

ALBERTA  
ENVIRONMENTAL APPEAL BOARD

Report and Recommendations

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Date of Hearing – April 26, 2001

Date of Decision – May 28, 2001

**IN THE MATTER OF** Sections 84, 85, 86, 87 and 91 of the *Environmental Protection and Enhancement Act*, S.A. 1992, c.E-13.3, and section 115 of the *Water Act*, S.A. 1996, c.W-3.5;

-and-

**IN THE MATTER OF** an appeal filed on July 24, 2000, by Mr. Don Bower and Ms. Marjorie Bower with respect to the decision of the Director, Parkland Region, Natural Resources Service, Alberta Environment, to refuse to issue a licence under the *Water Act* to Mr. Don Bower and Ms. Marjorie Bower for the diversion of groundwater at NE 30-038-26-W4M for the purpose of municipal subdivision water supply.

Cite as: *Bower v. Director, Parkland Region, Natural Resources Service, Alberta Environment.*

**HEARING BEFORE**

Steve E. Hrudehy, Panel Chair  
John P. Ogilvie, Vice-Chair  
Ron V. Peiluck, Board Member

**APPEARANCES**

Appellant: Mr. Don Bower, represented by Mr. Kirk Sisson, Sisson Warren Sinclair.

Director: Mr. Kenn Looten, Director, Parkland Region, Natural Resources Service, Alberta Environment, represented by Mr. Grant Sprague, Alberta Justice.

Board Staff: Mr. Gilbert Van Nes, General Counsel and Settlement Officer, and Ms. Valerie Higgins, Hearing Officer.

**WITNESSES**

Appellant: Mr. Don Bower, Mr. Dennis Featherstone, and Mr. Roger Clissold, Hydrogeological Consultants Ltd.

Director: Mr. Kenn Looten, Director, Parkland Region, Natural Resources Service, Alberta Environment, Mr. Tim Chau, Alberta Environment, and Mr. Glenn Winner, Alberta Environment.

## EXECUTIVE SUMMARY

[1] Mr. Don Bower and Ms. Marjorie Bower applied for a licence to divert groundwater under the *Water Act*. The licence was to supply an approved subdivision of 12 residential lots from two wells in the County of Red Deer No. 23. The Director rejected the application because he believed that it was contrary to an unwritten policy of Alberta Environment. The Director applied this policy to determine that the amount of water requested in the licence was not available.

[2] The Board found the Director's explanation of the unwritten policy to be incoherent, arbitrary and unclear. As presented to the Board, it is not a sensible means to allocate and conserve water. The Director's decision to refuse to issue this licence assures that at least as much ground water as was requested in the licence application will be diverted through 12 individual unregulated and unmonitored wells. In fact, the *Water Act* will allow almost 3 times more water than was requested by the Bowers to be diverted for household purposes through the resulting 12 individual wells.

[3] The Board is recommending that the Bowers repair the improper completion of the proposed standby well and perform an aquifer test on this well. Provided that the aquifer test results do not substantially contradict the previous findings, the Board is recommending that the Director issue a license for 5,110 cubic metres per year of water as originally requested by the Bowers. By approving this licence, the subdivision will be served by two regulated wells, that will be monitored, and a community distribution system. The Board believes this better serves the purposes of the *Water Act* than denying the Bowers' licence request.

[4] The Board also makes several other suggestions to Alberta Environment in this Report and Recommendations concerning how to deal with water licence applications to better achieve the purpose of the *Water Act*.

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## **I. BACKGROUND**

[1] On July 24, 2000, the Environmental Appeal Board (the “Board”) received a Notice of Appeal from Mr. Don Bower and Ms. Marjorie Bower (the “Appellants”) appealing the decision of Mr. Kenn Looten, Director, Regional Support, the Parkland Region (the “Director”) to refuse to issue a licence, under the *Water Act*, S.A. 1996, c.W-3.5, to divert groundwater to supply a proposed subdivision from two wells located in NE 30-38-26 W4M. The Appellants state that the report prepared by their consultant, Hydrogeological Consultants Ltd. (“HCL”) indicates that supplying the water requirements of the subdivision from two wells provides a greater security of supply than having a well for each lot in the subdivision. The Appellants believe that the Director should have consulted further with HCL prior to making the decision to refuse the application for the licence.

[2] On July 25, 2001, the Board acknowledged the Notice of Appeal and requested a copy of the Director’s documents (the “Record”) relating to this matter.

[3] According to standard practice, the Board wrote to the Natural Resources Conservation Board and the Alberta Energy and Utilities Board on July 25, 2000 to determine if the matters contained in the appeal had been the subject of a review under the jurisdiction of either Board. Replies were received responding in the negative.

[4] The Board received the Record and provided copies to the Appellants on August 15, 2000. On August 30, 2000, the Board received a letter from the Appellants advising that Mr. Roger Clissold of HCL would represent them in the appeal.<sup>1</sup>

### **A. Procedural Background**

[5] On August 23, 2000 the Board wrote to the Director and the Appellants asking if they wished to have a mediation meeting. Mr. Clissold suggested informal meetings with the Director’s counsel. In order to allow time for these meetings, the Board held the appeal in

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<sup>1</sup> Mr. Clissold was subsequently replaced at the hearing by Mr. Kirk Sisson, Sisson Warren Sinclair.

abeyance until October 27, 2000. On November 14, 2000 the Board received a letter from counsel for the Director indicating that the Director did not wish to pursue further informal mediation in this matter and requested that the Board determine the issues to be heard and proceed to a hearing.

[6] Accordingly, the Board established a schedule for submissions in order to determine the issues to be heard in this appeal, with the final submission to be received on January 8, 2001.

### **B. Preliminary Meeting**

[7] The submissions were received by the Board and in a letter dated January 26, 2001 the Board advised:

“The Board has reviewed the above noted submissions and has decided that the following issues are to be heard with respect to the appeal:

1. Whether or not the Director ought to have considered it necessary to test WTH2-97 as the well had not been tested during the groundwater evaluation program.
2. Whether or not the Director ought to have engaged in discussions with the proponent with respect to alternative approaches.
3. Whether or not the Director was correct in being concerned about the impacts on existing and future water users.
4. Whether it is appropriate to consider the aquifer in the groundwater supply to be ‘unconfined’.”

## **II. THE HEARING**

[8] A hearing date was subsequently set for April 26, 2001. The Notice of Public Hearing advertisement was placed in the Red Deer Advocate on February 24, 2001, advising of the hearing to be held on April 26, 2001, in Edmonton.<sup>2</sup> No intervenor requests were received.

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<sup>2</sup> The advertisement contained information regarding the date, time and location of the hearing. It also asked that if any person, other than the parties wished to make representations before the Board, to advise the Board office by March 15, 2001. A news release was forwarded to the Public Affairs Bureau regarding the hearing and placed on

### **III. SUMMARY OF THE EVIDENCE**

#### **A. The Appellant**

[9] The Appellants called Mr. Dennis Featherstone and Mr. Don Bower as a panel. Mr. Bower stated that the subdivision involving the 12 lots was approved by the County of Red Deer Council on July 2, 1998 on the basis that each lot would have its own water well. Mr. Featherstone added that the subdivision is part of an area structure plan for the development of the area, known as Canyon Heights, that eventually could involve between two and three hundred residences. Mr. Featherstone was on Council from 1995 to 1998 representing the Canyon Heights district, and so was a member of the County Council when the subdivision was approved.<sup>3</sup>

[10] In answer to a question from the Board, Mr. Featherstone said that, during the subdivision approval process, the County Council would receive a report from a hydrologist regarding the potential water supply of the area to be subdivided.<sup>4</sup> He did not recall the details of such a report for the area under consideration, but assumed the report was favourable since the County Council approved the subdivision. Later in the hearing, Mr. Clissold, when questioned by the Board, said that HCL's May 1998 Report<sup>5</sup> to the Appellants was submitted to the County Council and accepted by them as evidence that sufficient water is available to supply the subdivision.

[11] After Mr. Featherstone left Council in 1998 he suggested to Mr. Bower that he consider having a communal water supply for the subdivision and Mr. Bower agreed. He made the suggestion because he believed that having the opportunity to monitor the groundwater as it

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the Alberta Government website on February 26, 2001. It was also distributed on the same day to 95 daily newspapers, radio stations and television stations within Alberta. Copies of these advertisements were forwarded to the parties on April 5, 2001.

<sup>3</sup> Hearing Transcript, page 13.

<sup>4</sup> Hearing Transcript, page 20.

<sup>5</sup> Director's Record, document 14.

was used would clarify the potential water supply for future subdivisions as they are projected in the area structure plan.

[12] The Appellants then called Mr. Roger Clissold. Mr. Clissold is the president of Hydrogeological Consultants Ltd. and that firm's chief hydrogeologist. He testified that he has been studying and consulting on the subject of groundwater since he obtained his Master's Degree in 1967. He said that he has worked extensively in the Red Deer area.

[13] Mr. Clissold, during his testimony, referred to a series of overheads, copies of which he provided to the Board,<sup>6</sup> as well as two reports he prepared for the Appellants regarding the proposed water distribution system.<sup>7</sup>

[14] Mr. Clissold described the aquifer testing he had done using wells (water test holes or "WTHs") in the NE 30-38-26 W4M. These wells had been drilled in 1997. The well to be used as a supply well (WTH 1-97) for the diversion was pumped for 740 minutes at a rate of 83.5 cubic metres per day. The well to serve as a standby (WTH 2-97) was used as an observation well. During the pumping of WTH 1-97 the water in WTH 2-97 was drawn down some 1.9 metres. Mr. Clissold indicated that the two wells are in the same hydraulic unit. Therefore, Mr. Clissold concluded that additional testing using WTH 2-97 would not provide much more useful information. However, he stated that, if the Director had communicated the need to test WTH2-97, the Appellants would have been willing to comply.

[15] Mr. Clissold stated that a third well on the quarter section, WTH 5-97, could be used as an observation well during the diversion if the licence were approved. Indications are that it is in the same aquifer as WTHs 1-97 and 2-97.

[16] One additional well was drilled on the quarter in 1999, WTH 2-99, as a possible supply well, and the same year a well was drilled some one-mile to the south (WTH 1-99). WTH 1-99 was drilled into the Haynes member of the Paskapoo formation, a widespread

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<sup>6</sup> Exhibit 3.

<sup>7</sup> Director's Record, documents 14 and 59A. They are titled "Water Test Hole No. 1-97" dated May 1998, and "Proposed Water Distribution System East Half 30-038-26 W4M Red Deer Area Water Well Testing and Licensing" dated February 2000.

formation in western Alberta, at a depth of some 250 metres. Other wells in the area are some 50 metres in depth. Testing showed WTH 1-99 to have a yield of some 82 cubic metres a day. However, the fluoride concentration is above the Canadian Drinking Water Guidelines and the water contains methane.<sup>8</sup>

[17] As a result of the aquifer tests on WTH 1-97, Mr. Clissold calculated a cautious estimate of the long-term yield to be in the order of 25 to 30 cubic metres per day. This, he says, should be adequate to supply the needs of 12 households or lots based on the average consumption of 1.1 cubic metres per day per lot or 14.4 cubic meters per day for all 12 lots.

[18] Mr. Clissold said that attempts were made to discuss the licence with the Director's staff, but they were unsuccessful. He believed that a satisfactory arrangement could have been worked out if the parties had met and discussed alternative arrangements such as the provision of water storage facilities to deal with peak water demands.

[19] Regarding the effect on existing and future water users in the area, Mr. Clissold said that he did not believe they would be adversely affected. He believes there is plenty of groundwater in the area. Based on the testing, he estimated that the drawdown on a well 500 metres away from WTH 1-97 would, if it were in the same aquifer, be 0.7 metres after 20 years of pumping WTH 1-97 at a rate of 14.4 cubic metres per day. Likewise, he estimates that the drawdown on the same well that was 347 meters from WTH 2-97, if WTH 2-97 was pumped at 14.4 cubic meters per day for 20 years, would be 0.8 metres.

[20] Mr. Clissold discussed the issue of confined and unconfined aquifers beginning with definitions. The aquifer itself consists of the permeable layer that contains the groundwater. It may be sandstone or fractured shale. If the water level in the well, when pumping is absent, rises above the top of the aquifer material it is classified as a confined aquifer. On the other hand, if the water level in the well is below the top of the aquifer under non-pumping conditions it is classified as an unconfined aquifer. To illustrate his discussion, he provided two documents.<sup>9</sup>

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<sup>8</sup> Director's Record, document 59A, page 16.

<sup>9</sup> Water Well Completed in a Confined Aquifer - 02-34-064-19-W5M and Water Well Completed in an

The first of which shows a well completed in a confined aquifer and the second showing a well completed in an unconfined aquifer.

[21] He said that the standard approach to analyzing the productivity of unconfined aquifers is to assume that the available drawdown is two-thirds of the saturated thickness of the aquifer. To show that wells in unconfined aquifers have been licensed by Alberta Environment in the past, he provided a list of 68 wells in unconfined aquifers from which water diversion in annual amounts of 620 to 145,550 cubic metres per year has been permitted.<sup>10</sup> He provided a second list of 32 wells in near unconfined aquifers from which diversion has been licensed in annual amounts varying from 620 to 42,152.7 cubic metres per year.<sup>11</sup> He used these exhibits to show that, in his opinion, the fact that a well is in an unconfined aquifer should not preclude that well from being licensed as a source for water diversion.

[22] Under cross-examination regarding the effect of the diversion on existing lots in Canyon Heights, Mr. Clissold noted that the estimated drawdown of some 0.7 metres after 20 years of pumping at 14.4 cubic metres per day would be no greater than the effect of 12 wells, one on each of the new lots, because these would be entitled to use at least as much water without any licence.<sup>12</sup>

[23] In answer to a question from Mr. Sprague regarding liability, Mr. Clissold said that his firm carries errors and omissions liability insurance. In the event a project does not live up to the performance that his firm had projected, the firm, by using the insurance funds would correct most situations by either deepening the well in question or drilling a new well. Mr. Clissold said that he has never been required to use this insurance.

[24] The Board noted that in his direct evidence, Mr. Clissold indicated that since 1971 his firm had had three license applications out of some 160 applications refused. All these

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Unconfined Aquifer - 09-11-062-18-W5M. Exhibit 6.

<sup>10</sup> Examples of Licensed Water Wells in Unconfined Aquifers. Exhibit 4.

<sup>11</sup> Examples of Licensed Water Wells in Near-Unconfined Aquifers. Exhibit 5.

<sup>12</sup> Hearing Transcript, page 69.

refusals were by the administration at Red Deer. The Board asked if there was any significance in this fact. Mr. Clissold replied that all these refusals had been in the last year and two months. He added that his firm had been having difficulty getting projects through Alberta Environment in Red Deer, but not in other areas of the Province.

[25] Mr. Clissold also noted that, in his opinion, when a report is prepared by a qualified hydrogeologist with experience in the area under consideration, Alberta Environment should not spend a lot of time reviewing the report before accepting it.

**B. The Director**

[26] Mr. Sprague called Mr. Kenn Looten, Mr. Glenn Winner and Mr. Tim Chau as a panel. Mr. Looten is the Regional Support Manager for the Parkland Region of Alberta Environment, and is the Director for the purposes of the *Water Act*. Mr. Winner is a hydrogeologist with Alberta Environment responsible for evaluating technical data submitted with licence applications and making recommendations whether a licence should be issued. Mr. Chau is a groundwater engineer with Alberta Environment responsible for the evaluation of groundwater resources.

[27] Mr. Winner said that he examined the application for the diversion of groundwater and concluded from a review of the test data that while WTH 1-97, the proposed supply well, was in a confined aquifer, the well was not capable of providing the quantity of water required without causing additional depletion of the aquifer. He said that, in his opinion, the well could supply enough water for two households. He based his opinion on the records of 15 wells in the Canyon Heights subdivision, which were provided to Mr. Looten by Mr. Barry Bateman.<sup>13</sup> This data indicates that these wells had originally been in a confined aquifer. The records of water level showed that there had been an average decline in water level of some 18.9% from the original static or non-pumping level when the wells were drilled.

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<sup>13</sup> Director's Record, document 23.

[28] Mr. Winner explained that the determination of “peak requirements” may be examined in a number of ways. Section 23(3)(a) of the *Water Act* indicates that a household may use water at a rate of up to 1250 cubic metres per year or 3.42 metres per day.<sup>14</sup> Mr. Winner also referred to the Alberta Private Sewage Systems Standards Practice Handbook,<sup>15</sup> which indicates that a house with two bedrooms and two people generates some 1.35 cubic metres of sewage a day. Assuming the return component is 70%, the daily water use would be 1.8 metres per day. Mr. Winner testified that the long-term yield of a well to serve a 12-lot subdivision should be based on the *Water Act* requirement. This would require the well to be able to produce an annual yield of 15,000 cubic metres per year or 41.1 cubic metres per day.

[29] Mr. Winner said that on the weekend immediately before the hearing (April 21<sup>st</sup> and 22<sup>nd</sup>) he had learned that WTH 2-97 was improperly completed. Although this well is designated as the stand-by well, this discrepancy should be corrected before a licence for the diversion could be issued.

[30] Mr. Chau stated that he believed that the aquifer test on WTH 1-97, with a duration of 720 minutes, was not carried out for a long enough period. The well should have been pumped for 24 hours and allowed to recover for 24 hours. In his opinion, the results of the test are not reliable.<sup>16</sup> In support of his position Mr. Chau cites the Environmental Guidelines of Review of Subdivisions for Alberta published in 1998.<sup>17</sup>

[31] Mr. Chau reviewed the conclusions he reached after his review of the application. He noted that there is a general water level decline in the Canyon Heights area based on the groundwater level information (see footnote 9) and the groundwater sources are being depleted because the recharge of water into the area is insufficient to meet the consumption. He then

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<sup>14</sup> Section 23(3)(a) of the *Water Act* provides:

“... a report certified by a professional engineer, professional geologist, or professional geophysicist... states that the diversion of 1250 cubic metres per year..... for each of the households within the subdivision ...”

<sup>15</sup> Exhibit 7.

<sup>16</sup> Hearing Transcript pages 96 to 97.

<sup>17</sup> Hearing transcript, page 113.

repeated Mr. Winner's concern that the proposed long-term yield for WTH 1-97 exacerbates the situation.<sup>18</sup>

[32] Mr. Looten said that he reviewed the results of the technical review by his staff and agreed that the amount of water requested was insufficient for the purpose intended, the nearby domestic wells would be adversely affected, and the proposed supply well will not be able to supply the quantity of water requested. He noted that his staff does its own technical investigation of each application whether or not a consultant's report is filed with the application. He commented that the consultant may have his opinion and his staff may have their opinion. He indicated that he had followed his staff's advice in this case.

[33] Regarding consultation with the Appellants and his consultant, Mr. Looten said that most such conversations involve his staff rather than himself. If his staff feel they have enough information they may not contact the Appellants. He said that he does not allow changes in an application after it has been advertised because that removes some of the opportunities for people who are affected to submit a statement of concern. Mr. Looten commented on Mr. Clissold's evidence that he had had three files rejected by the Red Deer office. He said that they do not consider the application to be from a consultant but rather from the proponent. He noted that he and his staff are involved with a large number of consultants so that the issue with respect to who the consultant, is not a factor.

[34] In his cross-examination, counsel for the Appellants asked Mr. Looten about a statement in his brief submitted prior to the hearing dated April 19, 2001. Paragraph 35 of the brief states:

□The Appellants' application speaks of the need for a diversion of 1.1 cubic metres per day per lot. This number is based upon a 1987 Soil Testing and Groundwater Evaluation Guideline for Residential Subdivisions.□

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<sup>18</sup> Hearing transcript, page 100.

Mr. Looten said that this document has been updated. Mr. Winner added the draft is being circulated but, in answer to a question, admitted that the 1987 document is the effective one at this time.

[35] Mr. Looten said that, with regard to wells completed in confined aquifers, it is Alberta Environment's policy not to allow the non-pumping water level to fall below the top of the aquifer. He was not aware of a written version of this policy.

[36] When questioned by the Board regarding the 24-hour pumping test, both Mr. Winner and Mr. Chau said that a test involving 24 hours of pumping followed by 24 hours of recovery is more or less standard in the industry. However, they noted that the matter is site specific and some conditions might be satisfied by a shorter test and some would require a longer test.

[37] The Board asked the panel questions regarding communication between the Appellants' consultant and the Director's staff. Mr. Looten replied that he has no objections to such communication. In this case he understood that Mr. Winner had all the information he needed and so it was not necessary to talk to the consultant.

[38] Regarding the three applications that Mr. Clissold had had turned down by the Red Deer office, Mr. Looten said that two of them have been resubmitted with no appeal and that the one now being heard in this appeal is the third one.

## **C. Closing Arguments**

### **1. The Appellant**

[39] The Appellants argue that the Director erred in not recognizing the consequences of not approving the application. The two regulated and licenced wells requested in the application would probably be replaced by twelve unregulated wells in the same aquifer. These twelve unregulated wells would use, for all intents and purposes, the same amount of water and possibly could use more. He argues that this is not in the public interest. In addition, the regulated, monitored two-well system will provide needed information for the future development of the area.

[40] Regarding the issue of whether or not WTH 2-97 should have been tested, the Appellants stated that, while his consultant did not believe that testing was necessary, the Appellant would have been prepared to have an aquifer test done on the well if the Director had indicated to him that he wanted such a test performed. He further noted that there was no communication allowed between the Director's staff and Mr. Clissold, the Appellant's consultant. The Appellants argue that this is wrong.

[41] The Appellant's note that when Mr. Looten was testifying, he said that as far as he knew his staff had all the information they needed to assess the licence application and, therefore, there was no need for communication with the Appellants. However, he points to an internal memo from Mr. Winner to Mr. Ernie Hui<sup>19</sup> that lists three pieces of information lacking.<sup>20</sup> These involve chemical analyses, a survey of surrounding wells, and a plan identifying the location of the source wells.

[42] The Appellants cited section 2 of the *Water Act*<sup>21</sup> to support his argument that the Red Deer office of Alberta Environment should co-operate with applicants for licences. He pointed out that the application was submitted in June 11, 1999 and Mr. Bower was not advised

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<sup>19</sup> Mr. Ernie Hui is the Head of the Permitting and Licencing Standards Branch, Natural Resources Service, Alberta Environment.

<sup>20</sup> Director's Record, document 56.

<sup>21</sup> Section 2 of the *Water Act* provides:

2. The purpose of this Act is to support and promote the conservation and management of water, including the wise allocation and use of water, while recognizing
  - (a) the need to manage and conserve water resources to sustain our environment and to ensure a healthy environment and high quality of life in the present and the future;
  - (b) the need for Alberta's economic growth and prosperity;
  - (c) the need for an integrated approach and comprehensive flexible administration and management systems based on sound planning, regulatory actions and market forces;
  - (d) the shared responsibility of all residents of Alberta for the conservation and wise use of water and their role in providing advice with respect to water management planning and decision-making;
  - (e) the importance of working co-operatively with the governments of other jurisdictions with respect to trans-boundary water management;
  - (f) the important role of comprehensive and responsive action in administering this Act.

that it had been refused until Mr. Looten's letter of July 3, 2000. He noted that this seemed much too long a time.

[43] The Appellants argue that WTH 2-97, since it is in the same aquifer as WTH 1-97, which was tested, does not need to be tested, as it would not provide any substantially new information. However, if the Director had indicated that he wanted it tested, it would have been tested.

[44] Regarding the matter of confined and unconfined aquifers, the Appellants argue that numerous wells have been licenced for unconfined aquifers. The Appellants cited the case of the Chevron Canada well WSW No. 2 at Fox Creek, where the licenced diversion was 250 cubic meters per day in 1980 and was increased to 600 cubic metres per day in 1992. The application for the Chevron Canada well used two-thirds of the saturated thickness of the aquifer as the available drawdown. The Appellants note that the Director is saying that, in order to protect the groundwater resource, no water is available from an aquifer where the non-pumping water level is at or slightly above the top of the aquifer. The Appellants argue that it does not matter whether the aquifer is confined or unconfined. The tests on the aquifer can show its productivity and the impact it may have on surrounding wells.

[45] The Appellants do not argue that the effects of the diversion on surrounding wells should be ignored. In fact, he says this is an important aspect and reiterated his first argument that the two supply wells requested would have a lesser effect on these other wells than the 12 individual, unregulated wells would likely be drilled if this licence application is ultimately refused.

## 2. The Director

[46] The Director argued that he rejected the application because of the impact the diversion would have on the aquifer and the effects of this impact on other users of water from the aquifer. He said that the important points considered in rejecting the application were the protection of the aquifer and the rights of other users of the aquifer. The Director, in looking at the transmissivity values presented, had concerns about the ability of the well to supply water. Moreover, the evidence of Mr. Clissold and others indicated that other water users would be

adversely affected. Mr. Clissold's calculations predicted a drawdown of 0.7 metres in a neighboring well after 20 years. The neighboring wells have already experienced an average drawdown of some 4.6 metres during their use of the aquifer. He, therefore, rejected the application.

[47] Turning to the issue of unconfined and confined aquifers, the Director defined a confined aquifer as one in which the non-pumping water level is above the top of the aquifer and an unconfined aquifer is one where the non-pumping water level is below the top of the aquifer. Alberta Environment believes that the water available from an aquifer is based on the head, or pressure, of water in the aquifer. Alberta Environment's position is that a confined aquifer should be maintained as a confined aquifer meaning that the water level should be maintained above the top of the aquifer. In the case of WTH 1-97, the Director noted that it is in a confined aquifer but the available head is very small, and Mr. Winner and Mr. Chau conclude there is too little water available to supply the needs of a 12-lot subdivision.

[48] The Director noted the Appellants' comments on the length of time taken to process this application. He pointed out that the exploration report was received by the Director on February 24, 2000 and the decision made on July 4, 2000. He noted that this is not the year long time frame that the Appellants claimed. He added that the Director is bound by the terms of section 2 of the *Water Act*<sup>22</sup> and must do a thorough analysis of the application.

[49] The Director noted that, in some cases, there may be discussions between his staff and himself and an applicant. In this case, however, the staff believed that they had sufficient information to make a decision and so discussions with the Appellants were unnecessary. He further noted that, since the application must be advertised, it is not appropriate for his staff to agree to changes in the application after the public has seen the advertisement. Someone who was affected by the changes would have no opportunity to express their concern.

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<sup>22</sup> See footnote 21.

## **IV. Analysis**

### **A. Introduction**

[50] The major issue before the Board is whether we should recommend to the Minister that the decision being appeal should be confirmed, reversed, or varied. In the correspondence in preparation for this hearing, the parties identified four issues to be resolved. The identified issues and their relevance to the determination of the major issue provides a basis for the Board's analysis of the evidence.

### **B. The Issues**

#### **1. Testing of WTH 2-97**

[51] The first issue identified was "Whether or not the Director ought to have considered it necessary to test WTH 2-97 as the well had not been tested during the groundwater evaluation program."

[52] WTH 2-97 is to be used as the standby source. The Appellants' consultant did not think it was necessary to test WTH 2-97 because he concluded that it was in the same aquifer as WTH 1-97, the well he did test, and that it was hydraulically connected to WTH 1-97 so that testing it would not add much useful information. The consultant did indicate that the Appellants would have performed the testing on WTH 2-97, if required to do so. The Director believed that it should have been tested. Furthermore, the Director noted that improper completion of this well (it appears to be completed in two aquifers) should be corrected.

[53] The Board believes that WTH 2-97 should have been tested because of the evidence that it has been improperly completed in two aquifers and because this well is being proposed as a standby well for future use. This testing would provide further insight into the capability of the aquifer as a supply source and should also provide an opportunity to address the Director's stated concern about an inadequate duration of testing having been performed on WTH 1-97.

2. Discussion of Alternatives

[54] The second issue was “Whether or not the director ought to have engaged in discussion with the proponent with respect to alternative approaches.”

[55] The Director and his staff declined to discuss the application with the Appellants or his consultant. The rationale for this refusal was that the application contained all the information that the Director needed to make a decision and that it might be unfair to other parties who had filed statements of concern about the application if any substantive changes were made to the proposal as a result of the discussions. The Director also expressed concern about any such discussions possibly fettering his discretion in approving or denying the application, but he acknowledged that meetings with his staff would not pose such a danger.

[56] The Appellants argued that discussions with the Director’s staff could have clarified areas of concern and identified resolutions for those concerns. For example, if the Director required testing of WTH 2-97, an indication of this requirement during discussions with the Appellants’ consultant could have resulted in that testing being performed before the decision was made. Likewise, concerns with peak water demands expressed by the Director could have been resolved by incorporation of a storage scheme.

[57] The Director’s contention that meetings with the Appellants were not necessary because the Director had all the information he required to make a decision was contradicted by the Director’s Record.<sup>23</sup> In the alternative, if the Director takes the position that this application could not be approved, regardless of any additional information provided by the Appellants, strictly on the grounds that approval would involve water extraction from a confined aquifer that was too close to becoming unconfined, then the Director would have been able to reject the application as soon as it was received, not 13 months later. The Director’s failure to invoke that policy decision expeditiously upon receipt of the application, given the Director’s stated

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<sup>23</sup> Director’s Record, Document 56, Memo dated May 16, 2000 from Mr. Glenn Winner, Alberta Environment to Mr. Ernie Hui, Alberta Environment, Proposed Diversion and Use of Groundwater at NE30-38-26-W4, Divide Hill Subdivision (Parkland File No. 00074364).

knowledge and stated concerns about groundwater levels in this region, calls in to question the credibility of the Director's position that this unwritten policy must apply absolutely to this case.

3. Impacts on Other Water Users

[58] The third issue was "Whether or not the Director was correct in being concerned about the impacts on existing and future water users."

[59] There is no disagreement between the parties on this issue. Clearly, the Director is obliged by the *Water Act* to be concerned about impacts on existing and future water users.

4. Unconfined Aquifers

[60] The final issue was "Whether it is appropriate to consider the aquifer in the groundwater supply assessment to be 'unconfined'."

[61] There is no disagreement between the parties on a narrow interpretation of this issue. The parties agree that, according to the stated definition of a confined aquifer, WTH 1-97 is currently in a confined aquifer. The disagreement between the parties arises about what meaning the determination of confined aquifer status makes to the question of whether or not the Director can issue a licence to extract 5,110 cubic meters per day of water by means of WTH 1-97, with WTH 2-97 as a backup, for a community water supply to serve an approved subdivision of 12 residential lots.

[62] The Director maintains that they have a policy that no water extraction can be approved that will cause the water level in the well to drop below the top of a confined aquifer, under non-pumping conditions, thereby causing the aquifer to become classified as unconfined. The Director estimated that there is only sufficient water yield at WTH 1-97 available to provide water for two residential lots under the foregoing policy. However, the Director also stated that the available water supply from WTH 1-97 was 1.2 gallons per minute. That is equivalent to 7.9 cubic meters per day (2,863 cubic meters per year), more than half what the Appellants were seeking in their application (5,110 cubic meters per year). The apparent discrepancy between flow rates and numbers of lots to be served is based on the Director assuming 3.4 cubic meters per day (1,250 cubic meters per year) per lot, the maximum entitlement for water diversion for

household purposes before a license under the *Water Act* must be obtained. In contrast, the Appellants are seeking 1.1 cubic meters per day for the 12 lots, totaling 14.4 cubic meters per day (5,110 cubic meters per year).

[63] The Appellants argue that the predicted drop in water levels (with no allowance made for recharge) would be 0.7 meters over 20 years at a point 500 meters from the supply well for the requested diversion rates. Furthermore, the water level naturally fluctuates about 1 meters over a period of one year. On this basis the Appellants argue that the application is not necessarily in violation of the Alberta Environment's policy on water diversion from confined aquifers. Furthermore, the Appellants provide evidence that Alberta Environment has licensed diversions from unconfined aquifers on the basis of using two thirds of the saturated zone.<sup>24</sup> The Director did not challenge the accuracy of this evidence.

[64] The status of an aquifer as confined or unconfined is only relevant to the overall decision whether to approve or deny this application for a license to divert water to the extent that Alberta Environment's policy is applicable and valid. The Board's ability to judge these issues is undermined by the evidence that this policy is unwritten. Furthermore, this unwritten policy that we were told was "non-negotiable" was not articulated in any detail nor defended in a coherent manner, particularly considering the overriding effect it appears to have on decision-making. The Board is being asked to accord ultimate determinative authority to an unwritten policy that appears to take no consideration of sustainable yield from the aquifer. In contrast, it is a policy that apparently bases decisions entirely on a single and seemingly arbitrary reference water level.

**C. Merit of the Director's Decision Under the *Water Act***

[65] The Director is obliged to uphold the requirements of the *Water Act*. The *Water Act*, section 2 states:

2. The purpose of this Act is to support and promote the conservation and management of water, including the wise allocation and use of water, while recognizing
  - (a) the need to manage and conserve water resources to sustain our environment and to ensure a healthy environment and high quality of life in the present and the future;
  - (b) the need for Alberta's economic growth and prosperity;
  - (c) the need for an integrated approach and comprehensive flexible administration and management systems based on sound planning, regulatory actions and market forces;
  - (d) the shared responsibility of all residents of Alberta for the conservation and wise use of water and their role in providing advice with respect to water management planning and decision-making;
  - (e) the importance of working co-operatively with the governments of other jurisdictions with respect to trans-boundary water management;
  - (f) the important role of comprehensive and responsive action in administering this Act.

[66] In the case of the application in question, approval was sought for a license to divert 5,110 cubic meters per year of water from a single well (WTH 1-97) with a second well as back-up (WTH 2-97) for the purposes of providing domestic water supply to an approved subdivision having 12 lots. Given the Director's decision to deny the license application, each individual lot owner is entitled under the *Water Act*<sup>25</sup> to drill a well to divert 1250 cubic meters per year for household purposes without applying for a license. Thus, the approved 12-lot subdivision could divert, without any requirement to apply to the Director for approval, almost three times the total quantity of water that was denied to the Appellants by the Director's decision. It seems almost certain that once the 12 lots are sold, that water will be diverted, without any license or conditions, to an amount at least equivalent to the quantity that was denied to the Appellants. The Board is unable to see how the Director's decision in this case serves the

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<sup>24</sup> Examples of Licensed Water Wells in Unconfined Aquifers. Exhibit 4.

<sup>25</sup> Section 21(2)(a) provides:

- (2) Subject to subsection (3) and section 23 and any exemptions specified in the regulations, a person who owns or occupies land under which groundwater exists
  - (a) has the right to commence and continue the diversion of the groundwater for household purposes, and...

purpose of the *Water Act* "...to support and promote the conservation and management of water, including the wise allocation and use of water..."<sup>26</sup>

[67] In fact, it appears to the Board that by failing to encourage the development of a community water distribution system that are subjected to some oversight by Alberta Environment and may ultimately be more economical to connect to approaching municipal water distribution systems, the Director's decision in this case may work contrary to the purposes of the *Water Act*.

[68] Furthermore, the evidence suggests that the nature of the Director's interaction with the Appellant was also inconsistent with purposes stated in sections 2(c) and 2(d) of the *Water Act*.<sup>27</sup> In particular, given the recognition by the Director that ground water levels in the immediate area are a concern and the reasonable suggestion made by the consultant to the Appellant that the observed decline may be caused by improper completion of some existing wells, the Director should be working with the Appellants and all existing groundwater users in the region to determine the merits of this explanation and the associated resolution of the problem that the proposed course would offer. Likewise, a policy to encourage dialogue with applicants to find more effective water use strategies would be far more consistent with the purposes of the *Water Act* than the actions in this case where discussions with the Appellants were denied.

[69] Finally, we note that the *Water Act* accords specific requirements for and status to reports prepared by professional engineers, professional geologists or professional

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<sup>26</sup> Section 2 of the *Water Act*.

<sup>27</sup> Section 2 provides that:

The purpose of this Act is to support and promote the conservation and management of water, including the wise allocation and use of water, while recognizing ...

- (c) the need for an integrated approach and comprehensive flexible administration and management systems based on sound planning, regulatory actions and market forces;
- (d) the shared responsibility of all residents of Alberta for the conservation and wise use of water and their role in providing advice with respect to water management planning and decision-making...

geophysicists.<sup>28</sup> To the extent that these reports must be prepared by professionals licensed or permitted by the Association of Professional Engineers, Geologists and Geophysicists of Alberta (“APEGGA”) and the Director’s staff, who may also be such licensed professionals, may be charged with reviewing such reports in their professional capacity, both are bound by the Code of Ethics and the Environmental Practice Guidelines published by APEGGA. Those obligations place specific requirements on both sets of professionals to act professionally and responsibly, first and foremost to insure the safety, welfare and environmental protection for Albertans.

## V. Conclusions and Recommendations

[70] The Director should require that appropriate remedial action be taken with respect to WTH 2-97 to insure that it is completed in only one aquifer and should provide site specific guidance, in accordance with reasonable professional standards, for testing this well for the purposes of providing supporting data for approval of the license application. The Board will be making a specific recommendation to the Minister to require this work.

[71] Provided that results of this test do not provide evidence that would substantially contradict the findings of the testing on WTH 1-97 in a negative manner with regard to available yield, the Director should issue a license for the diversion of 5,110 cubic metres per year of water from WTH 1-97 with a back-up from WTH 2-97 for the purposes of providing a community water supply to the 12 residential lots in the approved subdivision. The Board will be making a specific recommendation to the Minister with respect to the issuance of the licence.

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<sup>28</sup> Section 23(3)(a) provides:

- 23(3) If, after this Act comes into force, a subdivision of land of a type or class of subdivision specified in the regulations is approved under the *Municipal Government Act*, a person residing within that subdivision on a parcel of land that adjoins or is above a source of water described in section 21 has the right to commence and continue the diversion of water under section 21 only if
- (a) a report certified by a professional engineer, professional geologist or professional geophysicist, as defined in the *Engineering, Geological and Geophysical Professions Act*...

[72] The Director may work with the Appellant to identify reasonable and professionally responsible monitoring conditions to be attached to this license to insure that the predictions made for impact on groundwater levels are being satisfied and that knowledge of the groundwater regime in the region becomes better understood.

[73] The Director should initiate a cooperative discussion involving the Appellants and all other ground water users in the affected area to explore whether the possibility of poor completion of one or more existing wells is causing water to be draining to a lower aquifer.

[74] The Director should encourage the Appellants to insure that the standards of design and construction employed for the subdivision water distribution system are adequate to assure future approval for connection to the Red Deer water distribution system, in the event that this option ultimately becomes viable.

[75] If Alberta Environment believes that a restrictive policy on use of groundwater from confined aquifers is essential to the purposes of *Water Act*, then a clearly stated written policy should be developed in full consultation with the relevant professional community in Alberta.

[76] Alberta Environment should adopt an overall policy to provide clear, explicit and professionally sound reasons for rejecting license and approval applications so that applicants can fairly judge whether there is any merit in modifying their plans and re-applying. In the event that an application clearly contravenes a well-established and clearly articulated policy, the applicant should be notified as early as this deficiency is recognized. In cases where a deficiency may be rectified without changing the substance of the application, the applicant should be provided an opportunity to rectify the deficiency before a negative decision is entered. If the changes are judged to be of sufficient substance to warrant re-advertising of the application, the applicant should be given the option of re-advertising to allow the discussions on the necessary changes to proceed. These measures should be pursued in the spirit of satisfying the broad intent of the *Water Act*.

[77] In summary, after careful consideration of all the evidence received and of the information contained in the Director's Record, the Board finds that the Director's decision to deny this license application fails to serve the purposes of the *Water Act* as stated in section 2. The denial of this application virtually assures that at least as much ground water as was requested can be diverted through 12 individual wells, one on each lot approved in the subdivision. Furthermore, the *Water Act* will permit almost three times the requested annual quantity of groundwater for household purposes to be diverted through these 12 individual wells, which will not be subject to any conditions or monitoring.

[78] In accordance with section 91 of the Act, the Board recommends that the Minister of Environment vary the decision of the Director and order:

1. the Appellants to complete appropriate remedial actions to repair the improper well completion of WTH 2-97;
2. the Appellants to perform an aquifer test on WTH 2-97, the standby well, to accepted professional standards; and
3. the Director, provided that the aquifer test of WTH 2-97 does not substantially contradict the previous findings on available groundwater yield, to issue a licence for the diversion of 5,110 cubic metres of water from WTH 1-97.

[79] Attached for the Minister's consideration is a draft Ministerial Order implementing these specific recommendations.

[80] Finally, with respect to section 92(2) and 93 of the Act, the Board recommends that copies of this Report and Recommendations and of any decision by the Minister be sent to the following parties:

1. Mr. Don Bower and Ms. Marjorie Bower, represented by Mr. Kirk Sisson, Sisson Warren Sinclair; and
2. Mr. Kenn Looten, Director, Parkland Region, Natural Resources Service, Alberta Environment, represented by Mr. Grant Sprague, Alberta Justice.

**VI. Costs**

[81] Prior to the close of the hearing, the Board asked the parties whether they had any submissions with respect to costs. Both parties indicated that they did not wish to make an application for costs and as a result, no costs are awarded.

Dated on May 28, 2001, at Edmonton, Alberta.

"original signed by"  
Steve E. Hrudey, Panel Chair

"original signed by"  
John P. Ogilvie, Vice-Chair

"original signed by"  
Ron V. Peiluck, Board Member

**VII. Exhibits**

**Appeal EAB 00-054  
April 26, 2001, Edmonton, Alberta  
Don and Marjorie Bower  
Application for Licence/*Water Act*  
EXHIBIT LIST**

<b>Exhibit No.</b>	<b>Description</b>
1	A Notice of Public Hearing advertisement was placed in Red Deer Advocate on February 24, 2001, advising of a hearing to be held on March 2, 2001, in Edmonton. A News Release issued on February 26, 2001.
2	Notice of Appeal filed by Mr. Don and Ms. Marjorie Bower on July 7, 2001.
3	Groundwater use of 14.4 m <sup>3</sup> /day, NE 30-038-26 W4M, East of the City of Red Deer. Presentation submitted by Mr. Roger Clissold, witness for Appellant.
4	Examples of Licensed Water Wells in Unconfined Aquifers. Submitted by Mr. Roger Clissold, witness for Appellant.
5	Examples of Licensed Water Wells in Near-Unconfined Aquifers. Submitted by Mr. Roger Clissold, witness for Appellant.
6	(1) Water Well completed in a Confined Aquifer – 02-34-064-19-W5M. (2) Water Well Completed in an Unconfined Aquifer – 09-11-062-18 W5M. Submitted by Mr. Roger Clissold, witness for Appellant.
7	Alberta Private Sewage Systems Standard of Practice – 1999 Handbook, Table 3.1.14.A. showing Expected Volume of Sewage Per Day. Submitted by Mr. Grant Sprague, counsel for the Director, Alberta Environment.

**VIII. Draft Order**

**Ministerial Order**  
/2001

*Environmental Protection and Enhancement Act,*  
S.A. 1992, c.E-13.3  
*Water Act*  
S.A. 1996, c.W-3.5

**Order Respecting Environmental Appeal Board**  
**Appeal No. 00-54**

I, Dr. Lorne Taylor, Minister of Environment, pursuant to section 92 of the *Environmental Protection and Enhancement Act*, make the order in the attached Appendix, being an Order Respecting Environmental Appeal Board Appeal No. 00-054.

Dated at the City of Edmonton, in the Province of Alberta this \_\_\_\_ day of \_\_\_\_\_, 2001.

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Honourable Lorne Taylor  
Minister of Environment

Draft Appendix

Order Respecting Environmental Appeal Board Appeal No. 00-054

With respect to the decision of Mr. Kenn Looten, Director, Parkland Region, Natural Resource Service, Alberta Environment, to refuse to issue a licence under the *Water Act*, I, Dr. Lorne Taylor, Minister of Environment vary the decision of the Director, and order:

1. the Appellants to complete appropriate remedial actions to repair the improper well completion of WTH 2-97;
2. the Appellants to perform an aquifer test on WTH 2-97, the standby well, to accepted professional standards; and
3. the Director, provided that the aquifer test of WTH 2-97 does not substantially contradict the previous findings on available groundwater yield, to issue a licence for the diversion of 5,110 cubic metres of water from WTH 1-97.