



JUDGEMENT

PERMIT NO: P.E. 240 issued to Crestbrook Forest Industries Ltd. for the discharge of bleached kraft pulp mill effluent to the Kootenay River.

APPEAL: The appeal is against two amending Orders of the Director of Pollution Control, contained in a "Letter of Transmittal" and its attachment of October 15, 1981.

The Orders are as follows:

I. Authorized Discharge to the Kootenay River

1. Commencing October 31, 1981, the discharge of mill waste effluent to the Kootenay River is authorized only when the river flow exceeds:

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|------------------------------------|-----------------------|
| (i) Stage 1 - 1982 | 130 m ³ /s |
| (ii) Stage 2 - 1983 | 170 m ³ /s |
| (iii) Stage 3 - 1984 | 210 m ³ /s |
| (iv) Stage 4 - 1985 and thereafter | 250 m ³ /s |
2. On or before December 31, and each year thereafter, the Permittee shall submit to the Regional Manager, in duplicate, a comprehensive report detailing the effect that the previous 12 months of operation have had on the colour removing capacity of the soil below the rapid infiltration (RI) basins.

II Biological Monitoring

The Permittee shall carry out a biological monitoring program on the Kootenay River. The program shall monitor benthic insects and periphyton and should document biomass and diversity upstream from the mill and at several locations downstream as far south as the Wasa Bridge. This study shall begin in 1982.

HEARING INFORMATION:

The hearing was held on January 19, 1982, in Conference Room 2, Robson Square, Vancouver.

The Board Members in attendance were:

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Mr. Frank Hillier, P.Eng., Chairman
Mr. Ian Hayward, P. Eng., Member
Mr. Andrew Lynch, B.Sc., M.Sc., Member

Miss Shirley Mitchell, Official Recorder

REGISTERED APPELLANT:

Crestbrook Forest Industries Ltd., represented by
the following:

Mr. Karl Gustafson, LL.B., Legal Counsel
Mr. Jim Gormley, Vice President, Pulping
Operations
Mr. Brian Clifford, Technical Superintendent
Mr. John Swaney, Process Engineer
Mr. Mark Cameron, Lab. Technician

Witness:

Dr. Joe Mueller, Ph.D., Associate Head,
Division of Applied Biology,
B. C. Research Council

REGISTERED OBJECTORS: None

LIST OF EXHIBITS:

- A - Crestbrook Forest Industries Ltd. Submission to the Pollution Control Board, dated January 19, 1982, in respect of this appeal.
- B - Crestbrook Forest Industries Ltd. letter to Mr. Rick Crozier, at that time Regional Biologist, Waste Management Branch, dated December 5, 1980; signed by Brian Clifford for the Company.
- C - B.C. Research Council report by Dr. Joe Mueller (dated March 31st, 1981) entitled "Study of Mechanism of Colour Removal from Bleached Kraft Mill Effluent by Rapid Soil Infiltration (RI) (Confidential Document, not for release to public)

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SUMMARY OF APPELLANT'S PRESENTATION (In Part)

Mr. Karl Gustafson was legal counsel and spokesman for the appellant. All four of the other representatives of the Company took part in the hearing, but the main testimony came from Mr. Brian Clifford and Mr. Jake Swaney. The Company's witness, Dr. Joe Mueller, also gave testimony to the Board on the Rapid Infiltration (RI) System.

Mr. Gustafson started the Company's presentation by questioning the Board's authority to conduct the hearing.

He stated that the Company took the position that the Director of Pollution Control had failed to comply (under Section 8 of the Pollution Control Act) with the mandatory requirements of the statute, to notify all persons whose rights the Director believes would be adversely affected, before the amendments to the permit were made. The Company was not notified by the Director and, therefore, contends that the amendments in question are invalid.

The Company does state, however, that the regional Waste Management people did notify the Company of pending amendments to their permit and that they did have the opportunity to object to these local agents of the Director. The Company believes it has been denied one avenue of appeal, in that it could not appeal directly to the Director, and, secondly, it feels that it is extremely unfair that the regional people, who are the proponents of the amendments, are the ones to act as the Company's intermediaries with the Director in support of their objections.

On the basis of the foregoing, the Company believes the Environmental Appeal Board has no jurisdiction to hear this appeal. The Company requested a ruling from the Board.

Notwithstanding this legal argument, the Company still wished to proceed with the technical aspects of their case. To this end, they then presented background information describing the developmental history of the permit, an outline of the previous appeals, the effluent treatment system itself and the upgrading program which had taken place over the years. They described the new Rapid Infiltration (RI) System and its limitations, and also provided capital costs and operating costs for the effluent treatment plant as a whole.

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They stated that the Rapid Infiltration (RI) System had been developed and installed for the sole purpose of meeting the colour requirements of the Waste Management Branch. This requirement is that the increase in colour (SWC) above background in the Kootenay River does not exceed 15 colour units. They also gave a great deal of information about the flow and colour characteristics of the Kootenay River itself.

They stated that with the upgraded effluent treatment plant, including the new Rapid Infiltration installation, they could meet all of the requirements of the Waste Management Branch as far as Level "A" standards were concerned, and as far as the Receiving Waters Objectives were concerned. They felt that if they were forced to carry out the two Orders in question, it was the same as asking them to surpass the standards which the Waste Management Branch had set. They pointed out that they were the only mill in Canada that had built facilities to combat colour to the degree required by the Waste Management Branch (i.e. 15 colour units). To surpass that requirement would have serious consequences to the life of their Rapid Infiltration (RI) System, which, they also pointed out, had cost them some \$2,400,000.

In support of the Company's statement concerning the life expectancy of the Rapid Infiltration (RI) System, Dr. Joe Mueller offered the following evidence:

Dr. Joe Mueller: He stated that he had been hired in 1980 by Crestbrook Forest Industries to undertake a study to determine what mechanisms were involved in the Rapid Infiltration System process. From his studies, he said he had made the following observations:

1) The black colour in bleached kraft pulp mill effluent resulted from the liquidation of lignin molecules from the wood chips or fibrous material during the digesting and bleaching processes. The effluent is actually a dilute form of weak black liquor.

2) If the effluent is raised to an alkaline level of 9 to 10 ph. by the addition of, or in the presence of active alkaline salts, the lignin will precipitate out as a black sludge of about 5% consistency.

3) The soil or gravel which composed the rapid infiltration beds at the mill site were found to have alkaline levels of 9 to 10 ph. This was because the area was rich in both active and inactive salts of calcium and magnesium.

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4) When the pulp mill effluent was allowed to pass through these infiltration beds, an 80 to 85 percent precipitation of the lignin molecules was achieved, and the effluent then proceeded to the receiving water body in a relatively clear condition, provided there was a sufficient quantity of active alkaline salts in the bed.

5) After about 24 hours, however, it appeared that the active alkaline salts were almost completely exhausted and the efficiency of the beds dropped down to about 20 percent or below.

6) When this happened, the beds had to be rested in order to restore their colour precipitation properties. This recuperative period took about a week.

7) The process that takes place during the rest period is one of converting inactive salts of calcium and magnesium into active salts. This is done by the introduction into the beds of mild acids, natural sugars, alcohol and carbon dioxide which are also part of the mill effluent. These materials react with the inactive carbonates to make active bycarbonates. The process takes about a week to reach equilibrium, or for the beds to become fully operative again.

8) Dr. Joe Mueller indicated that the process cannot be forced or pushed beyond its natural cycle time without having a detrimental effect to the efficiency of colour removal and the life expectancy of the beds. He also stated that over the life of the beds there was a continuous build-up of the lignin sludge, which would eventually plug the beds. He estimated that the life of the beds was probably about 20 years.

Dr. Mueller made two other comments which were of particular interest to the Board. They were as follows:

1) Crestbrook Forest Industries' primary and secondary treatment facilities were of a quality equal to that of the other good mill systems within the Province. If they took care of their facilities, operated them properly, they should have no difficulty meeting Level A standards.

2) Crestbrook Forest Industries was in the forefront of development of a successful system to combat colour pollution. There was world-wide interest in the system. It was his opinion that if the system was forced, so that the proper

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evaluation of its merits was clouded or inconclusive, interest in the system could fade and a potentially good tool could be lost to the community at large for environmental improvement. The Crestbrook system was one of the first full-scale operating models, the prototype, hopefully, of many to follow.

SUMMARY OF APPEAL (Authorized Discharge to the Kootenay River.)

The Company feels that when the Director of Pollution Control made the order in question, he exceeded the Intent of the Act. The Company's main points of argument are as follows:

- 1) With their upgraded pollution abatement equipment, Crestbrook Forest Industries can meet all of the requirements of the Level "A" Standards and the Receiving Water Objectives, including the 15 colour unit standard, without adherence to the order in question.
- 2) The Level "A" Standards and Receiving Water Objectives are to apply on a province-wide basis. Crestbrook is the only mill in the Province which has had to meet the additional colour standards. If the order of the Director is enforced, it will mean that even this higher standard will be required to be surpassed, and with probable detrimental effects to the RI System. They believe this would be discriminatory.
- 3) They believe the Director has no right to direct the Company on how to operate its pollution abatement equipment, irrespective of whether the Company is meeting the conditions of its permit.
- 4) The Company admits that the RI system has a capacity to surpass the colour standards which the Director has set. The increased capacity, however, is undoubtedly at the expense of the life expectancy of the system. The Company claims that this additional capacity should be considered as insurance to meet future unexpected circumstances, or higher standards. They feel the Director has no right to deprive them of this ability, which they have provided to themselves at considerable expense.

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5) The RI System has shown that it can have beneficial results in the treatment of the mill effluent to reduce toxicity, BOD₅ and suspended solids. However, if the Director wishes further treatment in these areas, the Company feels that it must have the choice as to how they meet these additional requirements. The Director does not have the right to force them to use the RI System. He, also, does not have the right to use their RI System to carry out experiments for the Waste Management Branch beyond the requirements of the permit.

SUMMARY OF APPEAL (Biological Monitoring)

The Company's arguments against carrying out studies of this nature in the Kootenay River, are as follows:

1) Previous studies reflecting effluent treated by a less efficient system do not portray today's effluent conditions.

2) Previous studies did not consider the river bottom variation as it must be in benthic invertebrate studies, especially one as diversified as around Skookumchuk.

3) Most river biological studies are carried out during low flow conditions in the river. During low flow conditions the mill will be using the Rapid Infiltration system.

4) Other colour removal processes, e.g. massive lime, alum, produce effluents that have no effect on receiving biota.

5) With Rapid Infiltration on line in Missoula for nearly ten years and with Champion International committed to rapid infiltration and voluntarily carrying out benthic invertebrate studies, the results on the biological community over the years have been negligible.

6) Consultants have indicated in 1973 that with some effluent treatment improvements, Crestbrook's effluent would have very little effect on the biota. Since 1973, aerator capacity has tripled and the aeration basin flow converted to a plug flow, both of which would indicate a definite upgrading of the system.

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7) When the mill is on four-stage treatment during low flow conditions, it would appear that there is no evidence that would justify that biological studies should be carried out. When the four-stage system is replaced by the two-stage treatment during high flow conditions, river studies would be meaningless and not representative.

SUMMARY OF THE WASTE MANAGEMENT'S PRESENTATION (IN PART)

The following people appeared as representatives for the Waste Management Branch, Ministry of Environment

Mr. Paul G. Jarman, LLB, legal counsel

Mr. Rick Crozier, B.Sc., Regional Supervisor,
Waste Management Branch
Nelson, B. C.

Mr. L.R. Leinweber, Environment Technician,
Waste Management Branch
Cranbrook, B. C.

Mr. Paul Jarman, from the Ministry of Attorney-General, was legal counsel and spokesman for the Waste Management Branch. While two members of the Waste Management Branch itself appeared before the Board, the main testimony came from Mr. Rick Crozier.

Mr. Jarman opened his defence by asking for permission to reply to the appellant in regards to the jurisdiction of the Board to hear the case. He pointed out that there are normally three actors in the issuing of a permit; the Director, the Applicant and the Objectors. The notice in Section 8 of the Pollution Control Act refers to the Objectors. He stated that the rights of the Objectors are contained in Section 16. The rights of an Objector and the rights of a Applicant or Permit Holder are two different things. The Objector sections of the Act deal with a third party who has no way of knowing that his rights may be adversely affected until the Director tells him. The Applicant or Permit Holder becomes aware of this information because he is the recipient of the permit, amendment or order. In these ways, both the Objectors and the Applicant or Permit Holder are notified and given an avenue of appeal. This is the "Scheme of the Legislation".

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In any case, the Director has the sole right to decide whether the objection will become the subject of a hearing at his level or whether he will pass it up to the Board.

Having dealt with the jurisdictional question, Mr. Jarman then turned to the technical defence of the Waste Management Branch. He stated that in issuing the orders in question, the Director was merely carrying out the directives of the former Pollution Control Board.

The former Pollution Control Board had expressed a wish to see the polluted condition of the Kootenay River in the area of the mill corrected as soon as possible. Secondly, the former Board had upheld the Director's decision to have a monitoring program, and in its decision, the Board had ordered the Director to define and clarify what was required.

The position of the Waste Management Branch, as far as the "Authorized Discharge to the Kootenay River" was concerned, is that by making as much use of the Rapid Infiltration System as possible, they would be directing the effluent to an environmental medium which had a greater assimilative capacity than the River. In other words, they would be doing a better job to protect the environment in the area. In regards to the capacity and potential life of this system, they, also, had read Dr. Joe Mueller's report (B.C. Research Council) and placed a different interpretation on the information contained therein than the Company. It was never their intention to push the system beyond its capacity and thereby reduce the life of the system - hence, the phasing-in program.

Apart from the foregoing position of the Waste Management Branch, under cross-examination, Mr. Crozier did indicate that he thought that with the upgraded pollution abatement equipment at the mill, and using the RI System as the Company had suggested, the mill could probably meet the Level A Standards and the Receiving Water Objectives of the Branch. Possible minor exceptions, however, may be in the area of fish tainting and toxicity.

Based on information supplied by Crestbrook Forest Industries, in conjunction with the October 15, 1981 amendment, it was felt that the RI System could provide additional protection, above the colour restraint, in the areas of tainting and toxicity.

The Waste Management Branch's position on Biological Monitoring was as follows:

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1. The company states that there was no reference to biological monitoring in the earlier program. They feel that there has been no change in the biological condition of the river since 1979 and see no justification for this section of the monitoring program.
2. The previous Sampling and Monitoring Program, dated June 7, 1979 specified that a program for monitoring of the receiving environment, including the biological community shall be prepared by the Permittee and submitted to the Director for review.
3. The Board ruled that the above requirement was inadequate and directed the Director to define and clarify the pre-startup study requirements and the monitoring program to be followed after the startup of the new works.
4. The company has not provided the Waste Management Branch with any assessment of the biological condition of the Kootenay River since 1979.
5. A number of studies have documented an adverse impact on river biota since commencement of the pulp mill discharge in 1968. The biological monitoring program included in the most recent amendment is required to provide followup information on the degree of toxicity reduction provided by rapid infiltration.

DECISION:

The Environmental Appeal Board has considered all of evidence submitted to it in the appeal hearing on the two amending orders of October 15th, 1981, of the Director of Pollution Control, in connection with Permit No. P.E. 240, issued to Crestbrook Forest Industries Ltd.

The appellant, at the outset of these proceedings, took the position that the Board had no jurisdiction to hear the appeal since the Director had failed to comply with the requirement of notice to all persons whose rights be believed would be adversely affected. The objection was that members

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of the Director's staff, rather than the Director, had notified the appellant of the proposed amendments. These same members of the Director's staff, it was then contended, received the submissions of the appellant with respect to the amendments. It was contended that this procedure deprived the appellant of direct access to the Director as decision-maker, that his decision was, therefore, improper, and that the amendments should, therefore, be declared invalid by the Board on this basis.

The Board considers that there is no merit in this submission. Everything done by the Director's staff is ostensibly done on his behalf and in his name. Further, it would be futile to invalidate the amendments on this technical basis and require the Director to proceed to renotify the appellant and redetermine the matter, since any redetermination by the Director would be subject to appeal to this Board on the merits, in any event.

The Board also agrees with the "Scheme of the Legislation", as outlined by Mr. Jarman. It is of the opinion that as long as there is an adequate avenue of appeal open to all individuals whose interests may be adversely affected, the requirements of natural justice have been served. Crestbrook Forest Industries Limited have not been denied an adequate avenue of appeal.

On the basis of the foregoing two arguments, the Board believes it does have jurisdiction to hear this appeal.

In connection with the other specific merits of the appeal, the Board has the following comments:

1) It was fortunate that Dr. Joe Mueller was able to give evidence before the Board. Who is in a better position to interpret the meaning of a report than the author himself? On the basis of his evidence, the Board accepts the fact that the life of the Rapid Infiltration (RI) System may be reduced, with a resulting economic loss to Company, if the system is required to operate beyond the limits of complying with the current Level "A" Standards and Receiving Water Quality Objectives for the Forest Industry of British Columbia. The Board, therefore, believes that the order entitled "Authorized Discharge to the Kootenay River", Parts 1 & 2, goes beyond the Intent of the Act.

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The Director is, therefore, directed to remove this order from the amended permit and not to reinstate it, unless the Company fails to meet its obligations as to Level "A" Standards and Receiving Water Quality Objectives, (including the 15 colour unit requirement).

2) With respect to the Biological Monitoring Program, the Board believes that a program of this nature would be beneficial to the maintenance of proper pollution control levels in the Kootenay River, and, also, be within the Intent of the Act. Notwithstanding this statement, the Board also believes that the Company should not be forced into tests which have doubtful value. On this basis, the Board requests that the Director and the Company get together and resolve their differences in this regard. The Director and the Company will have 30-days from receipt of this judgement to come to an agreement. If the Director and Company cannot come to an agreement in this period of time, Mr. Andrew Lynch, a member of the Environmental Appeal Board at the hearing, shall arbitrate the matter and his decision shall be binding on both parties. If he is required to arbitrate this matter, he shall do so within 60 days of receipt of this judgement. The costs of the Monitoring Program shall be borne by the Company.

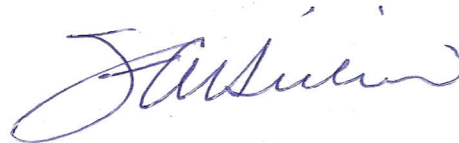
3. As a general principle, the Board believes that the Waste Management Branch should operate as follows:

- a) The Director should determine the properties and qualities of the contamination of the environment which would constitute a polluted condition.
- b) The Director should set the standards relating to quality, quantity and characteristics of a pollutant substance that an industry can discharge to the environment.
- c) These standards should be applied uniformly throughout the Province, within the industrial class.
- d) Industry must monitor its discharge of pollutant material to the environment so that it will have knowledge of, and be able to maintain control over what it is doing. Where the monitoring

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program is inadequate, the Director, in full compliance with the intent of the Pollution Control Act, should take steps to correct the deficiencies. All monitoring costs should be borne by the permit holder.

- e) The Director should not become involved in the day-to-day operation of an industrial plant, or in any of its process departments, unless the management of that plant has proved to be incapable of maintaining the standards set by the Director over an extended period of time. As a general principle, the Director's functions should be one of policing industrial waste to ensure that waste meets the prescribed standards.



F. A. Hillier, P. Eng.,
Chairman,
Environmental Appeal Board

Victoria, B. C.
February 8, 1982