its assessment of the water licence application, it does not provide evidence to counter the methodology used by LWBC in preparing these reports. In responding to questions posed by the Respondent at the hearing, Mr. Koster admitted that the low water levels in Long Lake would result in an increased rate of water evaporation from Long Lake.

Again, the Panel is not persuaded that the debate around the rates of water evaporation from Long Lake alters the overall conclusion reached by LWBC in its assessment of this water licence application. The Panel accepts the Respondent's evidence that that annual water evaporation losses from Long Lake would be in the range of 103 acre-feet.

Joint Assessment of Appellant's Application

The Appellant argues that the assessment of the water licence application, in combination with the application of the Canoe First Nations, was inappropriate because it implied that the licence application was for a total of 2000 acre-feet.

The evidence indicates that, at one point, the Respondent did consider the Appellant's application together with an application by the Canoe First Nations as a joint work. The 2001 Addendum Report refers to both the Appellant's application and a water licence application filed by the Canoe Creek First Nation on February 1, 1988 as a "joint work". While the original water licence applications by the Appellant and the Canoe Creek First Nation make no mention of the other party, in a letter to LWBC, dated August 17, 1987, joint works between the Appellant and the Canoe Creek First Nation were originally proposed (file 3001162). In the 2001 Addendum Report, James Davies states that these two separate applications can be treated as joint works, given that both applications propose using the same point of diversion on Big Bar Creek and the same ditch line from Big Bar Creek heading to Long Lake or White Lake. The two applications request the diversion of a combined total of 2000 acre-feet.

The 2001 Addendum Report goes on to conclude that: "After accounting for seepage, the amount of available water that would reach Long Lake is 239 acre-feet or 1/10th of the requested 2000 acre-feet."

The Respondent argues that the adjudication of the Appellant's water licence application was based on its own merits and was refused because insufficient water was available that could be used beneficially. The Respondent also points out that the other application, which had a later application date, was also refused because of insufficient water.

The Panel accepts that the conclusions reached by LWBC that insufficient water was available that could be used beneficially by the Appellant. The assessment done in 2001 was not flawed in its conclusions because of the joint review conducted on the two applications. The Panel has applied the conclusions from the 2001 Addendum Report solely to the Appellant's application. The result is that the amount of water that would reach Long Lake is still only 213 acre-feet, or 1/5th of the requested 1000 acre-feet in the Appellant's application.

For these reasons, the Panel does not agree that the assessment of the Appellant's application was prejudiced by considering the application jointly with the Canoe First Nations' water licence application. The evidence indicates that the Appellant's water licence application was considered on its own merits, and that insufficient water was available that could be used beneficially by the Appellant.

Alkaline Nature of the Storage Lake

The subissue here is whether the Appellant is able to make beneficial use of the water proposed to be stored in Long Lake in light of the alkaline nature of the lake.

There is some history behind the current water licence application that is relevant to this subissue. In 1955, conditional water licences 22476 and 22475 (file 0204424) were issued to the Appellant authorizing the diversion of 1800 acre-feet of water from Big Bar Creek for storage in White Lake by means of an 8 km ditch. The low level of White Lake at the time resulted in a proposal to ditch around White Lake and to convey the water from Big Bar Creek directly to Long Lake. As the water in Long Lake is highly alkaline and unfit for crop use, the proposal was to flush out the lake by releasing water during the non-irrigation season and try to freshen the lake. The works for this proposal were never completed. Approximately 5 kms of ditch was constructed from the diversion point on Big Bar Creek. However, a massive deposit of large boulders was encountered resulting in the abandonment of the ditch construction. The licences were later abandoned in 1966.

The application in this appeal also involves a proposal to use Long Lake as a storage reservoir. The application provides that water stored in Long Lake would be released into Indian Meadows Creek, a tributary of Canoe Creek, and then re-diverted from Canoe Creek onto the appurtenant lands owned by the Appellant for irrigation purposes.

The 1990 Engineer's Report notes these earlier concerns with respect to the alkali nature of both White Lake and Long Lake, and confirms the alkalinity of Long Lake would have required the lake to be flushed out before the water could have been used for irrigation purposes.

On this same point, the 2001 Addendum Report states:

The term sodicity, has replaced the term "alkali" when referring to the effects of excess sodium in the soil. Excess sodium may add to cropping difficulties through crusting seed beds, temporary saturation of the surface soil, high pH and the increased potential for disease, weeds, soil erosion, lack of oxygen and inadequate nutrient availability. If calcium and magnesium are the predominant cations adsorbed on the soil exchange complex, the soil tends to be easily tilled and have a readily permeable granular structure

The BC Cattle's abandoned water licence 0204424 discussed the need to flush the alkali water out of White Lake before using the water for irrigation. It was also noted the [sic] Meadow Lake is alkali, see letter to Comptroller of Water Rights, from Jack Koster, BC Cattle Co, Dated January 22, 1958, file 0204424.

In regards to the proposed reservoir, in the February 15, 1968 RER for 0273470, "Although the water in Long Lake is highly alkaline and presently unfit for crop use, the applicant hopes to flush out this proposed reservoir by releasing water during the non-irrigation season. Long Lake may eventually

freshen and then the water stored therein will be available for normal irrigation use."

Reclamation of alkali soils has been done for irrigation, by flushing the alkalinity out by using freshwater and having a low groundwater table. Whereas, the freshening of an alkali lake would be dealing with the groundwater at the same level as the lake.

The beneficial use of stored water for irrigation is then dependent on controlling the alkalinity of Long Lake. Given the watershed area draining into Long Lake, it is probable that runoff from White Lake or Meadow Lake will restore the alkali level in Long Lake, requiring that Long Lake be re-flushed. The onus will be on the applicant to show that Long Lake is suitable as a freshwater reservoir, this may be done by taking water quality samples to show that the alkalinity is within levels for irrigation.

The Appellant does not dispute the alkali nature of Long Lake. Indeed, one of the supporting documents to the Appellant's Statement of Points contains a report from Eco Tech Laboratory Ltd., dated April 1, 2005, showing the analytical results of water samples taken in Big Bar Creek, Long Lake and White Lake. These analytical results confirm that the alkalinity of Long Lake is higher than for White Lake (2430 in Long Lake as opposed to 374 in White Lake), and that Long Lake also has higher sulphate levels (3360 in Long Lake as opposed to 54 in White Lake).

Instead, the Appellant argues that the dilution of water in Long Lake, by mixing it with water arriving by ditch from Big Bar Creek and with water in Canoe Creek, would greatly reduce the alkalinity and allow for beneficial use of the water for irrigation purposes. He also argues that, with the level of water in Long Lake very low at this time, it may lead to further reductions in alkali if the lake were filled with fresh water. However, in his Statement of Points, the Appellant concedes:

We have taken water samples from most lakes and streams to get a better idea of what problems may result from the using of water from this source for irrigation however we have not yet received an opinion.

The Appellant submitted no other evidence on this point.

The Respondent argues that the Appellant has not provided any evidence to show that the sodium levels of Long Lake can be reduced to an acceptable level for irrigation. The Respondent points to previous proposals by the Appellant to use White Lake as a reservoir to underscore on-going concerns around the alkalinity of lakes in this area. The 1955 licence issued to the Appellant to divert 1800 acre-feet of water from Big Bar Creek for storage in White Lake encountered concerns about the alkalinity of White Lake.

The Respondent placed into evidence a letter from Jack Koster of the B.C. Cattle Co. Ltd. to the Comptroller of Water Rights, dated January 22, 1958, where Mr. Koster acknowledges concerns regarding the alkalinity of White Lake, stating:

Meadow Lake, through a continuing rise in level, is now only inches from spilling over, the result will be salty water from this large body will drain into White Lake, which along with the sour water already in White Lake, will make freshening this lake almost completely impossible.

The low level of water in White Lake resulted in a proposal to ditch around White Lake and convey the water from Big Bar Creek directly into Long Lake. Whether this proposal was a suitable alternative was not resolved because the licences were later abandoned in 1966.

The Respondent argues that concerns about the alkalinity of Long Lake persist, and points to the Eco Tech Laboratory Ltd. water sample data submitted by the Appellant, which confirms high levels of alkalinity in Long Lake. The Respondent argues that the alkali nature of Long Lake, together with its low levels, raises serious doubts about whether it would be possible to flush out the lake so that the water could be used for irrigation purposes. In making this argument, the Respondent relies on the 1990 Engineer's Report, which indicates:

The proposed storage reservoir (Long Lake) has a surface area of approximately 90 acres. The net annual evaporation is estimated to be 335 mm (13.8 inches) resulting in an annual evaporation loss of 103 ac. ft. Due to the low level of Long Lake and the alkali nature of the water in Long Lake substantially more than 254 ac. ft. would be required to raise the level of the lake so as to overflow and also flush the system.

The Respondent also relies on the 2001 Addendum Report, which revised upward the estimate of water availability for Big Bar Creek, but also concluded that there was insufficient water to flush Long Lake, stating:

After accounting for seepage, the amount of available water that would reach Long Lake is 230 acre-feet or 1/10th of the requested 2000 acre-feet. This small amount of water does not appear to be sufficient to flush the alkali waters of Long Lake as to allow for the stored water to be beneficially used for irrigation.

The Respondent also points out that the risk of Meadow Lake overflowing into White Lake, and White Lake then filling and overflowing into Long Lake still exist, and would make the freshening of Long Lake almost impossible.

At the hearing, the Appellant also argued that there was an alternative to his original proposal to construct an earth fill dam 10 feet high and 50 feet long on Long Lake to store the water. He states that extraction of water from Long Lake could be done with the use of a pump to fill the ditch for delivery to the fields for irrigation, avoiding the requirement that Long Lake be filled as a conventional dam. The Appellant seemed to suggest that this alternative proposal would require less water for storage in Long Lake. However, the Appellant did not provide a revised estimate of the water required for this new proposal, nor any evidence as to

whether this smaller amount of water would be sufficient to reduce the alkalinity of water in Long Lake and render it suitable for irrigation use.

In response, the Respondent points out that the decision under appeal is based on the Appellant's application, which involved storage behind a 10-foot high dam on Long Lake. The Panel agrees with the Respondent on this point. The Panel also notes that, while the Appellant contends that it would no longer be necessary to fill Long Lake as a conventional dam, there is no evidence before the Panel as to the amount of fresh water required to flush Long Lake.

The Panel finds that there is no evidence to conclude that the Appellant would be able to make beneficial use of the water available for storage in Long Lake. Not only is the amount of water requested by the Appellant in its water licence application (1000 acre-feet) unavailable, there is no evidence that the amount of water that would reach Long Lake (213 acre-feet by the Respondent's estimates) would be sufficient to freshen the Long Lake. The Panel is persuaded by the Respondent's argument that this small amount of water would not be sufficient to flush the water of Long Lake so as to allow the stored water to be beneficially used for irrigation. Nor is there persuasive evidence that the mixing of water from Long Lake with the waters in Canoe Creek would reduce the alkalinity of water from Long Lake sufficient to make it suitable for irrigation purposes.

The Panel finds that the proposed diversion of water by means of ditches from Big Bar Creek for storage in Long Lake would not constitute beneficial use under section 5 of the *Water Act*. The comments by the objectors regarding water shortages on Fiftyseven Creek and the concern by the Fish and Wildlife Branch regarding diversion of water from the Bonaparte watershed into Big Bar Lake further support the refusal of this water licence application.

DECISION

In making this decision, the Panel has considered all of the evidence and arguments provided, whether or not they have been specifically reiterated here.

For the reasons provided above, the appeal is dismissed. The Panel confirms the Respondent's decision to refuse the water licence application.

"Lynne Huestis"

Lynne Huestis, Panel Chair
Environmental Appeal Board

January 25, 2006