

**Factual Record
Pulp and Paper Submission
(SEM-02-003)**

**Prepared in accordance with Article 15
of the North American Agreement
on Environmental Cooperation**

June 2006

For more information about this or other publications from the CEC,
contact:

Commission for Environmental Cooperation of North America
393, rue St-Jacques Ouest, bureau 200
Montréal (Québec) Canada H2Y 1N9
Tel.: (514) 350-4300
Fax: (514) 350-4314
E-mail: info@cec.org

<http://www.cec.org>

ISBN: 2-89451-948-6

© Commission for Environmental Cooperation of North America, 2007

ALL RIGHTS RESERVED.

Legal Deposit - Bibliothèque et Archives nationales du Québec, 2007
Legal Deposit - Bibliothèque et Archives Canada, 2007

Disponible en français – ISBN: 2-89451-947-8

Disponible en español – ISBN: 2-89451-949-4

This publication was prepared by the Secretariat of the Commission for Environmental Cooperation of North America (CEC). The views contained herein do not necessarily reflect the views of the governments of Canada, Mexico, or the United States of America.

PROFILE

In North America, we share a rich environmental heritage that includes air, oceans and rivers, mountains and forests. Together, these elements form the basis of a complex network of ecosystems that sustains our livelihoods and well-being. If these ecosystems are to continue to be a source of life and prosperity, they must be protected. Doing so is a responsibility shared by Canada, Mexico, and the United States.

The Commission for Environmental Cooperation of North America (CEC) is an international organization created by Canada, Mexico, and the United States under the North American Agreement on Environmental Cooperation (NAAEC) to address regional environmental concerns, help prevent potential trade and environmental conflicts, and promote the effective enforcement of environmental law. The Agreement complements the environmental provisions of the North American Free Trade Agreement (NAFTA).

The CEC accomplishes its work through the combined efforts of its three principal components: the Council, the Secretariat and the Joint Public Advisory Committee (JPAC). The Council is the governing body of the CEC and is composed of the highest-level environmental authorities from each of the three countries. The Secretariat implements the annual work program and provides administrative, technical and operational support to the Council. The Joint Public Advisory Committee is composed of 15 citizens, five from each of the three countries, and advises the Council on any matter within the scope of the Agreement.

MISSION

The CEC facilitates cooperation and public participation to foster conservation, protection and enhancement of the North American environment for the benefit of present and future generations, in the context of increasing economic, trade and social links among Canada, Mexico and the United States.

NORTH AMERICAN ENVIRONMENTAL LAW AND POLICY SERIES

Produced by the CEC, the North American Environmental Law and Policy series presents some of the most salient recent trends and developments in environmental law and policy in Canada, Mexico and the United States, including official documents related to the novel citizen submission procedure empowering individuals from the NAFTA countries to allege that a Party to the agreement is failing to effectively enforce its environmental laws.

**Factual Record
Pulp and Paper Submission
(SEM-02-003)**

**Prepared in accordance with Article 15
of the North American Agreement
on Environmental Cooperation**

June 2006

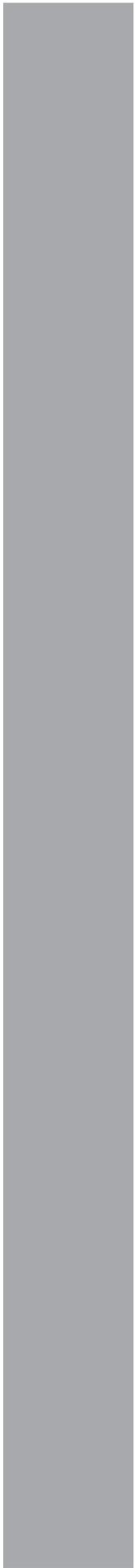


Table of Contents

Abbreviations	15
1. Executive Summary	17
1.1 Process for developing the factual record	18
1.2 Relevant federal and provincial law, policy and practice	19
1.2.1 Relevant provisions of the <i>Fisheries Act</i> and the <i>PPER</i>	19
1.2.2 <i>Fisheries Act</i> and <i>PPER</i> enforcement policy and practice.	21
1.3 Relevant provincial law and policy	25
1.4 Technical background on mill production and effluent treatment processes	25
1.5 Facts regarding enforcement at the ten mills of concern.	25
2. Summary of the Submission	31
2.1 General Assertions.	32
2.2 Assertions Regarding Mills in Ontario, Quebec and the Atlantic Provinces	33
3. Summary of Canada’s Response	35
3.1 Clarifying Information	35
3.2 Enforcement Decisions for Specific Mills	36
3.2.1 Atlantic provinces	36
3.2.1.1 Irving Pulp and Paper Ltd., Saint John, New Brunswick.	37

3.2.1.2	AV Cell Inc. at Atholville, New Brunswick.	38
3.2.1.3	Abitibi-Consolidated Inc., Grand Falls, Newfoundland	39
3.2.1.4	Bowater Mersey Paper Company Ltd., Brooklyn, Nova Scotia	39
3.2.2	Quebec	39
3.2.2.1	Tembec Inc., Témiscaming, Québec	39
3.2.2.2	The five other Quebec mills	41
3.2.3	Ontario	41
4.	Scope of the Factual Record	41
5.	Process to Gather Information and Prepare Factual Record	43
6.	Background on Relevant Laws, Regulations, Policies and Practices	45
6.1	Relevant Provisions of the <i>Fisheries Act</i>	47
6.2	<i>Pulp and Paper Effluent Regulations</i>	49
6.2.1	History and Purpose.	50
6.2.2	Overview	51
6.2.3	TSS and BOD	55
6.2.4	Acute lethality	59
6.2.5	Environmental Effects Monitoring	60
6.2.6	2004 Amendments to the <i>PPER</i>	63
6.2.7	Summary of possible offenses of the <i>PPER</i> and the <i>Fisheries Act</i>	65
6.3	Enforcement options listed in the <i>Fisheries Act</i> and the <i>PPER</i>	68
6.3.1	Minister's information requests and orders	68

6.3.2	Prosecutions	69
6.3.3	Court orders upon conviction	69
6.3.4	Civil suits for recovery of remediation and other costs.	70
6.3.5	Injunctions	70
6.3.6	Fine for monetary benefits and other remedies. . .	70
6.4	Defenses to <i>Fisheries Act</i> Prosecutions	70
6.4.1	The defenses of due diligence and mistake of fact	72
6.4.2	Defenses or excuses based on actions of the regulator	73
6.4.2.1	Officially-induced error	74
6.4.2.2	Abuse of process	75
6.5	Compliance and Enforcement Practice and Policy for <i>Fisheries Act</i> s. 36(3) and the <i>PPER</i>	76
6.5.1	<i>Fisheries Act</i> Habitat Protection and Pollution Prevention Provisions Compliance and Enforcement Policy	78
6.5.2	Policies and Practices Specific to Enforcing and Seeking Compliance with the <i>PPER</i>	86
6.5.2.1	Margins of error for TSS and BOD tests . .	86
6.5.2.2	Acute lethality	89
6.5.2.3	Use of information self-disclosed by mills	93
6.5.2.3.1	Reliability of self-disclosed information.	93
6.5.2.3.2	Self-incrimination	95
6.5.3	Regional policies and practices and coordination with provinces	99
6.5.3.1	Environment Canada Ontario Region . .	101

	6.5.3.2 Environment Canada Quebec Region . . .	101
	6.5.3.3 Environment Canada Atlantic Region . . .	106
6.6	Relevant Provincial Laws, Regulations and Policies . . .	110
6.6.1	Ontario	110
	6.6.1.1 Ontario <i>Environmental Protection Act</i> and <i>Effluent Monitoring and Effluent</i> <i>Regulations</i>	110
	6.6.1.2 <i>Ontario Water Resources Act</i>	114
	6.6.1.3 <i>Ontario Lakes and Rivers Improvement</i> <i>Act</i>	115
	6.6.1.4 Ontario compliance and enforcement policy	115
6.6.2	Quebec	117
	6.6.2.1 The Quebec <i>Environment Quality Act</i> . . .	118
	6.6.2.1.1 Emission of contaminants, certificates of authorization and the right to a healthy environment	120
	6.6.2.1.2 Depollution attestations	122
	6.6.2.2 Quebec <i>Regulation Respecting Pulp and</i> <i>Paper Mills</i>	125
	6.6.2.3 Quebec compliance and enforcement policy	128
6.6.3	New Brunswick	129
	6.6.3.1 New Brunswick <i>Clean Environment Act</i> . .	129
	6.6.3.2 Regulations under the <i>Clean Environment</i> <i>Act</i>	131
	6.6.3.3 New Brunswick <i>Clean Water Act</i>	132
	6.6.3.4 New Brunswick compliance and enforcement policy	134

6.6.4	Nova Scotia	137
6.6.4.1	Nova Scotia <i>Environment Act</i> and related regulations	137
6.6.4.2	Nova Scotia compliance and enforcement policy	140
6.6.5	Newfoundland and Labrador	142
6.6.5.1	Newfoundland and Labrador <i>Environment Act</i>	142
6.6.5.2	Newfoundland and Labrador <i>Environmental Control Water & Sewage Regulation</i>	143
6.6.5.3	Newfoundland and Labrador environmental statutes since 2002	144
7.	Background on Mill Production and Effluent Treatment Processes	145
7.1	Pulp and paper processes at the mills of concern	145
7.1.1	Wood preparation	146
7.1.2	Pulping processes.	146
7.1.2.1	Mechanical pulping.	147
7.1.2.2	Bleached Chemi-Thermomechanical Pulping.	148
7.1.2.3	Kraft pulping	149
7.1.2.4	Sulphite pulping	151
7.1.3	Papermaking processes	151
7.1.4	Utilities.	152
7.2	Effluent treatment for relevant pulp and paper processes.	153
7.2.1	Primary treatment	154
7.2.2	Secondary treatment	154

7.2.2.1	Activated sludge treatment	155
7.2.2.2	Aerated stabilization basins	157
7.2.2.3	Moving bed biological reactors	157
7.2.2.4	Nutrient addition	158
7.2.2.5	Aeration systems for secondary treatment.	158
7.3	ISO 14001 and other environmental management certifications.	158
8.	Facts Regarding Enforcement of the <i>Fisheries Act</i> and the <i>PPER</i> at the Ten Pulp and Paper Mills of Concern	162
8.1	ACI – Grand Falls, NL	164
8.1.1	Mill background and history	164
8.1.2	Production processes.	165
8.1.3	Effluent control	167
8.1.4	<i>PPER</i> test results	169
8.1.5	Environmental Effect Monitoring.	172
8.1.6	Canada’s enforcement actions.	172
8.1.7	Update	179
8.2	Bowater – Liverpool, NS.	181
8.2.1	Mill background and history	181
8.2.2	Production processes.	182
8.2.3	Effluent control	184
8.2.4	<i>PPER</i> test results	186
8.2.5	Environmental Effects Monitoring	192
8.2.6	Canada’s enforcement actions.	193
8.2.7	Update	197

8.3	Irving Pulp and Paper – Saint John, NB	198
8.3.1	Mill background and history	198
8.3.2	Production process	201
8.3.3	Effluent control	203
8.3.4	<i>PPER</i> test results	206
8.3.5	Environmental Effects Monitoring	208
8.3.6	Canada’s enforcement actions.	209
8.3.7	Update	215
8.4	AV Cell – Atholville, NB.	215
8.4.1	Mill background and history	216
8.4.2	Production processes.	219
8.4.3	Effluent control	220
8.4.4	<i>PPER</i> test results	221
8.4.5	Environmental Effects Monitoring	225
8.4.6	Canada’s enforcement actions.	225
8.4.7	Update	229
8.5	Tembec St. Raymond – St. Raymond, QC	230
8.5.1	Mill background and history	230
8.5.2	Production processes.	231
8.5.3	Effluent control	232
8.5.4	<i>PPER</i> test results	232
8.5.5	Environmental Effects Monitoring	234
8.5.6	Canada’s enforcement actions.	235
8.5.7	Update	239
8.6	Uniforêt – Port Cartier, QC	239

8.6.1	Mill background and history	239
8.6.2	Production processes	240
8.6.3	Effluent control	240
8.6.4	<i>PPER</i> test results	240
8.6.5	Environmental Effects Monitoring	245
8.6.6	Canada's enforcement actions.	245
8.6.7	Update	246
8.7	Fjordcell – Jonquière, QC	247
8.7.1	Mill background and history	247
8.7.2	Production processes	248
8.7.3	Effluent control	248
8.7.4	<i>PPER</i> test results	248
8.7.5	Environmental Effects Monitoring	254
8.7.6	Canada's enforcement actions.	255
8.7.7	Update	257
8.8	La Compagnie J. Ford – Portneuf, QC	258
8.8.1	Mill background and history	258
8.8.2	Production processes	258
8.8.3	Effluent control	259
8.8.4	<i>PPER</i> test results	259
8.8.5	Environmental Effects Monitoring	262
8.8.6	Canada's enforcement actions.	262
8.8.7	Update	265
8.9	FF Soucy – Rivière-du-Loup, QC	266
8.9.1	Mill background and history	266

8.9.2	Production processes	266
8.9.3	Effluent control	267
8.9.4	<i>PPER</i> test results	267
8.9.5	Canada's enforcement actions.	268
8.9.6	Update	268
8.10	Interlake – St. Catharines, ON.	268
8.10.1	Mill background and history	268
8.10.2	Production processes.	269
8.10.3	Effluent control	269
8.10.4	<i>PPER</i> test results	270
8.10.5	Environmental Effects Monitoring	271
8.10.6	Canada's enforcement actions.	272
8.10.7	Update	274
9.	Closing Note.	274

Figures

Figure 1	Map of Ten Mills of Concern	18
Figure 2	Typical Activated Sludge Treatment System	155
Figure 3	Manufacturing Process and Effluent Treatment at ACI Mill	165
Figure 4	Effluent Discharge at ACI Mill	169
Figure 5	Aeration Basins for AST System at ACI Mill	180
Figure 6	AST System Project, ACI Mill in 2004	180
Figure 7	Overview of Bowater Mill.	181
Figure 8	Manufacturing Process and Effluent Treatment at Bowater Mill	183

Figure 9	Bowater ASB System.	186
Figure 10	Overview of Irving Pulp and Paper Mill.	198
Figure 11	Flowsheet of Irving Pulp and Paper Mill	202
Figure 12	Irving Pulp and Paper Mill – Reverse Osmosis Plant	204
Figure 13	Irving Pulp and Paper Mill – MBBR	205
Figure 14	Irving Pulp and Paper Mill – MBBR Substrate	205
Figure 15	Overview of AV Cell Mill	216
Figure 16	Clarifiers and Oxygen Reactor, AV Cell Mill	220

Tables

Table 1	Summary of <i>PPER</i> Enforcement at 9 Mills of Concern for 2000.	26
Table 2	Summary of <i>PPER</i> Enforcement at Irving Pulp and Paper 1996-2000.	30
Table 3	Summary of <i>Pulp and Paper Effluent Regulation</i> limits	55
Table 4	Possible Offenses under the <i>PPER</i> , 1992 and <i>RAPPER</i> , 2004 Resulting in <i>Fisheries Act</i> s. 36(3) Offenses	66
Table 5	Summary of Precision Limits for TSS and BOD Effluent Measurements	89
Table 6	Relevant Provisions of the Quebec <i>EQA</i>	118
Table 7	Quebec Effluent Discharge Standards	127
Table 8	Suggested Enforcement Responses in 1993 Draft Enforcement Strategy	163
Table 9	Lethality Test Results for ACI mill Process Sewer Discharge in 2000.	170

Table 10	<i>PPER</i> Test Results for Bowater Process Effluent in 2000	187
Table 11	Acute Lethality Test Failures for Bowater Process Effluent 1996 to 2004	189
Table 12	Lethality Test Results for Bowater Non-contact Cooling Water Discharge in 2000	192
Table 13	Exceedances and Acute Lethality Test Failures at Irving Pulp and Paper Mill 1996-2000 (Environment Canada data).	207
Table 14	Exceedances and Acute Lethality Test Failures at Irving Pulp and Paper Mill 1996-2003 (company data).	207
Table 15	Summary of BOD and TSS Exceedances and Trout Test Failures at Irving Pulp and Paper Mill in 2000	208
Table 16	Effluent Limits for AV Cell Mill	218
Table 17	Acute Lethality Trout Test Failures at AV Cell Mill in 2000	222
Table 18	Daily TSS and BOD Exceedances at the AV Cell Mill in 2000	224
Table 19	Daily TSS and BOD Exceedances and Lethality Test Results at Tembec St. Raymond Mill in 2000	233
Table 20	Authorized Discharges by Uniforêt Mill in 2000	240
Table 21	Daily TSS and BOD Exceedances and Lethality Test Results at Uniforêt Mill in 2000	240
Table 22	Exceedances of Daily TSS and BOD Limits at Fjordcell Mill in 2000	249
Table 23	Lethality Test Failures and Follow-up Tests for Fjordcell Mill Process Effluent in 2000	251
Table 24	Lethality Test Failures and Follow-up Tests for J. Ford Mill Process Effluent in 2000	259

Table 25	Authorized Discharges for Soucy Mill in 2000 . . .	266
Table 26	Authorized Discharges for Interlake Mill for 2000	269
Table 27	Reporting of Deposits of Acutely Lethal Effluent at Interlake Mill in 2000	271

Appendices

Appendix 1	Council Resolution 03-16, Instruction to the Secretariat of the Commission for Environmental Cooperation regarding the assertion that Canada is failing to effectively enforce sections 34, 36, 40, 78 and 78.1 of the <i>Fisheries Act</i> and sections 5 and 6 and Schedules I and II of the <i>Pulp and Paper Effluent Regulations</i> promulgated in 1992 (SEM-02-003) . . .	281
Appendix 2	Overall Plan to Develop a Factual Record with regard to Submission SEM-02-003	287
Appendix 3	Request for Information describing the scope of the information to be included in the factual record and giving examples of relevant information . . .	295
Appendix 4	Information Requests to Pulp and Paper Mills, NGOs, JPAC and other Parties to NAAEC	305
Appendix 5	Information Requests to Canadian authorities . . .	313
Appendix 6	List of Nongovernmental Organizations recipient of a Request for Information for the development of the factual record for Submission SEM-02-003 . .	335
Appendix 7	Neil McCubbin – Curriculum Vitae	339

Attachments

Attachment 1	Council Resolution 07-03, dated 31 January 2007 . .	353
Attachment 2	Comments of Canada	357
Attachment 3	Comments of United States	379

Abbreviations

APMP	Alkaline Peroxide Mechanical Pulp
AST	Activated Sludge Treatment
ASB	Aerated Stabilization Basin or Aerated Settling Basin
BCTMP	Bleached Chemi-Thermomechanical Pulp
BOD	Biochemical Oxygen Demand
CCME	Canadian Council of Ministers of the Environment
CEC	Commission for Environmental Cooperation
CEPA	Canadian Environmental Protection Act
COD	Chemical Oxygen Demand
ECF	Elemental Chlorine Free
EEM	Environmental Effects Monitoring
EIA	Environmental Impact Assessment
EMS	Environmental Management System
FPAC	Forest Products Association of Canada
ISO	International Organization for Standardization
JPAC	Joint Public Advisory Committee
MBBR	Moving Bed Biological Reactor
MPI	Metro Paper Industries
NAAEC	North American Agreement on Environmental Cooperation
NEPA	Environmental Protection Act (Newfoundland)
NWRA	Water Resources Act (Newfoundland)
OAST	Oxygen Activated Sludge Treatment
OEPA	Environmental Protection Act (Ontario)

OLRIA	Lakes and Rivers Improvement Act (Ontario)
OWRA	Water Resources Act (Ontario)
PPER	Pulp and Paper Effluent Regulations
PRRI	Programme de réduction des rejets industriels
QEQA	Environment Quality Act (Quebec)
QME	Quebec Ministry of the Environment
RPR	Reference Production Rate
RRPPM	Regulation Respecting Pulp and Paper Mills
SEM	Submission on Enforcement Matters
SLDF	Sierra Legal Defense Fund
TMP	Thermomechanical Pulping
TSS	Total Suspended Solids
W+SEL	Willms and Shier Environmental Lawyers LLP

1. Executive Summary

Articles 14 and 15 of the North American Agreement on Environmental Cooperation (NAAEC) establish a process allowing residents of Canada, Mexico or the United States to file submissions alleging that a Party to the NAAEC is failing to effectively enforce its environmental law. Under the NAAEC, this process can lead to the publication of a factual record. The Secretariat of the Commission for Environmental Cooperation (CEC) of North America administers this process.

On 8 May 2002, Sierra Legal Defence Fund, on behalf of Friends of the Earth, Union Saint-Laurent, Grand Lacs, Conservation Council of New Brunswick, Ecology Action Centre and Environment North (the "Submitters"), filed a submission (cited as "Submission") asserting that Canada is failing to effectively enforce sections 34, 36, 40, 78 and 78.1 of the federal *Fisheries Act* and sections 5 and 6 and Schedules I and II of the 1992 *Pulp and Paper Effluent Regulations (PPER)* against pulp and paper mills in Ontario, Quebec, New Brunswick, Nova Scotia and Newfoundland and Labrador. Canada responded to the submission on 6 August 2002. Summaries of the submission and response are presented in sections 2 and 3 below.

On 11 December 2003, the CEC Council issued Council Resolution 03-16, unanimously instructing the Secretariat to develop a factual record for the assertions made in Submission SEM-02-003 with regard to alleged failures to effectively enforce section 36(3) of the *Fisheries Act*, alleged effluent test failures, and failure to conduct follow-up tests as required under the *PPER*, with respect to the following mills and time periods:

- Irving Pulp and Paper Ltd. at Saint. John from 1996 to 2000 (the Irving Saint John mill)
- AV Cell Inc. at Atholville for 2000 (the AV Cell mill)
- Abitibi-Consolidated at Grand Falls for 2000 (the ACI mill)
- Bowater Mersey Paper Company Ltd. at Brooklyn for 2000 (the Bowater mill)

- Fjordcell Inc. at Jonquière for 2000 (the Fjordcell mill)
- Interlake Papers at St. Catharines for 2000 (the Interlake mill)
- Tembec Inc. at St. Léonard-de-Portneuf for 2000 (the Tembec St. Raymond mill)
- Uniforêt-Pâte Port Cartier Inc. at Port-Cartier for 2000 (the Uniforêt mill)
- FF Soucy Inc. at Rivière-du-Loup for 2000 (the Soucy mill)
- La Compagnie J. Ford Ltd. at Portneuf for 2000 (the J. Ford mill)

Figure 1 is a map showing the locations of the ten mills discussed in this factual record.



Figure 1. Map of Ten Mills of Concern

1.1 Process for developing the factual record

In the development of this factual record, the Secretariat considered publicly available information; information provided by Canada, several of the mills, the Submitters, and other interested parties; and

technical information developed by the Secretariat through independent experts. In this factual record, consistent with Council Resolution 03-16, the Secretariat presents the facts relevant to whether Canada is failing to effectively enforce, with respect to the mills named in Council Resolution 03-16, s. 36(3) of the *Fisheries Act* and provisions of the *PPER*. This factual record centers on Canada's enforcement actions and not the actions taken by the mills, although detailed facts regarding the mills are presented. The process for gathering information and preparing the factual record is presented in section 5 below.

1.2 Relevant federal and provincial law, policy and practice

Section 6 provides background on federal and provincial laws, regulations, policies and practices that are relevant to the factual information presented in the factual record. Although the factual record concerns only federal enforcement of federal laws and regulations, background information on provincial laws, regulations and policies related to pulp and paper mill effluent is relevant to understanding Environment Canada's consideration of provincial actions taken with respect to the mills of concern.

1.2.1 Relevant provisions of the Fisheries Act and the PPER

Background on relevant provisions of the *Fisheries Act* and the *PPER* are presented in sections 6.1 and 6.2 below. Although the *PPER* underwent major amendments in 2004, unless otherwise noted, all references to the *PPER* in this factual record are to the *PPER*, 1992, as amended in 1996 and 1999, which applied during the relevant time periods. Section 36(3) of the *Fisheries Act* makes it illegal to deposit or permit the deposit of a deleterious substance in water frequented by fish. The *PPER* prescribe acutely lethal effluent, biochemical oxygen demand (BOD) matter and suspended solids from pulp and paper mills or off-site treatment facilities as deleterious substances. The *PPER* allow the discharge of these substances, if at all, on certain conditions that relate to maximum allowable discharge levels, effluent monitoring, reporting, remedial and emergency planning and other matters. If these conditions are not met, then the deposit is not authorized and can be considered an offense under the *Fisheries Act*. The *PPER* sets out formulae for determining the maximum amounts of BOD and total suspended solids (TSS) that mills can discharge on a daily and monthly basis. For all time periods of concern in the factual record, the *PPER* prohibited mills from discharging any amount of acutely lethal effluent.

The *PPER* prescribe testing methods for measuring BOD, TSS and lethality of effluent to trout and *Daphnia magna*. A sample of effluent is considered lethal if more than 50% of the test organisms exposed to it are dead at the end of specified time periods. After a failed weekly *Daphnia magna* test, the *PPER* require a trout test to be taken without delay and the testing frequency for *Daphnia magna* must be increased to three times per week until the effluent passes three consecutive tests, after which weekly testing may be resumed. After a failed monthly trout test, trout tests must be performed weekly until three consecutive tests are passed, at which time monthly testing may be resumed.

The *PPER* established an environmental effects monitoring program to study the long-term effects of pulp and paper mill effluent on the aquatic ecosystems that receive them. Information on results of environmental effects monitoring for the ten mills of concern is presented in section 8.

The *PPER*, and hence s. 36(3) of the *Fisheries Act*, are potentially violated whenever mill effluent exceeds the daily or monthly limits for BOD or TSS or fails a trout acute lethality test, and whenever follow-up testing is not conducted as required. During the time periods relevant to the factual record, these violations were punishable either on summary conviction (carrying fines of up to \$300,000 for a first offense, with the possibility of a \$300,000 fine and/or imprisonment for up to six months for repeat offenders) or on indictment (with fines of up to \$1 million for a first offense and fines of up to \$1 million and/or prison terms of up to three years for repeat offenders). Violators may be assessed an additional fine for recovery of any monetary benefit accrued as a result of non-compliance. Factors in recommending and imposing fines and penalties include the nature of the violation and the benefit gained as a result of it; the number and nature of the offender's previous convictions; the effectiveness of the penalties in deterring the offender from committing similar violations; general deterrence considerations; precedents in similar cases; and the effectiveness of the penalty in remediating any area of impact and in addressing future protection of fish and fish habitat and pollution prevention.

In addition to prosecutions resulting in fines and penalties, the *Fisheries Act* authorizes the Minister of Fisheries and Oceans to request information of or issue orders to pulp and paper mills and provides for court orders upon conviction, civil suits for recovery of remediation and other costs and injunctions. The *Fisheries Act* allows mills to defend prosecution with the defenses of due diligence and mistake of fact, and other defenses and excuses, such as "officially-induced error" and "abuse of

process,” are available under the common law. The enforcement options listed in the *Fisheries Act* and the *PPER* and the available defenses and excuses are discussed in sections 6.3 and 6.4 below.

1.2.2 *Fisheries Act and PPER enforcement policy and practice*

Information regarding federal policy and practice for enforcing s. 36(3) of the *Fisheries Act* and the *PPER* is set out in section 6.5 below. The federal *Fisheries Act Habitat Protection and Pollution Prevention Provisions Compliance and Enforcement Policy* sets out Environment Canada’s general framework and policy for enforcing and seeking compliance with *Fisheries Act* s. 36(3). Environment Canada enforcement measures are to be directed towards ensuring compliance with the *Fisheries Act* within the shortest possible time and preventing repeat offenses.

Enforcement activities include inspections and investigations. Inspections to verify compliance may occur on-site or may involve off-site inspection of mill reports and other mill-reported information. Investigations involve collecting evidence of alleged violations. Measures to respond to alleged violations include warnings, directions by fishery inspectors, Ministerial orders under *Fisheries Act* s. 37, injunction and prosecution. In selecting an appropriate enforcement response, enforcement personnel are to consider the nature of the alleged violation, the effectiveness in achieving the desired result with the alleged violator and consistency in enforcement. Factors for considering the nature of the violation are the seriousness of the environmental damage; the intent of the alleged violator; whether it is a repeat occurrence; and whether there were attempts by the alleged violator to conceal information or otherwise circumvent the objectives and requirements of the law. Factors for considering the effectiveness in achieving the desired result are the alleged violator’s history of compliance; the alleged violator’s willingness to cooperate with enforcement personnel; and the existence of enforcement actions by other federal or provincial/territorial authorities. To ensure consistency, enforcement personnel are to consider the handling of similar situations.

Prosecution is the preferred course of action where non-compliance resulted in risk of harm to fish or fish habitat, the accused had previously received a warning and did not take all reasonable measures to avoid the violation or the accused had been previously convicted of a similar offense. Because the effluent limits in the *PPER* are considered environmentally safe thresholds, Environment Canada considers effluent that is acutely lethal or contains BOD or TSS in excess of *PPER* limits

to be harmful or risking harm. Prosecution is always to be pursued for deliberate violations, or where the accused knowingly provided false or misleading information, obstructed enforcement, concealed or attempted to conceal information or evidence, or failed to take all reasonable steps to comply with a direction or order. The Attorney General must approve decisions to prosecute, based on evidentiary and public interest considerations, including consideration of possible defenses.

Enforcement of the *PPER* entails additional policies and practices, including consideration of margins of error in connection with analytical tests and effluent flow measurement, factors related to acute lethality testing and use of self-disclosed information. The *PPER* allow a 10% margin for flow measurements and Environment Canada acknowledges a 15% precision limit for the analytical test for determining TSS levels and a 20% precision limit for the analytical test for determining the quantity of BOD matter. Environment Canada considers these precision limits in determining appropriate enforcement responses. A 1993 *Draft Revised Enforcement Strategy for the Pulp and Paper Effluent Regulations (PPER) of the Fisheries Act During the Period From December 2, 1992 to December 31, 1993* that Environment Canada describes as an effort to ensure consistency in enforcement sets out non-binding guidelines that suggest 1) no enforcement action where effluent does not exceed TSS limits by more than 15% and BOD limits by more than 20%, 2) warnings or prosecution where TSS limits are exceeded by 15% to 25% or BOD limits are exceeded by 20% to 30%, and 3) prosecution where TSS limits are exceeded by 25% or more or BOD limits are exceeded by 30% or more. The draft strategy was never finalized, and regions are free to follow it or not.

For acutely lethal effluent, the 1993 draft strategy suggests a warning where a trout lethality test failure is followed by three consecutive passing tests and injunction or prosecution where three consecutive tests do not pass. Although mills have challenged prosecutions for discharge of acutely lethal effluent based on confidence limits associated with the acute lethality test, Environment Canada recognizes no margin of error in connection with the acute lethality test and treats a marginal failure the same as a failure indicating a high degree of lethality. Where the cause of acutely lethal effluent is unknown, mills typically conduct toxicity identification evaluations. Environment Canada indicated that prosecution of a mill while such an evaluation is underway may be difficult because it might (but not always) indicate that the mill can assert a due diligence defense. In 2000, the Atlantic Region stopped allowing mills to take a split of Environment Canada samples, to reduce the possi-

bility that mills would obtain different results on the same sample. In 2001, the region began conducting triplicate tests for trout lethality.

Environment Canada informed the Secretariat that its policy allows use of self-reported data as the basis for prosecution and as grounds for conducting compliance inspections or investigations. For prosecutions, Environment Canada states that generally it is useful, but not essential, to gather additional evidence where self-reported data indicate a violation. Environment Canada considers Supreme Court precedent generally to preclude mills or their officials from raising self-incrimination concerns in connection with the use of self-reported data that mills report routinely under the *PPER*.

During the time periods relevant to the factual record, the Atlantic and Quebec Regions of Environment Canada followed a practice of never basing prosecutions for non-compliance with the *PPER* solely on self-reported data. Atlantic Region staff stated that the main concern was that a mill could potentially challenge the reliability of self-reported data. Generally, the Atlantic Region requires a “legal sample” taken in accordance with protocols to ensure reliability. The practice of never relying solely on data that mills self-report makes it difficult, but not impossible, to prosecute small upsets or one-time events where a legal sample has not been taken. As well, this practice makes prosecution for exceeding monthly TSS or BOD limits impracticable, because to do so would require government officers to collect effluent samples every day. Atlantic Region staff said their practice does not affect their ability to prosecute long-term, chronic non-compliance with the *PPER*.

Environment Canada personnel typically consider whether mills took prompt action to address *PPER* non-compliance. Environment Canada personnel often consider such action by a mill in relation to whether the mill exercised due diligence. As a legal defense, due diligence primarily involves consideration of whether a mill took reasonable care to prevent non-compliance, not whether a mill was diligent in addressing non-compliance that already occurred. It is unclear whether lack of clarity in Environment Canada’s use of the terms “due diligence” or “diligence” in reference to corrective action indicated confusion regarding the potential availability of a due diligence defense for instances of non-compliance noted in the factual record.

In 1994 and 1997, the federal government signed formal agreements with Quebec regarding the implementation of the *PPER* in Quebec. The 1997 agreement expired in March 2000, but a new agreement

signed in April 2003 was made retroactive to the expiry date of the previous agreement. The agreements in effect in 2000 adopt a single window for industry with respect to the environmental regulation of pulp and paper mills in Quebec, with Quebec as the primary government interface through which relations and communications with Quebec mills are channeled. However, the agreements do not provide for enforcement of the federal *PPER* by the province of Quebec. They state that information collected by Quebec and needed by Canada to ensure compliance with its regulations will be accessible to Canada. Both governments reserve their authority to take action under their authority to enforce their respective laws and regulations in response to non-compliance and agree to inform each other of actions taken.

The federal government does not have formal agreements with any of the other provinces in which the mills of concern in this factual record are located. In those provinces, the federal and provincial environmental ministries generally rely on informal understandings regarding inspection frequencies and coordinate enforcement activity on a case by case basis. In coordinating enforcement with provincial authorities in New Brunswick, the only province of concern in this factual record that imposes absolute liability, not strict liability, for certain acts for which the *Fisheries Act* provides a due diligence defence, Environment Canada stated that no special consideration is given to the province's ability to impose absolute liability.

During the time periods relevant to the factual record, Environment Canada conducted on-site inspections of all of the mills of concern in the Atlantic Region. The Secretariat has no information indicating that Environment Canada conducted an on-site inspection of the Interlake mill in the Ontario Region in 2000. Environment Canada coordinated its enforcement activity regarding the Interlake mill with the province, which conducted an on-site inspection and took samples. The Quebec Region of Environment Canada conducted no on-site inspections of any of the five Quebec mills of concern in 2000. Provincial officials conducted one on-site inspection of the Uniforêt, Tembec St. Raymond and Fjordcell mills and two on-site inspections of the J. Ford and FF Soucy mills in 2000. The Quebec Region conducted off-site, administrative inspections of reports that mills sent to the Quebec Environment Ministry one to three and a half months after the Quebec ministry received the mill reports. The Quebec Region did not consider non-compliance in mill reports to provide sufficient grounds to obtain a warrant to collect a legal sample. A Quebec Region investigator expressed the view that by the time Environment Canada reviews the data, it is too late for enforcement action or even referral to investigators to have an impact.

1.3 Relevant provincial law and policy

Because Canadian provinces share jurisdiction over certain environmental matters with the federal government, pulp and paper mill effluent in Canada is generally subject to overlapping federal and provincial requirements. Section 6.6 presents background information on provincial law and policy in Ontario, Quebec, New Brunswick, Nova Scotia and Newfoundland and Labrador relevant to regulation and enforcement regarding pulp and paper mill effluent. The focus of this factual record is exclusively on federal enforcement of provisions of the federal *Fisheries Act* and *PPER*. Background information on provincial law and policy is provided to assist in understanding instances of federal coordination with provinces on enforcing federal law.

1.4 Technical background on mill production and effluent treatment processes

Section 7 provides technical background information on the production and effluent treatment processes used at the ten mills of concern. Background information is also provided on certification programs for mill environmental management systems; several of the mills have certified their environmental management systems through such programs.

1.5 Facts regarding enforcement at the ten mills of concern

Table 1 is a summary of factual information that the Secretariat gathered with regard to enforcement of s. 36(3) of the *Fisheries Act*, alleged effluent test failures, and failure to conduct follow-up tests as required under the *PPER*, with respect to the nine mills for which the relevant time period set out in Council Resolution 03-16 is 2000. Table 2 is a similar summary for the Irving Saint John mill for the years 1996 to 2000. For each of the ten mills of concern, Section 8 of the factual record provides detailed information regarding factors in the *Fisheries Act Habitat Protection and Pollution Prevention Provisions Compliance and Enforcement Policy*, and regarding whether Canada effectively enforced s. 36(3) of the *Fisheries Act* and provisions of the *PPER* in the relevant time periods. This includes information on the mill's background and history, mill production processes, mill effluent control or treatment, *PPER* test results, environmental effects monitoring results, Canada's enforcement action and whether the mill achieved compliance following any action Canada took in regard to mill non-compliance.

Table 1. Summary of PPER Enforcement at 9 Mills of Concern for 2000

Mill	TSS > limit in 2000	BOD > limit in 2000	Trout acute lethality failures in 2000	Follow-up tests missed or late (> 1 week) in 2000	Non-Compliance 1996-1999 (trout toxicity or TSS/BOD exceedance)	Summary of enforcement action relevant to non-compliance in 2000 (either compliance history or enforcement of related non-compliance)
ACI	0	0	9	0	Total 1996-1999: unknown* 1999: Trout toxicity: 6 TSS: 1	Warnings re: toxicity (1998 and 1999 incidents). Environment Canada legal samples taken in 2000 not acutely lethal. No enforcement action for PPER non-compliance in 2000. Charged under Fisheries Act for related PPER non-compliance (2003); Guilty plea and conviction (2004).
Bowater**	3	0	10	0	Total 1996-1999: Trout toxicity: 26 TSS: 5 1999: Trout toxicity: 4 TSS: 1	March 2000 Environment Canada sample of non-contact cooling water not acutely lethal. June 2000 Environment Canada samples of non-contact cooling water and process effluent not acutely lethal. No Environment Canada samples taken during August-October toxicity episode. No enforcement action for PPER non-compliance in 2000.
AV Cell***	15 or 16	3	9	0	Total 1996-1999: Trout toxicity: 14 TSS: 42 or more BOD: 9 or more	August 1999 warning for four exceedances of monthly TSS limit and acute lethality effluent on 8 days in February to June 1999.

Table 1. (cont.)

Mill	TSS > limit in 2000	BOD > limit in 2000	Trout acute lethality failures in 2000	Follow-up tests missed or late (> 1 week) in 2000	Non-Compliance pre-2000 (trout toxicity or TSS/BOD exceedance)	Summary of enforcement action relevant to non-compliance in 2000 (either compliance history or enforcement of related non-compliance)
AV Cell*** (cont.)					1999: Trout toxicity: 8 TSS: 42 BOD: 9	Environment Canada investigated failures of mill effluent to pass acute lethality tests in 2000; sample taken in March, but none taken during period from August to November when mill reported 8 trout test failures; Environment Canada took no action regarding acutely lethal effluent because New Brunswick authorities prosecuted mill, resulting in a \$30,000 fine. Canada investigated exceedances of BOD and TSS limits in 2000 and concluded that company's corrective action was satisfactory; Environment Canada approved increase of mill's BOD and TSS limits in May 2000.
Tembec St. Raymond	18 (16 over limit + 15% and 16 over limit + 26.5%)	9 (7 over limit + 20% and 6 over limit + 32%)	4		Total 1996-1999: Trout toxicity: 3 TSS: 12 BOD: 26 1999: Trout toxicity: 1	Warning letter sent 10 February 2000 for acutely lethal effluent on 6 December 1999. Warning letter sent 29 March 2000 for acutely lethal effluent on 3 January 2000; BOD exceedance on 17 January 2000; and TSS exceedances on 13, 17 and 18 January 2000. Investigation commenced in July 2000; no on-site inspection conducted and no Environment Canada samples taken; investigation closed with no enforcement action in November 2002.

Table 1. (cont.)

Mill	TSS > limit in 2000	BOD > limit in 2000	Trout acute lethality failures in 2000	Follow-up tests missed or late (> 1 week) in 2000	Non-Compliance pre-2000 (trout toxicity or TSS/BOD exceedance)	Summary of enforcement action relevant to non-compliance in 2000 (either compliance history or enforcement of related non-compliance)
Uniforêt	22 (17 over limit + 15% and 13 over limit + 26.5%)	1 (exceeds limit by more than 32%)	2	16	Total 1996-1999: Trout toxicity: 12 TSS: 17 BOD: 18 1999: TSS: 2 BOD: 2	Warning letter sent 29 July 2000 for acutely lethal effluent on 16 February 2000 and TSS exceedance on 28 February 2000. Warning letter sent 15 March 2001 for acutely lethal effluent on 11 July 2000; BOD exceedance on 2 September 2000; and TSS exceedances on 16 days in July-September 2000. No on-site inspection conducted in 2000 and no other enforcement action taken for non-compliance observed in 2000.
Fjordcell	25 (10 over limit + 15% and 8 over limit + 26.5%)	28 (17 over limit + 15% and 14 over limit + 32%)	10	7 or more	Total 1996-1999: TSS: 6 BOD: 8 1999: TSS: 6 BOD: 8	Warning letter sent 28 January 2000 for BOD exceedances on 11 and 13 November 1999 and TSS exceedances on 13 November 1999. Warning letter sent 28 February 2000 for BOD exceedances on 1, 3 and 22 December 1999 and TSS exceedances on 3 and 4 December 1999. Investigation commenced in 2000; no on-site inspection conducted and no Environment Canada samples taken; investigation dropped with no enforcement action in September 2003.

Table 1. (cont.)

Mill	TSS > limit in 2000	BOD > limit in 2000	Trout acute lethality failures in 2000	Follow-up tests missed or late (> 1 week) in 2000	Non-Compliance pre-2000 (trout toxicity or TSS/BOD exceedance)	Summary of enforcement action relevant to non-compliance in 2000 (either compliance history or enforcement of related non-compliance)
J. Ford	0	0	4	11	Total 1996-1999: Trout toxicity: 7 TSS: 6 BOD: 21 1999: Trout toxicity: 2 BOD: 3	Warnings sent in July 1999 and November 1999 for non-compliance in January to May 1999 and June to September 1999. No on-site inspection or investigation conducted for non-compliance observed in 2000. Investigation conducted into non-compliance in 2001-02 closed with no action taken.
FF Soucy	0	0	0	0	1999: 100% compliance	No non-compliance observed in 2000 and no enforcement action taken.
Interlake	0	0	9	0	Total 1996-1999: none reported 1999: 100% compliance	Environment Canada and Ontario environmental authority investigation for trout acutely lethality failures and reporting offenses in August to October 2000. In February 2002, Interlake pleaded guilty to 6 of 12 provincial charges and paid a fine of \$30,000. In August 2003, Interlake pleaded guilty to one of fourteen Environment Canada charges, for failing to provide a written report of a deposit out of the normal course of business in August 2000, and paid a fine of \$15,000.

* The ACI mill had 41 trout toxicity failures in the period 1998-2003.

** Bowater data is only for the process effluent stream. Data for pre-2000 was provided by Bowater. Environment Canada informed the Secretariat that Bowater was 100% compliant with the PPER in 1999.

*** AV Cell compliance history for May 1998-December 1999.

Table 2. Summary of PPER Enforcement at Irving Saint John mill for 1996-2000

Year	TSS > limit (daily or monthly)	BOD > limit (daily or monthly)	Trout acute lethality failures	Summary of enforcement action
1996	0	324	155	<p>Investigation opened in January 1996 because non-compliance was expected to continue until mill process changes to address PPER compliance were completed.</p> <p>On-site inspections in April and May 1996.</p> <p>Warning issued July 1996 for 26 failed trout tests (with LC50s ranging from 3.1% to 76.5%) and 6 monthly BOD exceedances (ranging from 125% to 304% over the PPER limit) from January to June 1996.</p> <p>On-site inspections conducted in November and December 1996, with a failed trout test on Environment Canada's December sample.</p>
1997	0* or 2**	76* or 85**	51* or 52**	No enforcement activity; ongoing monitoring of progress on mill process changes and meetings with mill staff and provincial officials.
1998	0* or 2**	56* or 191**	24* or 25**	<p>On-site inspection in March 1998, with failed trout test on main chemical sewer; mill sample taken the same day passed.</p> <p>Based on trout test failure, mill charged in April 1998 with violation of s. 36(3) of the <i>Fisheries Act</i>.</p> <p>On-site inspection conducted in July 1998, with trout sample passing lethality test.</p> <p>April 1998 charges dropped in October 1998 in light of mitigating circumstances and mill's progress on installing innovative technology changes that "EC actively and openly encouraged."</p>

Year	TSS > limit (daily or monthly)	BOD > limit (daily or monthly)	Trout acute lethality failures	Summary of enforcement action
1998 (cont.)				In August 1998, Environment Canada charged mill with release of green liquor (unrelated to ongoing non-compliance issues) on 23 March 1998. In November 1999, mill pleaded guilty and was fined \$50,000.
1999	0	9** or 10*	1** or 2*	Environment Canada approved mill treating pulp and paper plant and neighboring tissue plant as a mill complex with combined effluent. On-site inspection in August 1999, with failed trout test on Environment Canada sample of main chemical sewer; mill sample passed. In October, during follow-up inspection, Environment Canada collected triplicate samples, all of which passed the trout test.
2000	1	17** or 18*	6	On-site inspection in June 2000, with no trout test failures on Environment Canada samples; mill sample failed the trout test. In December 2000, Environment Canada closed the investigation that began in 1996, following completion of mill projects to address PPER non-compliance.

* Environment Canada data.

** Irving Pulp and Paper data.

2. Summary of the Submission

The submission asserts that from 1995 to 2000, the government of Canada failed to effectively enforce sections 34, 36, 40, 78 and 78.1 of the federal *Fisheries Act* and sections 5 and 6 and Schedules I and II of the *PPER* against pulp and paper mills in Ontario, Quebec, and the Atlantic provinces (i.e., New Brunswick, Nova Scotia, and Newfoundland).

2.1 General Assertions

The Submitters first provide general assertions regarding the amount and pollutant content of effluent from Canada's 157 pulp and paper mills, contending the mills have "added tonnes of harmful substances to our waterways and caused extensive harm to aquatic ecosystems."¹ They claim that despite the progress the pulp and paper industry has made in investing in environmental upgrades in the early 1990s, those investments have dropped sharply since 1995.²

Next, the Submitters describe the pollution prevention provisions of the *Fisheries Act* and the *PPER* to set the legislative framework for their assertions that Canada is failing to effectively enforce in Ontario, Quebec, and the Atlantic Provinces. They assert that under the *Fisheries Act*, "it is an offense to deposit a deleterious substance of any type in water frequented by fish that renders the water deleterious to fish or fish habitat, unless the deposit is authorized by regulation."³ They identify as relevant to their submission two provisions of the federal *Fisheries Act Habitat Protection and Pollution Prevention Provisions Compliance and Enforcement Policy (Compliance and Enforcement Policy)*. First is the policy that "fair, predictable, and consistent enforcement govern the application of the law, and responses by enforcement personnel to alleged violations."⁴ Second is the intent stated in the *Compliance and Enforcement Policy* "to ensure that violators will comply with the *Fisheries Act* within the shortest possible time, that violations are not repeated and that all available enforcement tools are used."⁵

The Submitters assert that the 1992 *PPER* regulations, which took effect in July 1992, define acutely lethal effluent, biochemical oxygen demand (BOD) matter and total suspended solids (TSS) as deleterious under the *Fisheries Act*. According to the Submitters, the *PPER* authorize levels of BOD and TSS that do exceed specified maximum quantities as long as certain conditions are met, but (at least since 1995) they strictly prohibit the discharge of acutely lethal effluent.⁶ The Submitters

1. Submission at 3.

2. *Ibid.* at 3.

3. *Ibid.* at 3. See *Fisheries Act*, s. 36(3).

4. Submission at 4 (quoting *Compliance and Enforcement Policy*, Introduction).

5. Submission at 4.

6. *Ibid.* at 5. The submitters describe transitional authorizations under the *PPER*. Under ss. 20-26, subject to conditions with a view to coming into compliance, mills unable to comply were allowed to exceed *PPER* limits and discharge acutely lethal effluent between 1 December 1992, and 31 December 1993, or under "extraordinary circumstances" and for reasons "beyond the control" of the mill operator, until 31 December 1995.

describe the conditions for discharges of TSS and BOD matter as “relating to monitoring equipment, monitoring reports, preparing a remedial plan in case the effluent fails certain acute-lethality tests, preparing and implementing an emergency response plan, and preparing environmental effects monitoring studies.”⁷

The *PPER* establish a self-reporting system by which mills are required to conduct certain effluent tests and report the results to the relevant environmental authorities. The submitters describe the test methods and effluent monitoring requirements for BOD, TSS, and acute lethality for the period 1995 to 2000 and note that each day the *PPER* are violated constitutes a separate offense. They assert that trout acute-lethality test failure is an automatic violation of the *PPER* (and hence *Fisheries Act*) that requires accelerated follow-up testing, and that failure of an acute-lethality test for *Daphnia magna*, while not an automatic violation, also requires follow-up test procedures. For both kinds of acute-lethality tests, they contend that failure to conduct the prescribed follow-up test procedures violates the *PPER* and the *Fisheries Act*. Testing for BOD levels and TSS is described as more straightforward. The Submitters assert that if testing shows levels of BOD or TSS above those authorized, the deposit is not authorized, violates the *PPER*, and is an offense under the *Fisheries Act*. The Submitters say that according to the *Compliance and Enforcement Policy*, every suspected violation is to be examined for action ranging from a warning to prosecution. The submission describes the penalties that apply to violations of the *PPER*.

2.2 *Assertions Regarding Mills in Ontario, Quebec and the Atlantic Provinces*

The Submitters set out in detail their assertion that Canada is failing to effectively enforce the *Fisheries Act* and the *PPER* in regard to pulp and paper mills in Ontario, Quebec and the Atlantic provinces. The two categories of noncompliance for which they contend enforcement is deficient are (1) failure to meet a “deleterious substances” effluent test (that is, either a BOD test, a TSS test or a trout acute-lethality test) and (2) failure to conduct follow-up testing as required when there is an effluent test failure. The Submitters allege that in the period from 1995 to 2000 there were more than 2,400 documented violations of the *PPER* at mills in central and eastern Canada, and very few prosecutions. The submission and its appendices provide information on alleged violations at approximately 70 of the 116 mills that the Submitters identify, with twelve mills highlighted as mills of particular concern to the Submitters.

7. Submission at 5.

In regard to Quebec, the Submitters obtained data that they claim show 960 acute-lethality, BOD, and TSS violations from 1995 to 2000 at nine mills. They claim that in 2000, 26 Quebec mills had 171 violations (presumably acute lethality, BOD and TSS violations); 24 mills failed the trout acute-lethality test, 33.3 percent of which also violated follow-up test procedures; and 28 mills, after failing the *Daphnia magna* acute-lethality test, violated the acute-lethality follow-up procedures.⁸ Overall, the Submitters claim that there were at least 250 reported potential offenses for failure to follow the *PPER* follow-up test procedures throughout Quebec in 2000. The Submitters claim that, despite these offenses, they could find no *Fisheries Act* prosecutions or convictions of any Quebec mills, and they state that they are particularly concerned about apparent lack of effective enforcement at six mills, based on data from 2000. In particular, they highlight the Tembec Inc. mill in Témiscaming, for which they claim no prosecution was brought for non-compliance with either federal or provincial effluent regulations despite an alleged 275 reported violations from 1995 through 2000.

With regard to Ontario's 33 regulated pulp and paper mills, the Submitters highlight the data for 13 mills that had over 225 acute-lethality, BOD, and TSS test failures between 1996 and 2000. In 2000 alone, the Submitters claim that seven mills were responsible for 18 such test failures; six of those mills failed the trout acute-lethality test and two of the mills also failed the trout lethality test follow-up procedures. They also claim that nine mills violated the *Daphnia magna* follow-up procedures. In total, the Submitters claim there were at least 94 follow-up test procedure violations at Ontario mills in 2000. The Submitters assert that from 1995 to 2000, six Ontario mills were prosecuted under the *PPER*, which they believe explains the lower number of alleged violations in Ontario as compared to Quebec and the Atlantic provinces, where the Submitters claim there have been fewer prosecutions. Nonetheless, based on data from 2000, the Submitters identify two Ontario mills for which they "have concerns about the apparent lack of effective enforcement of the federal laws."⁹

The Submitters obtained only partial data for the approximately 22 mills in the Atlantic provinces for the years 1995 to 2000 and therefore claim that they understate the number of alleged violations in those provinces. According to the Submitters, the data they obtained show that 19 mills reported 1,081 acute-lethality, BOD, and TSS violations from 1995 to 2000. The Submitters did not calculate alleged follow-up

8. Appendix 6 to the submission provides a flowchart showing the acute lethality testing procedures and the points at which violations occur.

9. Submission at 9.

test procedure violations for the Atlantic Provinces. They claim that despite the number of alleged test failure violations, they found only “two prosecutions of mills in the Atlantic Region under the federal laws since the *PPER* came into force.”¹⁰ Based on 2000 data, the Submitters are particularly concerned about the apparent lack of effective enforcement regarding four mills in the Atlantic Provinces. According to the Submitters, the mill in the Atlantic Provinces with the most alleged violations from 1995 to 2000, the Irving Saint John mill, was prosecuted under the federal laws in 1998 but still had 22 alleged test failure violations and an unknown number of alleged follow-up test violations in 2000.

The Submitters contend that the exclusions that appear in Article 45(1) of the NAAEC under the definition of “effectively enforce its environmental law” do not apply. They claim that Canada’s alleged failure to effectively enforce the *Fisheries Act* and the *PPER* do not reflect a “reasonable exercise of discretion” or “result from *bona fide* decisions to allocate resources” to other enforcement matters within the meaning of Article 45(1). They assert that “[i]t is not a reasonable exercise of discretion where an available enforcement tool, such as prosecutions, is used so infrequently in the face of widespread and numerous violations.”¹¹ While the submitters do not equate prosecutions and fines under the federal laws with effective enforcement, they view prosecutions as an important enforcement tool that has been effective where used. They claim that there is a correlation between a continuing high number of violations in Quebec and the Atlantic provinces and the low number of prosecutions under the federal laws in those provinces.

3. Summary of Canada’s Response

Canada’s response to the submission (cited as “Response”) provides clarifying information on the general basis of the enforcement decisions of the Government of Canada and a description of enforcement decisions regarding specific cases raised by the Submitters.

3.1 Clarifying Information

Canada first provides “clarifying information” regarding Canada’s approach to enforcing the *PPER* and the *Fisheries Act*, so as to “assist the reader in understanding the facts pertaining to the specific cases identified in the submission as of particular concern to the Submitters.”¹²

10. *Ibid.* at 10.

11. *Ibid.* at 11.

12. Response at 2.

Canada describes the role of fishery inspectors in conducting inspections and investigations and choosing the appropriate response if the inspector has reasonable grounds to believe that an offense has been committed.¹³ Canada states that, consistent with the *Compliance and Enforcement Policy*, it will “choose the appropriate response such as a warning, inspector’s direction, prosecution, etc.”¹⁴ Canada explains that “[t]he response to a violation will be chosen taking into account the nature of the violation, the likelihood of achieving the desired result (i.e., compliance with the *Fisheries Act* in the shortest possible time and no further occurrence of violations), and consistency in enforcement.”¹⁵ The response provides criteria taken into account in assessing these factors. Canada states that the “ultimate decision on whether or not to proceed with a prosecution of the charges rest [*sic*] with the Attorney General of Canada.”¹⁶

Canada then describes methodologies for determining compliance under the *PPER*. Canada notes that the margins of error in the methodologies for determining compliance of effluent with the regulated limits for BOD and TSS may affect decisions on enforcement, especially as to whether a conviction may be obtained in accordance with the criminal burden of proof (guilt beyond a reasonable doubt).¹⁷

3.2 *Enforcement Decisions for Specific Mills*

The main body of Canada’s response is a discussion of its actions in connection with twelve specific mills identified in the submission, divided into sections on the Atlantic Provinces, Quebec and Ontario.

3.2.1 *Atlantic provinces*

In regard to four mills in the Atlantic Provinces, Canada states that it subjected the mills’ monthly effluent reports to an “off-site inspection” or review of the data. In cases of exceedance of TSS or BOD limits or the prohibition on acutely lethal effluent, the response states that from 1995-2000, it was routine practice of Environment Canada *Fisheries Act* inspectors to discuss the exceedances with Environment Canada specialists in the operation of pulp and paper mills.

13. *Ibid.* at 3.

14. *Ibid.*

15. *Ibid.*

16. *Ibid.* at 4.

17. *Ibid.* at 4-5.

3.2.1.1 Irving Pulp and Paper Ltd., Saint John, New Brunswick

The response provides information regarding the Irving Pulp and Paper Ltd. in Saint John, New Brunswick, for the period 1995 through 2000. The response states that this mill did not come into compliance with the *PPER* as required at the end of 1995 because of delays in environmental assessment approval from the province for a conventional treatment facility and the subsequent inability of the mill to complete in time the internal mill process changes it pursued as an alternate route to compliance.

In 1996, 157 test failures, out of the total 481 reported, pertained to failed trout acute-lethality tests. In January, Environment Canada began an investigation of alleged *PPER* violations at the mill. The response states that an Environment Canada inspector closed the investigation after the mill indicated that modifications to the mill would achieve compliance by September.¹⁸ In July, federal inspectors conducted an on-site inspection and issued the mill a written warning for exceedances of the BOD limit and for acute lethality. An effluent sample taken in December failed the trout lethality test.

In 1997, the mill reported 127 test failures. At an April meeting between representatives of Environment Canada, the provincial department and the mill, Irving presented a plan to meet the requirements of the *PPER*. In June, Environment Canada requested a tighter schedule and after project delays in August and September, "began to examine enforcement options."¹⁹

In 1998, the mill reported 80 test failures. In the early spring of 1998, effluent collected under a search warrant failed the trout test and the mill was charged for *Fisheries Act* violations. In August, the mill was charged a second time under s. 36(3) for the discharge of green liquor and the company pled guilty and was fined \$50,000. After the company "fine-tuned the operation of the internal treatment systems it had installed to meet the regulatory limits,"²⁰ reports and tests showed a reduced number of acute-lethality test failures, some non-lethal samples and improved, but still non-conforming, levels of BOD that the mill began to address. Following consultations with Environment Canada officials, in October 1998, the Attorney General advised that a prosecution was not warranted.

18. *Ibid.* at 6. In its comments on the draft factual record, Canada indicates that the investigation actually was closed in 2000.

19. *Ibid.* at 7.

20. *Ibid.*

In 1999, the mill reported a total of 11 test failures. The internal changes made in 1998 generally allowed the Irving mill to meet all discharge limits except the monthly limit on BOD. Environment Canada process specialists indicated that the mill was making progress on this problem. The mill subsequently failed some acute-lethality tests, but by October, the effluent passed.

In 2000, the mill reported 25 exceedances, including six failures of trout acute-lethality tests. Two trout test failures came in February, attributed by the mill to start-up after a shutdown; and two more in April said to be due to a membrane leak in the treatment reverse osmosis unit. The response states: "In a manner consistent with the factors to consider before taking action with respect to an alleged violation, Environment Canada decided that the mill had reported corrective action and that no action on the inspector's part was required."²¹ The mill attributed a further failure in June to maintenance work. Environment Canada subsequently conducted an on-site inspection and all the samples taken passed the trout lethality test. The mill reported failure of a trout lethality test in December, after which the follow-up tests passed as required. As a result, Environment Canada took no action. The mill explained that the 19 reported failures of TSS and BOD tests were due to maintenance activities or were corrected, and some exceedances were within the margin of precision. Environment Canada therefore took no action.²²

3.2.1.2 AV Cell Inc. at Atholville, New Brunswick

The response reports 35 alleged violations by this mill in 2000. As regards 10 failures of the trout acute-lethality test, the mill set up a "trouble-shooting" team but the test failures continued. Both Environment Canada and the New Brunswick Environment Department conducted on-site sampling, and the province proceeded with a prosecution for failure of the trout lethality tests. In these circumstances, Environment Canada took no enforcement measures. The mill pled guilty to the provincial charge and was fined \$30,000. The mill reported failures of the TSS limits in every month from January to May and of BOD in February, March and July. The mill attributed these test failures to maintenance, a temporary shutdown and a process change, and took corrective action. Environment Canada decided not to act. Canada says that the *PPER* allows for an authorization for higher emissions associated with process changes, and that the mill applied and received such an authorization in May 2000.

21. *Ibid.* at 9.

22. *Ibid.* at 10-11.

3.2.1.3 Abitibi-Consolidated Inc., Grand Falls, Newfoundland

This mill reported nine failures of the trout acute-lethality test in April, May, June, November, and December of 2000. Process changes made prior to December did not prevent the December test failure. Environment Canada inspectors conducted on-site inspections in June and July. They executed a search warrant and took effluent samples in December. All of the Environment Canada samples passed the trout lethality test.

3.2.1.4 Bowater Mersey Paper Company Ltd., Brooklyn, Nova Scotia

In 2000, this mill reported 16 test failures, including 13 trout acute-lethality test failures and three daily TSS failures. On the basis of an "adequate compliance history" and "ongoing corrective measures," Environment Canada took no immediate action for two trout test failures reported in January.²³ Following another acute-lethality test in June, Environment Canada took samples that passed the test, and the mill took corrective action. The mill reported no test failures after October, and an Environment Canada sample taken in January 2001 passed. In view of the mill's corrective action, Environment Canada decided to take no action in regard to the trout test failures. After the mill reported a TSS test failure in January, it installed a new system for removing solids, which was completed in December. The mill attributed TSS test failures in April 2000 to the dredging of its treatment system.

3.2.2 Quebec

With respect to mills in Quebec, Canada's response explains that Canada and Quebec had an unofficial agreement to continue working in the spirit of a federal-provincial agreement that expired on 31 March 2000, until another agreement could be signed. Consistent with the agreement, the six mills discussed in the response submitted monthly effluent reports under the *PPER* to the province, which served as a "single window" for information required under both provincial and federal legislation. The province then forwarded the information to Environment Canada.²⁴

3.2.2.1 Tembec Inc., Témiscaming, Québec

The response explains that this mill had a transitional authorization that expired in December 1995 and that the mill had complied with

23. *Ibid.* at 15.

24. *Ibid.* at 17.

the conditions of the authorization. The response then provides information regarding the mill for the years 1996 through 2000.

For 1996, the mill reported 25 failures of the monthly trout lethality test and 82 failures of the weekly follow-up trout lethality test, with failures of both in every month of the year. Environment Canada reviewed the effluent reports and contacted the Quebec Ministry of the Environment (QME), which issued notices of violation of the provincial law in May and September 1996 and January and February 1997. The QME requested a corrective action plan, which the mill finalized in July 1996. Environment Canada took into account the actions of the province.

In 1997, the mill failed monthly or weekly trout acute-lethality tests in every month, for a total of 66 failures. The mill also reported four failures of TSS or BOD tests. An Environment Canada inspector reviewed the effluent reports and consulted with the province. QME indicated that it issued notices of violation in April, July, September, October, November, and December 1997 and in January and February 1998. Environment Canada took into account the actions of the province.

In 1998, the mill reported failures of trout acute-lethality tests in every month. The mill reported failure of daily TSS tests on 16 occasions. QME requested a corrective plan from the mill and approved it in May 1998. QME also issued notices of infraction in every month from May to October 1998 and in February 1999. Environment Canada initiated an investigation in April 1998.²⁵

In 1999, the mill reported 20 failures of the monthly or weekly trout acute-lethality tests and nine failures of the daily TSS test. The mill reportedly continued to work to achieve the requirements of its 1998 corrective action plan, and QME issued notices of infraction every month from March through September. Environment Canada's investigation continued.

In 2000, the mill reported five failures of the monthly or weekly trout acute-lethality test and three failures of the daily TSS limit. QME issued notices of infraction in April and July. In October, the Attorney General advised Environment Canada that a prosecution was not warranted. The mill took corrective action that according to Canada "significantly improved its rate of conformity from 1997 to 2000."²⁶

25. *Ibid.* at 21.

26. *Ibid.* at 23.

3.2.2.2 The five other Quebec mills

For the remaining five Quebec mills discussed in the response, Canada provides information for the year 2000. For the Fjordcell Inc. mill at Jonquière, the Tembec Inc. mill at St. Raymond and the La Compagnie J. Ford Ltd. mill at Portneuf, Canada provide a summary of the effluent reports for each mill but limited additional information because of investigations that were pending at the time of the response. The investigations were initiated in July, August and September 2000. The response states that the Uniforêt-Pâte Port Cartier Inc. mill at Port-Cartier reported 24 failures of daily TSS and BOD tests and monthly trout acute-lethality tests and that Environment Canada issued written warnings. The response states that the mill ceased operating in February 2001. The response indicates that the FF Soucy Inc. mill at Rivière-du-Loup was in compliance throughout 2000.

3.2.3 Ontario

The response addresses the concerns raised by the Submitters with respect to two Ontario mills in 2000: the Abitibi-Consolidated Inc. mill in Iroquois Falls and the Interlake Papers mill in St. Catherines. Canada provided limited information on the two mills that were under ongoing investigations at the time of the response. Investigations at the Abitibi Consolidated mill, commenced in October 2001 and the Interlake Papers mill was under investigations since October 2000.

4. Scope of the Factual Record

On 8 October 2003, the Secretariat concluded that Canada's response left open central questions raised in the submission for which a more detailed presentation of factual information would assist in considering whether Canada is failing to effectively enforce the *Fisheries Act* and the *PPER* in Ontario, Quebec and the Atlantic provinces, as the Submitters allege. The Secretariat notified the Council that a factual record was warranted to develop and present, in connection with all of the mills of concern in the submission, detailed factual information regarding: (1) the federal response to alleged effluent test failures and failures to conduct follow-up tests as required under the *PPER*; (2) Canada's consideration of provincial action in enforcing the *PPER*; (3) Canada's use of the full set of options under the *Compliance and Enforcement Policy* in enforcing the *PPER*; (4) the system of self-reporting, inspections and investigations that Canada employs in enforcing the *PPER*; and (5) federal efforts to promote compliance with the *PPER*. The Secretariat indi-

cated that information regarding offenses for which a timely and active investigation, capable of leading to charges, is underway need not be included in the factual record. In light of the comprehensive information presented in Appendices 5 and 7 to the submission in addition to the detailed information regarding the twelve mills of particular concern, the Secretariat recommended that the factual record present facts regarding specific mills in the context of factual information regarding the broader enforcement concerns throughout eastern Canada that frame the submission.

On 11 December 2003, in Resolution 03-16, set out in its entirety in Appendix 1, the Council decided unanimously to instruct the Secretariat to develop a factual record, in accordance with Article 15 of the NAAEC and the *Guidelines for Submissions on Enforcement Matters under Articles 14 and 15 of the NAAEC (Guidelines)*, for the assertions made in Submission SEM-02-003 with regard to alleged failures to effectively enforce section 36(3) of the *Fisheries Act*, alleged effluent test failures, and failure to conduct follow-up tests as required under the *PPER*, with respect to the following mills and time periods:

- Irving Pulp and Paper Ltd. at St. John from 1996 to 2000
- AV Cell Inc. at Atholville for 2000
- Abitibi-Consolidated at Grand Falls for 2000
- Bowater Mersey Paper Company Ltd. at Brooklyn for 2000
- Fjordcell Inc. at Jonquière for 2000
- Interlake Papers at St. Catharines for 2000
- Tembec Inc. at St. Raymond for 2000
- Uniforêt-Pâte Port Cartier Inc. at Port-Cartier for 2000
- FF Soucy Inc. at Rivière-du-Loup for 2000
- La Compagnie J. Ford Ltd. at Portneuf for 2000

In light of ongoing investigations, the Council excluded from the factual record two of the twelve mills that the Submitters identified as mills of particular concern: the Abitibi-Consolidated Inc. mill at Iroquois Falls, Ontario, and the Tembec Inc. mill at Temiscaming, Quebec.

The Council instructed the Secretariat that the factual record shall describe Canada's consideration of actions taken by the provinces to enforce their legislation, regulations and permit conditions related to pulp and paper mills, specifically the information submitted by the

provinces to federal officials where such provincial enforcement actions were relied upon by those federal officials, with respect to the mills listed in Council Resolution 03-16; bearing in mind that the submitters do not assert that any of the provinces are failing to effectively enforce provincial environmental law and there is not to be an examination of provincial enforcement of provincial law.

The Council also instructed the Secretariat that the factual record shall describe other facts directly related to Canada's enforcement of section 36(3) of the *Fisheries Act* and of sections 5 and 6 and Schedules I and II of the *PPER*, with respect to the mills listed in Council Resolution 03-16.

The Council directed the Secretariat to consider, in developing the factual record, whether the Party concerned "is failing to effectively enforce its environmental law" since the entry into force of the NAAEC on 1 January 1994. In considering such an alleged failure to effectively enforce, the factual record may include relevant facts that existed prior to 1 January 1994.

5. Process to Gather Information and Prepare Factual Record

Under Article 15(4) of the NAAEC, in developing a factual record, "the Secretariat shall consider any information furnished by a Party and may consider any relevant technical, scientific or other information: (a) that is publicly available; (b) submitted by interested nongovernmental organizations or persons; (c) submitted by the Joint Public Advisory Committee; or (d) developed by the Secretariat or by independent experts."

On 15 January 2004, the Secretariat presented its workplan to develop a factual record (set out in its entirety in Appendix 2) pursuant to Council Resolution 03-16. The workplan stated the Secretariat's intention to gather and develop information relevant to the facts regarding:

- (i) Canada's actions regarding alleged failures to effectively enforce section 36(3) of the *Fisheries Act*;
- (ii) Canada's action regarding alleged effluent test failures and failures to conduct follow-up tests as required under the *PPER*;
- (iii) Canada's consideration of actions taken by the provinces to enforce their legislation, regulations and permit conditions related to pulp and paper mills, as specified in the Resolution;

- (iv) Other facts directly related to Canada's enforcement of section 36(3) of the *Fisheries Act* and of sections 5 and 6 and Schedules I and II of the *PPER*, with respect to the aforementioned mills; and
- (v) Whether Canada is failing to effectively enforce section 36(3) of the *Fisheries Act* and sections 5 and 6 and Schedules I and II of the *PPER* in the context of the mills and time periods listed in Council Resolution 03-16.

On March 1, 2004, the Secretariat posted a request for information relevant to the factual record on the CEC web site. The Secretariat also sent the Request to the Submitters, the Governments of Mexico and the United States, the Joint Public Advisory Committee (JPAC), the mills listed in Council Resolution 03-16, and non-governmental organizations identified as potentially having relevant information, inviting them to respond by June 30, 2004. The Requests for Information are set out in their entirety in Appendices 3-5.

Canada responded to the Secretariat's March 2004 request for information on 3 June 2004 (hereinafter cited as "Environment Canada Information (3 June 2004)"), providing a response to each of the Secretariat's questions and approximately 2,785 pages of supporting documents. The Secretariat sent requests for additional information to Canada on 22 December 2004 and 20 July 2005 and received additional responses dated 3 February 2005, 16 May 2005, 23 November 2005 and 1 February 2006 (hereinafter cited as "Environment Canada Information" with the respective date). On 1 June 2006, Environment Canada provided the Secretariat with the Canada-Quebec Agreement Management Committee annual report for 2000, to which Canada made reference in its comments on the draft factual record. Environment Canada explained that this document was mistakenly not included in Canada's prior response to the Secretariat's information requests. In addition, the Secretariat met with Environment Canada staff from the national office and the Atlantic Region on 3 February 2005. The requests for information sent to Canada are set out in Appendix 5.

The Secretariat informed all the mills that their voluntary cooperation with the factual record process would greatly enhance the Secretariat's ability to present a comprehensive and balanced set of facts. The ACI, Bowater, Irving Saint John, AV Cell, Tembec St. Raymond and Soucy mills provided information to the Secretariat, either in response to the information request or in connection with on-site visits. The Secretariat made on-site visits to the ACI, Irving Saint John, AV Cell and Tembec St. Raymond mills in November 2004 and to the Bowater mill in

February 2005. The Fjordcell, Uniforêt and J. Ford mills did not provide any written information to the Secretariat and did not respond to the Secretariat's request to arrange site visits. The Interlake mill explicitly declined to provide the information that the Secretariat requested.

The Secretariat also received information from the Submitters, the Forest Products Association of Canada (FPAC), and the Conseil de l'industrie forestière du Québec. Appendix 6 contains a list of all the organizations that provided information in response to the Secretariat's request.

The Secretariat engaged independent legal and technical experts to assist in the preparation of the factual record. The Secretariat's technical expert was Neil McCubbin, Professional Engineer, who reviewed all of the documentation received and accompanied the Secretariat during meetings with Environment Canada and mill site visits. Mr. McCubbin's Curriculum Vitae is set out in Appendix 7. Mr. McCubbin produced a report, referred to hereafter as the McCubbin Report, providing background on the mill production and effluent treatment processes used at the ten mills of concern and providing facts on the relevant environmental performance of the mills during the relevant time periods. The McCubbin report provided the main basis for Sections 7 and 8 of the factual record. The Secretariat also engaged Franklin Gertler, Avocats-Barristers & Solicitors, and Willms and Shier Environmental Lawyers LLP (W+SEL), to provide legal expertise regarding relevant federal and provincial laws, regulations and policies. All of the Secretariat's experts reviewed the draft factual record prior to its release to the Parties. The Secretariat also was assisted by its panel of Special Legal Advisors during preparation of the factual record.

NAAEC Article 15(5) provides that "[t]he Secretariat shall submit a draft factual record to the Council. Any Party may provide comments on the accuracy of the draft within 45 days thereafter." Pursuant to Article 15(6), "[t]he Secretariat shall incorporate, as appropriate, any such comment in the final factual record and submit it to Council." The Secretariat submitted the draft factual record to Council on 28 March 2006 and received comments from Canada on 11 May 2006 and from the United States on 12 May 2006. Mexico did not comment on the draft factual record.

6. Background on Relevant Laws, Regulations, Policies and Practices

The federal government has exclusive jurisdiction over "Sea Coast and Inland Fisheries."²⁷ The federal *Fisheries Act*²⁸ was enacted in 1868

27. Section 91(12) of the *Constitution Act, 1867* (U.K.), 30 and 31 Vict., c. 3.

28. *Fisheries Act*, R.S.C. 1985, c. F-14, as amended.

pursuant to this authority to regulate and protect Canada's fisheries.²⁹ The *Fisheries Act* applies everywhere in Canada, on public and privately owned land, to all activities carried out by private individuals, companies, and government at all levels.³⁰ The *Fisheries Act* encompasses the federal government's authority to regulate pulp and paper mill effluent as part of its responsibilities with respect to Canadian fisheries. Federally, pulp and paper mill effluent was regulated during the time periods relevant to the factual record by the *PPER*, 1992, adopted under the authority of the *Fisheries Act*.³¹ Sections 6.1 and 6.2 of the factual record provide background information on relevant provisions of the *Fisheries Act* and the *PPER*. Section 6.3 provides information on the enforcement options expressly included in the *Fisheries Act* and the *PPER* for alleged violations of s. 36(3) and the *PPER*. Section 6.4 provides information on defenses or excuses that apply to prosecutions of alleged violations of s. 36(3) and the *PPER*. Section 6.5 provides information on policies for enforcing and seeking compliance with s. 36(3) and the *PPER*.

Because Canadian provinces share jurisdiction over certain environmental matters with the federal government, pulp and paper mill effluent in Canada is generally subject to overlapping federal and provincial requirements. Some provinces have their own comprehensive pulp and paper mill regulations adopted under the authority of provincial statutes, and the federal government has entered into agreements with Alberta, Saskatchewan, and Quebec regarding their respective responsibilities for monitoring compliance and collecting regulatory information.³² Although the focus of this factual record is exclusively on federal enforcement of the federal *Fisheries Act* and the federal *PPER*, background information regarding relevant provisions of provincial laws and regulations in Ontario, Quebec, New Brunswick, Nova Scotia and Newfoundland and Labrador, where the mills of concern in this factual record are located, is provided in section 6.6.

29. 31 Vict. 1868, c. 60.

30. The Act is binding on Her Majesty in right of Canada or a province (section 3(2)).

31. *Pulp and Paper Effluent Regulations under the Fisheries Act*, SOR/92-269. As well, the *Pulp and Paper Mill Effluent Chlorinated Dioxins and Furans Regulations* under the *Canadian Environmental Protection Act*, 1999, bans the release of 2,3,7,8-TCDD and 2,3,7,8-TCDF in any measurable concentration and the *Pulp and Paper Mill Defoamer and Wood Chip Regulation* under the *Canadian Environmental Protection Act*, 1999, limits the use of dibenzofuran, dibenzo-para-dioxin, and polychlorinated phenols. *Pulp and Paper Mill Defoamer and Wood Chip Regulations*, SOR/92-268. This factual record focuses only on the *PPER*. All references in the factual record to the *PPER* are to the *PPER*, 1992, unless otherwise noted.

32. 1999 Report of the Commissioner of the Environment and Sustainable Development, Chapter 5 Streamlining Environmental Protection Through Federal-Provincial Agreements, visited at <<http://www.oag-bvg.gc.ca/domino/reports.nsf/html/c905ce.html#0.2.2Z141Z1.NBS3AG.49WQBF.L2>>.

6.1 *Relevant Provisions of the Fisheries Act*

Section 36(3) is in the part of the *Fisheries Act* entitled “Fish Habitat Protection and Pollution Prevention.” It provides that

[s]ubject to subsection (4), no person shall deposit or permit the deposit of a deleterious substance of any type in water frequented by fish or in any place under any conditions where the deleterious substance or any other deleterious substance that results from the deposit of the deleterious substance may enter any such water.

The kind of prohibition contained in s. 36(3) has been part of the *Fisheries Act* since it was adopted in 1868.³³

There are three basic elements to an offense under *Fisheries Act* s. 36(3). To succeed in a prosecution, the Crown must prove beyond a reasonable doubt that a person “deposited” or “permitted the deposit of” a “deleterious substance” into or near “water frequented by fish.”³⁴

Section 34(1) defines a “deposit” as any discharging, spraying, releasing, spilling, leaking, seeping, pouring, emitting, emptying, throwing, dumping or placing. A “deposit” takes place whether or not the act resulting in the deposit is intentional.³⁵ In addition, a “deposit” includes both a deposit directly into fish-bearing water or a deposit in a place and under conditions where the substance deposited may enter fish-bearing water.³⁶ Similarly, depositing a deleterious substance may also be considered a potential violation of the Act if the substance is deposited into waters that may eventually enter waters frequented by fish.³⁷ A person may be held responsible for a deposit where that person is in a position to exercise continued control of a deposit and prevent it from occurring, but fails to do so.³⁸

A “deleterious substance” in the *Fisheries Act* is a substance that, if added to water, would cause the water to become harmful to fish or fish

33. 31 Vict. 1868, c. 60, s. 14; replaced by S.C. 1969-70, c. 63, s. 3.

34. See *R. v. Northwest Territories (Commissioner)*, [1994] 1 W.W.R. 44 (N.W.T. Terr. Ct.), appeal dismissed [1994] 8 W.W.R. 405 (N.W.T.S.C.), for an analysis of the elements of an offense under s. 36(3).

35. *Fisheries Act*, s. 40(5)(a).

36. *R. v. Western Stevedoring Co.* (1984), 13 C.E.L.R. 155 (B.C.C.A.), leave to appeal to S.C.C. refused (1984), 13 C.E.L.R. 155n (S.C.C.).

37. *R. v. Stora Forest Industries Ltd.*, [1993] N.S.J. No. 330 (Prov. Ct.).

38. *R. v. Sault Ste. Marie (City)*, [1978] 2 S.C.R. 1299 and *R. v. Northwest Territories (Commissioner)*, *supra*.

habitat or to human use of fish that frequent that water.³⁹ The focus is on the substance that is added to the water, rather than the water after the addition of the substance.⁴⁰ The courts have held that if a substance is “deleterious” in and of itself (such as acutely lethal effluent), the Crown does not have to prove that depositing such a substance into water frequented by fish actually caused harm to fish or fish habitat in order to secure a conviction under s. 36(3).⁴¹ Once it is determined that a substance is deleterious and that it has been deposited, the offense is complete without ascertaining whether the water itself was thereby rendered deleterious.⁴²

“Water frequented by fish” is defined as “Canadian fisheries waters,” but does not include water that is not, has not been and is not

39. The definition of a “deleterious substance” under section 34(1) is as follows:

(a) any substance that, if added to any water, would degrade or alter or form part of a process of degradation or alteration of the quality of that water so that it is rendered or is likely to be rendered deleterious to fish or fish habitat or to the use by man of fish that frequent that water, or

(b) any water that contains a substance in such quantity or concentration, or that has been so treated, processed or changed, by heat or other means, from a natural state that it would, if added to any other water, degrade or alter or form part of a process of degradation or alteration of the quality of that water so that it is rendered or is likely to be rendered deleterious to fish or fish habitat or to the use by man of fish that frequent that water,

and without limiting the generality of the foregoing includes

(c) any substance or class of substances prescribed pursuant to paragraph (2)(a),

(d) any water that contains any substance or class of substances in a quantity or concentration that is equal to or in excess of a quantity or concentration prescribed in respect of that substance or class of substances pursuant to paragraph (2)(b), and

(e) any water that has been subjected to a treatment, process or change prescribed pursuant to paragraph (2)(c).

Section 34(1) of the *Fisheries Act* defines “fish habitat” as: “spawning grounds and nursery, rearing, food supply and migration areas on which fish depend directly or indirectly in order to carry out their life processes.”

40. *R. v. MacMillan Bloedel (Alberni) Limited* (1978), 47 C.C.C. (2d) 118 (B.C.C.A.), leave to appeal to S.C.C. refused (1979), 47 C.C.C. (2d) 118n (S.C.C.). In *Fletcher v. Kingston (City)*, 7 C.E.L.R. (3d) 198, 187 O.A.C. 143, 240 D.L.R. (4th) 734, 185 C.C.C. (3d) 446, 70 O.R. (3d) 577, the Ontario Court of Appeal cited the B.C. Court of Appeals’s statement in *MacMillan Bloedel Ltd.* (1979) that, “if a teaspoon of oil is deposited in the Pacific Ocean, it is enough to convict.” In *Fletcher*, it was held that the prosecution had to prove that leachate caused by rainfall that percolated through a waste site, when added to any water, was likely to render the water deleterious to fish or fish habitat or to the use of man of fish that frequent the water. It did not have to show that fish living in the vicinity of the seep were harmed.

41. See *R. v. MacMillan Bloedel (Alberni) Limited*, *supra*; *R. v. Abitibi Consolidated* (2000), 190 Nfld. and PEIR 326; 2000 Nfld. and PEIR LEXIS 238; 576 APR 326 (Nfld. Prov. Ct.) at para. 51.

42. *R. v. MacMillan Bloedel (Alberni) Limited*, *supra*.

likely to be frequented by fish.⁴³ Noting that the definition of fish in the *Fisheries Act* is broad, one court held that the word “water” could not be limited to the few cubic feet into which the substance was discharged, because to do so would disregard the fact that both water and fish move.⁴⁴ Thus, “water frequented by fish” may include water where no fish are present in the immediate vicinity. Specifically, where the water into which a deposit is made is part of a larger body of water—for example a water body that is tidal in nature and fish-bearing—it is inappropriate to isolate and separate the smaller area of water from the larger water body in determining whether the water is fish-bearing.⁴⁵ The ten mills of concern in this factual record all have outfalls that discharge effluent to waters frequented by fish, as defined by the *Fisheries Act*.

Under *Fisheries Act* s. 40(2), violations of s. 36(3) are offenses punishable either on summary conviction (carrying fines of up to \$300,000 for a first offense, with the possibility of a \$300,000 fine and/or imprisonment for up to six months for repeat offenders) or on indictment (with fines of up to \$1 million for a first offense and fines of up to \$1 million and/or prison terms of up to three years for repeat offenders). Every day on which a *Fisheries Act* violation continues is a separate offense.⁴⁶

Where there has been an unauthorized deposit of a deleterious substance or a serious threat that a deposit may occur, s. 42 provides the authority for the federal or provincial government to take measures to prevent the deposit or to remedy any adverse effects and to recover costs incurred from the persons responsible.

6.2 *Pulp and Paper Effluent Regulations*

The *Fisheries Act* allows for the establishment through regulations of exceptions to the general prohibition against the deposit of deleterious substances. Under ss. 36(4) and 36(5), the federal government can adopt regulations prescribing when, where, under what circumstances and in what concentrations the deposit of specified deleterious substances, waste or pollutants is authorized. The *PPER* were adopted under this authority and the authority granted to the Governor General

43. Ss. 34(1) and 40(5)(b) of the *Fisheries Act*. It has been held that even if there are no fish in the vicinity of the deposit, where the surrounding water is tidal in nature and fish-bearing, the deposit is considered to have been made to water frequented by fish; *R. v. Stora Forest Industries Ltd.*, [1993] N.S.J. No. 330 (Prov. Ct.).

44. *R. v. MacMillan Bloedel (Alberni) Limited*, *supra*.

45. *R. v. Stora Forest Industries Ltd.*, *supra*.

46. *Fisheries Act*, s. 78.1.

in Council in ss. 34(2), 37(3) and 37(9) of the *Fisheries Act*. Failure to comply with the *PPER* discharge provisions is non-compliance with *Fisheries Act* s. 36(3).

6.2.1 History and Purpose

The *PPER* apply to pulp and paper mills and certain off-site treatment facilities treating mill effluent.⁴⁷ As stated in the preamble to the *PPER*, the purpose of the regulations is to “prescrib[e] certain deleterious substances related to the effluent from pulp and paper mills and off-site treatment facilities and authoriz[e] the deposit of limited quantities of those deleterious substances in certain circumstances.”

The *PPER* adopted in 1992 replaced an earlier set of regulations that had been in effect since 1971. In explaining the need for the amended regulations, the Canadian government explained:

The pulp and paper industry has reduced its pollutant charge over the past 20 years. However, the implementation of the current Regulations for the period of time has revealed several deficiencies. These Regulations do not reflect technologies developed since 1971. The applicability of the Regulations to expanded or modified mills has been difficult, as it is unclear if the Regulations apply only to the expanded portion or to the whole mill. Finally, since the [1971] *Pulp and Paper Effluent Regulations* do not apply to mills that commenced operations prior to 1971, less than 10% of the pulp and paper mills in Canada are currently subject to the Regulations.⁴⁸

In response to these observations, the government stated that the *PPER* were “intended to streamline the current regulations and improve the protection of fish and their habitat by tightening the regulatory limits and widening their application to all mills. As a result, their interpreta-

47. *Ibid.* The *PPER* apply only to off-site treatment facilities which treat effluent discharged by pulp and paper mills where the quantity of BOD matter from any mill is higher than 5,000 kg/day or represents more than 20% of the total quantity of BOD from all sources treated by the off-site facility. *PPER*, s. 3(2); *PPER Regulatory Impact Analysis Statement* (5 May 1992), *Canada Gazette* Part II, Vol. 126, No. 11, at 1998. The Regulations do not apply to the Port Alberni, British Columbia, pulp and paper mill owned by MacMillan Bloedel. *PPER*, s. 3(1). This exception was made because of the sensitive ecosystem at the Port Alberni mill receiving water, which required discharge limits stricter than those prescribed under the *PPER*. See *Regulatory Impact Statement for Regulations Amending the Pulp and Paper Effluent Regulations* (4 May 2004), *Canada Gazette* Part II, Vol. 138, No. 10, at 638. In the 2004 amendments to the *PPER*, the requirements of the *Port Alberni Pulp and Paper Effluent Regulations* (*PAPPER*) have been incorporated and the *PAPPER* was revoked.

48. *PPER Regulatory Impact Analysis Statement*, *Canada Gazette* Part II, Vol. 126, No. 11, SOR/DORS/92-269, at 1997.

tion and application are expected to be greatly simplified.”⁴⁹ The main changes to the 1971 regulations were 1) the establishment of new effluent quality requirements; 2) the extension of the regulations to all mills that deposit effluent in receiving waters; 3) new procedures for the routine monitoring and reporting of deposits; and 4) an Environmental Effects Monitoring program.⁵⁰

6.2.2 Overview

The *PPER* define “effluent” as

waste water treated by an off-site treatment facility, or waste water from a mill, including process water, gas scrubbing water, boiler blow-down water, wash-down water, cooling water and leachate from any site at the mill where solid residues generated by any mill are treated or disposed of or where wood chips or hogfuel is stored.⁵¹

The 1992 regulations define a “mill” as

a factory that produces pulp or paper products, or where a complex consists of one or more factories that produce pulp or paper products, all of those factories that discharge some or all of their effluent into a common treatment facility, [including] any facility that treats effluent from a mill to reduce or eliminate deleterious substances.⁵²

The *PPER* list acutely lethal effluent, BOD matter, and suspended solids as classes of substances in the effluent of a pulp and paper mill or off-site treatment facility that are included in the definition of “deleterious substances” in *Fisheries Act* s. 34(1).⁵³ The *PPER* allow for the deposit of these prescribed deleterious substances, if at all, only under certain conditions relating to the maximum allowable quantity of the substance, effluent monitoring, reporting, remedial and emergency planning and other matters.⁵⁴ If these conditions are not met, then the deposit is not authorized and can be considered an offense under the *Fisheries Act*.⁵⁵

Section 6 of the *PPER* authorizes the deposit of limited quantities of BOD and TSS into fish-bearing water under specified conditions, includ-

49. *Ibid.* at 1998.

50. 1993 Report of the Auditor General Chapter 26: Pulp and Paper Regulations, at para. 26.21 (available at <<http://www.oag-bvg.gc.ca/domino/reports.nsf/html/ch9326e.html>>).

51. *PPER*, s. 2.

52. *Ibid.*

53. *Ibid.*, s. 5 (Section 3 in the 2004 *PPER*).

54. *Ibid.*, ss. 6-11, 17.

55. *Fisheries Act*, s. 36(4); *PPER*, s. 7(4).

ing compliance with the maximum amount of BOD and maximum quantity of TSS authorized to be deposited from a mill as determined by the formulae under s. 14 of the *PPER*, and, where an authorization has been issued, compliance with the terms of the authorization.⁵⁶ For both BOD and TSS, the limits for each mill are based on the mill's reference production rate (RPR), which "is equal to the highest values of the 90th percentiles of the daily production of finished product at the mill for any of the previous three years."⁵⁷ The determination of BOD and TSS limits is explained in section 6.2.2.

For the 1996-2000 time period on which this factual record is focused, and since that time, the *PPER* prohibit mills from depositing acutely lethal effluent in any concentration into fish-bearing water.⁵⁸ Prior to 1996, the *PPER* allowed mills that commenced operations prior to November 1971 to seek a transitional authorization to discharge acutely lethal effluent under certain conditions.⁵⁹

The conditions governing the authority to deposit specified deleterious substances are listed in s. 7 of the *PPER*. The operator's authority to deposit is conditional on the operator:

- installing, maintaining and calibrating monitoring equipment and keeping records of the monitoring equipment;
- monitoring the effluent in accordance with Schedule II of the *PPER* and reporting the results on a monthly basis;
- submitting mill ownership information to an authorization officer;
- preparing and updating annually a remedial plan for addressing acutely lethal effluent;

56. *PPER*, s. 6(1). S. 6(3) states that these substances may also be deposited at another mill that treats the effluent or in any off-site treatment facility, whether or not the off-site treatment facility is subject to the *PPER*. In the amended *PPER* the owner or operator may deposit or permit the deposit of acutely lethal effluent, BOD and TSS only into an off-site treatment facility whether or not the facility is subject to the *PPER*. Section 19 sets out the maximum BOD and maximum quantity of TSS that the owner or operator of a mill referred to in section 15(1) may be authorized to deposit, or to permit the deposit of, under an authorization.

57. *PPER*, s. 12(1). The remainder of section 12 and section 13 provide additional detail for determining reference production rates.

58. *PPER*, s. 6(1)(b). Although certain mills could deposit acutely lethal effluent under transitional authorizations, all transitional authorizations were expired as of 31 December 1995. *Ibid.*, s. 25(1).

59. *Ibid.*, ss. 6(1)(b), 20-25.

- preparing, submitting and implementing an emergency response plan to address the unauthorized release, or risk of such release, of a deleterious substance out of the normal course of events;
- ensuring that effluent is only discharged at designated outfalls;
- not diluting any treated effluent with water or other effluent (unless authorized) before it is deposited; and
- keeping data and records available for inspection.⁶⁰

In summarizing the costs to the private sector of the 1992 amendments to the *PPER*, the Canadian government noted that as of January 1990, 18 of the 145 pulp and paper mills in Canada already were in compliance with the new limits, 30 of those 145 mills discharged to off-site treatment facilities, and 97 mills did not comply with the new limits and would therefore incur additional capital and operating costs to meet the new regulation.⁶¹ The Regulatory Impact Analysis for the *PPER* indicated that, of the 97 mills that would have to install primary and secondary effluent treatment or equivalent processes to achieve compliance, 54 mills would incur costs up to \$20 million, 28 mills would incur costs between \$20 and 40 million, and 15 mills would incur costs greater than \$40 million, for a total industry expenditure of approximately \$2.3 billion in capital costs and \$211 million in annual operating costs to achieve compliance.⁶²

The *PPER* allowed operators of mills whose operations commenced prior to November 1971 to apply for a “transitional authorization” if they were unable to comply with the *PPER* by 1 December 1992.⁶³ A transitional authorization could only be issued if the operator undertook as soon as possible to eliminate deposits of acutely lethal effluent and to comply with the normal *PPER* limits for BOD and TSS.⁶⁴ Transi-

60. *Ibid.*, s. 7. The amended *PPER* regroup the monitoring, reporting and record keeping requirements related to the deposits under the conditions governing the deposits in order to clarify and streamline the regulatory requirements, as stated in the June 2000 Consultation Document. Therefore, section 7 now has additional sections that pertain to notifying an inspector of non-compliance with the *PPER* (s. 7(1)(c)), complying with the requirements for environmental effects monitoring (s. 7(1)(k)), and keeping data available for inspection (s. 7(1)(l)).

61. *PPER Regulatory Impact Analysis Statement, Canada Gazette, Part II, Vol. 126, No. 11, SOR/DORS/92-269*, at 2000.

62. *Ibid.*; Environment Canada Information (3 June 2004).

63. *Ibid.*, ss. 20, 21.

64. *Ibid.*, s. 21(3).

tional authorizations allowed mills to discharge effluent with the lowest level of acute lethality and the lowest quantity of BOD matter or suspended solids that the operator was able to achieve and they were to expire by December 31, 1993.⁶⁵ However, an extension of transitional authorizations until no later than December 31, 1995 could be granted if “extraordinary circumstances” beyond the control of the operator precluded compliance with the *PPER*.⁶⁶

Under the *Fisheries Act* anyone who owns or is in charge, management or control of a deleterious substance or who causes or contributes to a deposit out of the normal course of events has a duty to report the deposit.⁶⁷ The responsible person or entity must also take all reasonable measures to mitigate or remedy any adverse results of the deposit.⁶⁸ Under the *PPER*, the unauthorized deposit must be reported immediately to a fisheries inspector or to the Environment Canada or provincial environment authorities prescribed in s. 36 of the *PPER*.⁶⁹ Furthermore, the mill’s emergency response plan must be carried out without delay⁷⁰ and a written report, setting out the types and levels of deleterious substances released, must be submitted as soon as possible.⁷¹

The following sections of the factual record elaborate on the regulation of TSS, BOD and acutely lethal effluent, the deleterious substances specified under the *PPER*. The testing methods for these substances are set out in Schedule I of the *PPER*. The effluent monitoring requirements, including sampling and testing methods for acute lethality, BOD, and TSS, are set out in Schedule II. Schedule II also calls for the monitoring of the volume of the effluent⁷² and continuous testing for pH levels and electrical conductivity of the effluent.⁷³ Table 3 summarizes the primary effluent limitations relevant to this factual record, along with the margin of error for test methodologies where applicable.

65. *Ibid.*, ss. 21, 23.

66. *Ibid.*, s. 25.

67. *Fisheries Act*, s. 38(4).

68. *Ibid.*, s. 38(5).

69. *PPER*, s. 36(1). The prescribed authority is defined differently in the amended Regulations: See *RAPPER*, s. 32(1).

70. *PPER*, s. 7(1)(f).

71. *Ibid.*, s. 36 (2), (3); s. 32(2)-(5) in the *RAPPER*.

72. *PPER*, Schedule II, ss. 10 and 11.

73. *Ibid.*, Schedule II, s. 12.

Table 3. Summary of Pulp and Paper Effluent Regulation limits

Parameter		Maximum any day	Maximum monthly average	Test margin of accuracy
Suspended solids (TSS)*	kg/ton	18.75	11.25	15%
BOD ₅ *	kg/ton	12.5	7.5	20%
Acute lethality to trout**	96 hour LC50	100% on monthly or follow-up test		None
Acute lethality to <i>Daphnia</i> **	48 hour LC50	100% on weekly or follow-up test		None
Effluent flow	Must be measured to calculate other discharges			10%

* The actual effluent limits for BOD and TSS for a mill are expressed in terms of kg/day, and must be calculated by formulae that account for the concentration of BOD matter or TSS and the mill's reference production rate, and the effluent flow. Less stringent limits for BOD and suspended solids discharges apply to dissolving pulp mills.

** 100% (full strength) represents the concentration of effluent at which at least 50% of the test organisms must survive after exposure to the effluent at full strength for the prescribed amount of time. A concentration of less than 100% indicates that the effluent had to be diluted in order for 50% of the organisms to survive, and hence a failure of the test. Because the *PPER* do not require the determination of the LC50 concentration, failure of the test may also be indicated simply when more than 50% of the test organisms fail to survive at the end of the test time period.

6.2.3 TSS and BOD

The *PPER* set daily and monthly limits for the discharges of BOD matter and TSS from pulp and paper mills. As noted above, these limits are expressed in kilograms, as opposed to concentration, and therefore depend upon the reference rate of production (RPR) of a mill and effluent flow. The more a mill produces, as reflected in its RPR, the more BOD matter and TSS it is allowed to deposit in its effluent. S. 14 of the *PPER* sets out the formulae for calculating the maximum allowable BOD matter and TSS for mills that do not have an authorization, as follows:

The maximum BOD of all BOD matter and the maximum quantity of all suspended solids that may be deposited in the case of a mill is determined by

(a) in respect of a daily period, the amounts determined using the formula
 $Q_d = F \times 2.5 \times RPR$

and

(b) in respect of any month, the formula

$$Q_m = F \times D \times 1.5 \times RPR$$

where

["D" is the number of days in the month;]

"F" is equal to a factor of 5 of BOD and 7.5 in respect of suspended solids, expressed in kilograms per tonne of finished product;

["Q_d" is the maximum BOD of the BOD matter that or the maximum quantity of suspended solids, as the case may be, that may be deposited during a 24-hour period, expressed in kilograms;

"Q_m" is the maximum BOD of the BOD matter or the maximum quantity of suspended solids, as the case may be, that may be deposited during a month, expressed in kilograms;] and

"RPR" is the reference production rate.⁷⁴

These formulae apply to all of the mills in this factual record except the AV Cell mill, a dissolving sulphite pulp mill. Section 19 sets out different formulae for mills, like the AV Cell mill, that have been issued an authorization under ss. 15-18 of the *PPER*. The provisions applicable to the AV Cell mill state:

19. (2) The maximum BOD of all BOD matter, in respect of any dissolving grade sulphite pulp, that the operator of a mill is authorized to deposit under an authorization is determined by

(a) in respect of any 24-hour period, the formula

$$Q_d = F \times 2.5 \times RPR$$

and

(b) in respect of any month, the formula

$$Q_m = F \times D \times 1.5 \times RPR$$

where

"F" is equal to a factor of 18, expressed in kilograms per tonne of finished product, and

74. *PPER*, ss. 2, 14.

“RPR” is the reference production rate for dissolving grade sulphite pulp.

...

(4) The maximum quantity of all suspended solids, in respect of any dissolving grade sulphite pulp, that the operator of a mill is authorized to deposit under an authorization is determined by

(a) in respect of any 24-hour period, the formula

$$Q_d = F \times 2.5 \times RPR$$

and

(b) for any month, the formula

$$Q_m = F \times D \times 1.5 \times RPR$$

where

“F” is equal to a factor of 25, expressed in kilograms per tonne of finished product, and

“RPR” is the reference production rate for dissolving grade sulphite pulp.

“BOD” is defined in s. 2 of the *PPER* as the “biochemical oxygen demand that is equal to the quantity of oxygen, dissolved in water that is consumed by BOD matter, when tested in accordance with the BOD test.” BOD matter is organic matter that provides food for bacteria and other oxygen-consuming micro-organisms.⁷⁵ BOD matter can be harmful to fish if it overly depletes oxygen that fish need for survival.⁷⁶

A “BOD test”, as set out in section 3 of Schedule I of the *PPER* is performed to determine the BOD of an effluent. The effluent monitoring requirements for BOD are set out in Schedule II.⁷⁷ BOD samples must be collected on a daily basis⁷⁸ and at least three of the samples collected each week must be tested for BOD.⁷⁹

75. E. Christie and G. McEachern, *Pulping the Law*, Sierra Legal Defence Fund, 2001. <http://www.sierralegal.org/reports/Pulping_The_Law.pdf> at p. 22-23.

76. *Ibid.*

77. *PPER*, s. 1(2).

78. *Ibid.*, Schedule II, s. 2. This applies to both mills and off-site treatment facilities. Under the revised *PPER*, s. 8 of Schedule II states that mills that deposit their effluent into an off-site facility are required to test for BOD on a monthly basis, unless the mill deposits effluent for a daily period or a portion of a daily period during a month, which then requires collecting the samples on a daily period.

79. *Ibid.*, Schedule II, s. 4(1).

As noted above, TSS is the acronym for total suspended solids. Large amounts of suspended organic and inorganic materials in water may cause harm to fish and fish habitat by interfering with the movement of fish, clogging up their gills, settling in river and lake beds, killing bottom feeding organisms, and harming reproductive habitat.⁸⁰ Section 2 of the *PPER* defines “suspended solids” as any solid matter that is present in the effluent. In order to be in compliance with the authorized levels of TSS, the mill owner or operator must perform a “suspended solids test,” which determines the quantity of suspended solids in effluent. The test is set out in section 4 of Schedule I of the *PPER* and the monitoring requirements are set out in Schedule II.⁸¹ Operators must test for suspended solids once every 24 hours.⁸²

As noted above, the maximum amount of BOD and TSS that a pulp and paper mill can discharge depends on the mill’s RPR. The RPR is determined by taking the 90th percentile of finished product produced each day, calculated over a one-year period.⁸³ The 90th percentile of the daily production of finished product at a mill for a year is the production that was exceeded on 10% of the days that the mill operated that year.⁸⁴ A mill that decreases or expects to decrease its RPR by more than 25% over a 100-day period is required to apply for an interim RPR.⁸⁵ For an increased production of more than 25%, application for an interim RPR is optional.⁸⁶

If a pre-1971 mill exceeded the maximum quantities of a substance authorized to be discharged by the *PPER* and the quantities were the lowest achievable, the mill could apply for a special authorization for the quantities as long as they did not exceed the maximum quantities that would be allowed under the formulae set out in s. 19 (and reproduced above).⁸⁷ An authorization could not be issued unless the operator of a mill had taken all applicable preventative measures at the production stage to reduce the BOD and the TSS in the effluent.⁸⁸ No authorizations could be issued where there was evidence that the effluent would have an adverse effect on fish, fish habitat, or on the human use of fish.⁸⁹ In

80. E. Christie and G. McEachern, *Pulping the Law*, *supra* at p. 23.

81. *PPER*, Schedule II, s. 1(2).

82. *Ibid.*, Schedule II, s. 4(2).

83. *Ibid.*, s. 12.

84. *Ibid.*, s. 12(2).

85. *Ibid.*, s. 13(3).

86. *Ibid.*, s. 13(2).

87. *Ibid.*, s. 16(1).

88. *Ibid.*, s. 16(3).

89. *Ibid.*, s. 18.

amending the *PPER* in 2004, the federal government noted that no mills applied for such an authorization under the *PPER*.⁹⁰

6.2.4 Acute lethality

“Acute lethality” is defined in s. 2 of the *PPER* as the effluent that at 100 per cent concentration kills more than 50 percent of the rainbow trout subjected to it during a 96-hour period, when tested in accordance with the test to determine acute lethality referred to in the regulations. The test to determine the acute lethality of effluent is performed using rainbow trout and is set out in section 1 of Schedule I of the *PPER*. The *PPER* also require testing of the lethality of effluent to *Daphnia magna*, although the *Daphnia* test is not used directly to determine acute lethality.⁹¹

Sections 1(1), 5 and 6 of Schedule II of the *PPER* establish the monitoring requirements for acute lethality testing and *Daphnia magna* lethality testing. Acute lethality and *Daphnia magna* lethality testing are conducted on grab samples of effluent.⁹² The *PPER* require acute lethality tests to be performed once a month on rainbow trout, and *Daphnia magna* testing to be done once per week.⁹³ Where a sample fails the trout acute lethality test, acute lethality testing must be performed on trout once a week until three consecutive tests are passed, at which time monthly acute lethality testing may be resumed.⁹⁴ Where a sample fails the *Daphnia magna* lethality test, a rainbow trout lethality test must be conducted “without delay” and the testing frequency for *Daphnia magna* must be increased to three times per week until the effluent passes three consecutive tests, after which weekly testing is resumed.⁹⁵

Omitting or failing the rainbow trout acute lethality test is an offense under the *PPER* and, hence, the *Fisheries Act*.⁹⁶ It is also an offense not to conduct timely follow-up acute lethality tests following the failure of a monthly acute lethality test or a *Daphnia magna* test. These

90. *Regulatory Impact Statement for Regulations Amending the Pulp and Paper Effluent Regulations* (4 May 2004), *Canada Gazette Part II*, Vol. 138, No. 10, at 640.

91. Section 2 of Schedule I sets out the test relevant to detect *Daphnia magna*, also known as water fleas. A *Daphnia Magna* test examines the percentage of this type of zooplankton that dies when laced in the effluent for 48 hours.

92. *PPER*, Schedule II, s. 1(1).

93. *Ibid.*, Schedule II, s. 5(1).

94. *Ibid.*, Schedule II, s. 6(1) and (3).

95. *Ibid.*, Schedule II, s. 6(2) and (3).

96. See *Fisheries Act*, ss. 36(3) and 36(4)(b).

follow-up tests include the weekly acute lethality tests that must be performed upon failure of the monthly acute lethality test until three consecutive tests are passed, as well as the acute lethality test that must be conducted “without delay” upon failure of a *Daphnia magna* test.

In contrast, a failed *Daphnia magna* test shows that the effluent sample is harmful, but not necessarily an “acutely lethal effluent” for the purposes of the *PPER* or the *Fisheries Act*. A failed *Daphnia magna* test result does not automatically indicate an offense. However, an offense is committed when the *Daphnia magna* test is not done on a weekly basis or, following failure of the weekly *Daphnia magna* test, three times per week until three consecutive tests pass.

The Pulp and Paper Research Institute of Canada (“Paprican”)⁹⁷ Paprican conducted a study of 84 cases of toxicity test failures for either trout or *Daphnia* between 1996 and 2003. They noted:

Between 1995 and 2000, there has been an improvement in the level of compliance and effluent from most mills have met the regulatory limit [for toxicity]. Nonetheless, every year, about 10 to 25% of the mills experienced at least one failure in tests with either rainbow trout or *Daphnia magna*.⁹⁸

The primary causes of trout lethality that were diagnosed in the Paprican study were ammonia, which can form from the addition of nitrogen during biological treatment and cause trout mortality either because of residual amounts in the effluent or as a result of increases in pH during lethality testing; carbon dioxide, specifically in effluents from oxygen-activated sludge treatment plants; resin acids, which normally result from various factors that reduce the efficiency of biotreatment; metals, such as copper and manganese, which can result from very low water hardness; and polymeric formulations resulting from the addition of polymers during processing.⁹⁹

97. Paprican is a not-for-profit research and technology institute that provides technology transfer and research addressing the short-term and strategic needs of its member companies in the pulp and paper sector. Its primary source of funding is the pulp and paper industry. Its Board of Directors includes representatives from Industry Canada and Natural Resources Canada. Some of the research Paprican conducts is done in collaboration with Environment Canada on topics of mutual concern. See <<http://www.paprican.ca/wps/portal/paprican/about?lang=en&extsrc=Main+About+Page>>.

98. T. Kovacs et al., “Summary of Case Studies Investigating the Causes of Pulp and Paper Effluent Regulatory Toxicity”, *Water Qual. Res. J. Canada*, 2004, Vol. 39, No. 2, at 93-102.

99. *Ibid.*

6.2.5 *Environmental Effects Monitoring*

The *PPER* established an environmental effects monitoring (EEM) program to study the effects of pulp and paper mill effluent on the aquatic ecosystems that receive them.¹⁰⁰ The EEM program was updated in the May 2004 Regulations Amending the *PPER* (*RAPPER*).

Environment Canada's Pulp and Paper EEM Guidance Document (2005) summarizes the program as follows:

The objective of the Pulp and Paper EEM Program is to evaluate the effects of effluent on fish, fish habitat and the use of fisheries resources, which will be used to assess the adequacy of regulations on a site-specific basis. Information from a nationally consistent EEM program, along with social, economic, and technological information, can be used to assess the effectiveness of pollution prevention and control technologies, practices, programs, and indicate where there is a local, regional or national need for enhanced protection.

EEM is conducted in the aquatic receiving environment at locations where effluent is being deposited. An EEM study includes the following components:

- a fish population survey to assess the health of fish;
- a benthic invertebrate community survey to assess fish habitat;
- a study of dioxins and furans in edible fish tissue where dioxins and furans are present in the effluent as an assessment of the usability of fisheries resources;
- sublethal toxicity testing to assess effluent quality; and
- supporting water and sediment quality variables to aid in the interpretation of biological data.¹⁰¹

Under the *PPER*, the EEM program was structured around three-year cycles involving the collection and interpretation by mills of data on the effects of their effluent on fish, fish habitat and the use of fisheries resources, and the submission to the government of reports on interpretive results. Between 1992 and 2004, the pulp and paper industry completed three cycles of monitoring and reporting.¹⁰² According to the

100. *PPER*, ss. 28-35.

101. Environment Canada, *Pulp and Paper EEM Guidance Document* (2005), at 1-3.

102. *Ibid.* at 1-2. In April 1999, the federal government adopted an amendment creating a one-time four-year cycle, after which a three-year cycle was to be resumed. Environment Canada, June 2000 Consultation Document, Proposed Additional Amendments Being Considered by Environment Canada in Respect of the *Pulp and Paper Effluent Regulations* and the *Port Alberni Pulp and Paper Effluent Regulations*.

FPAC, the Canadian pulp and paper industry has spent more than \$18 million on EEM since 1992.¹⁰³

Mill reports on the second cycle of the EEM program, including the reports of mills included in this factual record, were submitted in early 2000. Environment Canada's review of the second cycle "confirmed that the EEM program was working well and producing high quality data."¹⁰⁴ Environment Canada noted that

the data also showed that mills have been successful in reducing the toxicity of their effluent and effluent quality has vastly improved since the 1992 *PPER* were promulgated, however effects on benthic invertebrates and fish remain. The National Assessment of cycle 2 EEM (Lowell *et al.*, 2003) data showed that pulp and paper mill effluent were affecting fish and fish habitat with the average national response pattern showing a combination of nutrient enrichment and impacts on fish reproduction.¹⁰⁵

Environment Canada informed the Secretariat:

Environment Canada fishery officers and fishery inspectors do not evaluate EEM results, because the results are not a matter of compliance or non-compliance with a stated limit, but show the effect in the receiving environment of mill effluent over the four-year cycle. Departmental scientists review the results of EEM in order to determine whether results show improvement to environmental quality, a worsening of that quality or maintenance of the same level of environmental quality.¹⁰⁶

Environment Canada further informed the Secretariat:

[T]o the extent that EEM demonstrates [] harm or absence of harm, the relevant time period of environmental effects monitoring is from 1996 to 2000. The results of this cycle of EEM were reported to Environment Canada on April 1, 2000 for all mills [of concern in the factual record] except Fjordcell . . . and Uniforêt. The Fjordcell mill was closed from 1991 to 1999 and was therefore not subject to the [*PPER*] when they came into force in 1992. Likewise, [Uniforêt] was not subject to the regulations when they came into force in 1992 and did not produce effluent until 1996. These two mills carried out their EEM monitoring and submitted their EEM data according to a different schedule [from] the eight other mills . . . EEM data from Fjordcell and [Uniforêt] were received in 2002.¹⁰⁷

103. FPAC Letter to the CEC Secretariat (28 June 2004).

104. *Ibid.*

105. *Ibid.*

106. Environment Canada Information (3 June 2004).

107. *Ibid.*

Additional information regarding the results of EEM monitoring is presented in connection with the more detailed information provided in section 8 below for each of the mills examined in the factual record.

6.2.6 2004 Amendments to the PPER

The *RAPPER* were published in the Canada Gazette on 19 May 2004.¹⁰⁸ Although this factual record focuses on enforcement during periods prior to adoption of the *RAPPER*, information regarding the amendments is included to avoid confusion regarding which regulations applied and to place the information in the factual record in its proper temporal context.

In an analysis of the amendments, the Canadian government noted that in order to comply with the *PPER* and the Port Alberni *Pulp and Paper Effluent Regulations*,

it was estimated that Canadian mills invested over \$2.3 billion (1990 \$) in pollution prevention and control equipment in the period between 1992 and 1995. As a result, effluent quality has dramatically improved, and the quantity of deleterious substances deposited has declined significantly. By 2002, discharges of BOD matter and TSS had declined by 96 per cent and 74 per cent, respectively, compared to 1987 discharges. In 2002, average BOD matter deposits per tonne of finished product amounted to 1.2 kilograms per tonne (kg/t) compared to 26.3 kg/t in 1987. For TSS, the deposits were 2.9 kg/t in 2002, compared to 11.0 kg/t in 1987.¹⁰⁹

The major areas of changes reflected by the amendments are as follows:¹¹⁰

- The monitoring, reporting, and record-keeping requirements related to the deposit of effluent have been regrouped (such as effluent outfall information, EEM studies, etc.) under the conditions governing the authority to deposit.¹¹¹
- Key elements in the Emergency Response Plan are now specified in the amendments, whereas they were not in the *PPER*. Addi-

108. *Regulations Amending the Pulp and Paper Effluent Regulations*, SOR/2004/109.

109. *Regulatory Impact Statement for Regulations Amending the Pulp and Paper Effluent Regulations* (4 May 2004), *Canada Gazette* Part II, Vol. 138, No. 10, at 638 (available at: <<http://canadagazette.gc.ca/partII/2004/20040519/html/sor109-e.html>>).

110. An elaboration on the specific changes, as well as information on the benefits and costs derived from the amendments can be found in the *Regulatory Impact Statement for Regulations Amending the Pulp and Paper Effluent Regulations* (4 May 2004), *Canada Gazette* Part II, Vol. 138, No. 10, at 639-43.

111. *RAPPER*, SOR/2004/109, s. 6.

tional added requirements are to keep the plan on site rather than submit to an authorization officer, and have the plan and any revisions available for inspection for at least five years. Facilities that have not been subject to the *PPER* for more than a year have to prepare a new emergency plan on the day they become subject to it again.¹¹²

- Provisions allowing mills to seek authorizations to deposit TSS or BOD matters in amounts that exceed the maximum authorized quantities have been deleted. However, provisions regarding authorizations for dissolving grade sulphite pulp mills and mills treating effluent from non-mill sources were retained.¹¹³
- Provincial officers can serve as authorization officers where an agreement has been signed with the Federal government.¹¹⁴
- The separate regulation for the Port Alberni mill has been incorporated into the amended *PPER*.¹¹⁵
- Several changes were made to acute lethality testing and monitoring requirements. Acute lethality testing three times per week on *Daphnia magna* is no longer mandatory where a facility fails the weekly test.¹¹⁶ The requirement to conduct an immediate rainbow trout acute lethality is retained. If this rainbow trout acute lethality test fails, then weekly rainbow trout acute lethality testing is required until three consecutive tests are passed.¹¹⁷
- When a rainbow trout acute lethality test that is conducted in accordance with the requirements for a deposit out of the normal course of events fails, a new provision is added requiring weekly testing to be conducted, until three consecutive tests pass.¹¹⁸

112. *Ibid.*, s. 11(1).

113. *Regulatory Impact Statement for Regulations Amending the Pulp and Paper Effluent Regulations* (4 May 2004), *Canada Gazette* Part II, Vol. 138, No. 10, at 640.

114. *RAPPER*, s. 2 for definition, Schedule V for elaboration.

115. *Ibid.*, Part 2, ss. 33-37.

116. The government concluded that “[r]emoval of the requirement to conduct thrice-weekly *Daphnia magna* tests is supported by the fact that test results indicate that *Daphnia magna* is generally less sensitive than rainbow trout, and serves to trigger for rainbow trout acute lethality testing.” *Regulatory Impact Statement for Regulations Amending the Pulp and Paper Effluent Regulations* (4 May 2004), *Canada Gazette* Part II, Vol. 138, No. 10, at 642.

117. *Ibid.*; *RAPPER*, Schedule II, s. 5(5).

118. *RAPPER*, Schedule II, s. 5(1); *Regulatory Impact Statement for Regulations Amending the Pulp and Paper Effluent Regulations* (4 May 2004), *Canada Gazette* Part II, Vol. 138, No. 10, at 642.

- Facilities may use test methods for BOD and TSS required by or authorized by the laws of their respective provinces provided they are equivalent to the federal test methods.¹¹⁹
- The frequency of the sampling and testing of the effluent, other than testing for pH levels and electrical conductivity, can be reduced to once a month for outfalls that discharge only non-contact cooling water.¹²⁰
- The reporting requirements relating to deposits out of the normal course of events have been rewritten to clearly define the responsibilities under *Fisheries Act* s. 38(4). The amendments specify the time limits and contents for the written reports and the circumstances that require additional sampling and monitoring.¹²¹
- Several changes were made to the EEM program, without substantially altering the requirements for the program.¹²²

The Regulatory Impact Statement for the amendments states that “[t]hey do not impose stricter allowable discharges, and, as a result, they will not impose a need for mills and off-site treatment facilities to expend additional costs for pollution prevention and control measures.”¹²³

6.2.7 Summary of possible offenses of the PPER and the Fisheries Act

Council Resolution 03-16 instructs the Secretariat to focus its examination on Canada’s enforcement of *Fisheries Act* s. 36(3). For the time periods relevant to the factual record, s. 36(3) is violated by depositing deleterious substances into water frequented by fish without meeting the conditions required under the PPER.¹²⁴ Table 4 presents the main offenses under the PPER and the RAPPER, 2004, that can result in a violation of *Fisheries Act* s. 36(3).

119. RAPPER, Schedule I, ss. 3(1)(c) and 4(1)(c); *Regulatory Impact Statement for Regulations Amending the Pulp and Paper Effluent Regulations* (4 May 2004), *Canada Gazette* Part II, Vol. 138, No. 10, at 641.

120. RAPPER, Schedule II, s. 20. *Regulatory Impact Statement for Regulations Amending the Pulp and Paper Effluent Regulations* (4 May 2004), *Canada Gazette* Part II, Vol. 138, No. 10, at 642. Both the PPER and the RAPPER also allow monitoring frequency to once a month for outfalls for which effluent quality met certain conditions throughout the preceding month. PPER, Schedule II, s. 9; RAPPER, s. 20.

121. RAPPER, s. 32.

122. See *Regulatory Impact Statement for Regulations Amending the Pulp and Paper Effluent Regulations* (4 May 2004), *Canada Gazette* Part II, Vol. 138, No. 10, at 641.

123. *Ibid.* at 637.

124. Related *Fisheries Act* offenses include 1) failing to promptly report a deposit out of the normal course of events (s. 38(4)); 2) failing to take all reasonable measures to mitigate the damage of an accidental deposit (s. 38(5)); and 3) failing to cooperate with an inspector performing an inspection of the mill (s. 38(10)).

Table 4. Possible offenses under the *PPER*, 1992 and *RAPPER*, 2004 resulting in *Fisheries Act* s. 36(3) offenses

Possible Offense	<i>PPER</i> Section	<i>RAPPER</i> Section
Depositing or permitting the deposit of BOD or TSS in levels that exceed the maximum quantities stated by the <i>PPER</i> or the mill's authorization.	6 14 15-19 (mills under authorization)	6 14 15-20 (mills under authorization)
Depositing or permitting the deposit of acutely lethal effluent into water frequented by fish.	6(4)	6(5)
Failure to install, maintain or calibrate monitoring equipment or keep records of that equipment.	7(1)(a) 8	Same
Failure to monitor the effluent in accordance with Schedule II and report the results on a monthly basis.	7(1)(b) 9(2) (report monthly monitoring results)	7(1)(b) 9 (report monthly monitoring results and production information)
Failure to submit information to the authorization officer on the ownership of the mill.	7(1)(c) 10 (ownership information)	7(1)(d) 10 (identifying information)
Failure to notify an inspector as soon as possible of the results of any test that indicate a failure or non-compliance with the <i>PPER</i> other than in the case of a deposit outside the normal course of events.	No specific provision (not a s. 36(3) offense)	7(1)(c)
Failure to prepare, update annually or keep available for inspection a remedial plan describing the measures to be taken to eliminate unauthorized deposits upon failure of an acute lethality test.	7(1)(d)	7(1)(e)

Table 4. (cont.)

Possible Offense	PPER Section	RAPPER Section
Failure to prepare and submit an emergency response plan.	7(1)(e) 11- failure to submit plan to authorization officer	7(1)(f)- failure to make emergency response plan readily available on site for the persons in charge of implementing it. 11- elements of the plan
Failure to immediately implement emergency response plan in the event of a deposit, or risk of deposit, of a deleterious substance out of the normal course of business.	7(1)(f)	11(c) (implicit)
Failure to deposit effluent only through designated outfall structures.	7(1)(g) 27	7(1)(j)- includes failure to provide authorization officer with information on outfall structures 27
Combining treated effluent with water or other effluent, unless neither effluent is lethal or the combining of the effluent is authorized.	7(2)	Same
Failure to provide the authorization officer with the reference production rate for all finished products and other supporting data specific to the type of mill.	12(3) 13 (not a s. 36(3) offense)	7(1)(g) 12 13
Failure to conduct and report environmental effects monitoring studies.	29-34 (not a s. 36(3) offense)	7(1)(k) 28-30

Table 4. (cont.)

Possible Offense	PPER Section	RAPPER Section
Failure to keep records, reports, data, pH levels and conductivity test results, a remedial plan and emergency response plan available for inspection.	7(1)(d) Schedule II, 8(2)	7(1)(l)

6.3 Enforcement options listed in the Fisheries Act and the PPER

The *Fisheries Act* lists a range of potential responses to alleged violations of s. 36(3), including information requests and orders from the Minister of Fisheries and Oceans of Canada (the “Minister”), prosecutions, Court orders upon conviction, injunctions, and civil suits for recovery of remediation costs. Information regarding these statutory enforcement responses is provided below.

6.3.1 Minister’s information requests and orders

The *Fisheries Act* gives the Minister the power to request information in connection with any work or undertaking that results or is likely to result in the harmful alteration, disruption or destruction of fish habitat, or the deposit of a deleterious substance contrary to the *Fisheries Act* (s. 37(1)). Specifically, the Minister can request the production of information relating to whether the work or undertaking results or is likely to result in harmful alteration, disruption or destruction of fish habitat or a deposit of a deleterious substance, and on what measures, if any, would mitigate these effects. On the basis of such information and any representations made by the party who provided it, the Minister can, with the approval of the Governor in Council, order modifications to the work or undertaking, restrict its operation or direct its closing for a specified period.

Canada informed the Secretariat:

The Minister of Fisheries and Oceans may make . . . an order to modify, add to or restrict the operation of a pulp and paper mill under s. 37(2), if regulations have been made under s. 37(3) setting out the manner and circumstances under which the Minister may make such orders and the terms that the orders may contain. However, no such regulations under s. 37(3) exist. In that situation, s. 37(2) . . . provides that the Governor in Council must approve any order to modify, add to or restrict the operations of a pulp and paper mill . . .¹²⁵

125. Environment Canada Information (3 June 2004).

Section 37 of the *PPER* states that for purposes of *Fisheries Act* s. 37(2), “the Minister may issue an order under that subsection where the Minister has reasonable grounds to believe that an offense under these Regulations is being or is likely to be committed.”¹²⁶ *Fisheries Act* s. 37(3) allows the Governor in Council to make regulations prescribing how orders under s. 37(2) are to be made. In 2000, Environment Canada did not seek an order under s. 37(2) with respect to any pulp and paper mill in Ontario, Quebec, Nova Scotia, New Brunswick or Newfoundland.¹²⁷

6.3.2 Prosecutions

Another potential response to an alleged violation of s. 36(3) is to initiate a prosecution against the party responsible for the alleged violation. Prosecution may proceed by way of summary conviction or, in rare cases, by indictment. Proceedings by way of summary conviction in relation to an offense under s. 36(3) must be instituted not later than two years after the time the federal government becomes aware of the offense (s. 82). Maximum sentences upon conviction are as follows: for an offense punishable on summary conviction, a first offense is punishable by a fine not exceeding \$300,000 and any subsequent offense is punishable by a fine not exceeding \$300,000 or imprisonment for a term not exceeding one year, or both. For an indictable offense, a first offense is punishable by a fine not exceeding \$1,000,000 and any subsequent offense is punishable by a fine not exceeding \$1,000,000 or imprisonment for a term not exceeding three years, or both (s. 40(2)). Penalties for other *Fisheries Act* offenses are set out in ss. 40(1), 40(3) and 78.

6.3.3 Court orders upon conviction

The *Fisheries Act* gives the courts broad powers to issue orders upon conviction, in addition to any punishment imposed (s. 79.2). A court can order the convicted party to do or refrain from doing anything in order to prevent the continuation or repetition of the offense or to remedy harm to fish or fish habitat resulting from the commission of the offense. It can also secure compliance with an order by requiring posting of a bond or payment of an amount of money into court. Additionally, it can order the convicted party to compensate the Minister of Fisheries and Oceans for any remedial or preventive action taken by or on behalf of the Minister as a result of the commission of the offense. Finally, it can require the convicted party to report to the court on its activities following conviction and can set any other conditions it considers appropriate

126. *PPER*, s. 37.

127. Environment Canada Information (3 June 2004).

to secure the party's good conduct and to prevent repetitions of the offense or commission of other violations of the *Fisheries Act* by that party. The court can also order a suspended sentence conditional on the person's compliance with the court's probation order (s. 79.3). Violation of a court order makes the convicted party liable to the punishment provided for the underlying offense (s. 79.6). Under the *Fisheries Act*, money owed under court orders becomes a debt due to the Crown (s. 79.4(1)).

6.3.4 *Civil suits for recovery of remediation and other costs*

Where there is a deposit of a deleterious substance in water frequented by fish that is not authorized under s. 36 or a serious and imminent danger of such a deposit, the Crown may institute a civil action for recovery of all costs and expenses reasonably incurred by federal or provincial officials to prevent, counteract, mitigate or remedy any adverse effects that result or may reasonably be expected to result from the unauthorized deposit of a deleterious substance or serious and imminent threat of a deposit (s. 42(1)).

6.3.5 *Injunctions*

The Attorney General can apply for an injunction to enjoin anything punishable as an offense under s. 40 of the *Fisheries Act*, whether or not a prosecution has been instituted (s. 41(4)).

6.3.6 *Fine for monetary benefits and other remedies*

Where a person is convicted of an offense under the Act, and the court is satisfied that as a result of committing the offense the person has acquired or accrued monetary benefits, the court has the discretion to order the person to pay an additional fine in an amount equal to the monetary benefits that the person gained (s. 79). The court can also order the cancellation or suspension, or prohibit the renewal, of the responsible party's lease or license (s. 79(1)).

6.4 *Defenses to Fisheries Act Prosecutions*

In Canada, there are three general categories of penal offenses that may be created by federal or provincial legislation.¹²⁸ The first category is the "true crime" offense, for which successful prosecution requires proof beyond a reasonable doubt that the accused committed the offense

128. See *R. v. City of Sault Ste. Marie*, [1978] 2 S.C.R. 1299.

and had the requisite wrongful mental intent (the “mens rea”).¹²⁹ The second category is the “strict liability” offense (also called the “regulatory” or “public welfare” offense). For this type of offense, the Crown must prove beyond a reasonable doubt that the accused committed the act, and the burden then shifts to the accused to show, on the lower threshold of a balance of probabilities, that the accused exercised “due diligence” (explained in detail below in section 6.4.1).¹³⁰ The third category is the “absolute liability” offense, where the Crown must prove beyond a reasonable doubt that the accused committed the offending act, but there is no need to prove a mental element and the accused cannot raise a defense to show an absence of negligence or fault.¹³¹

Violation of s. 36(3) and the *PPER* is a strict liability offense.¹³² Under the *Fisheries Act*, this means that even if the Crown succeeds in proving all the elements of the offense beyond a reasonable doubt, a

129. See *R. v. Wholesale Travel Group, Inc.*, [1991] 3 S.C.R. 154; Card, Cross & Jones, *Criminal Law* (16th ed.) (Great Britain: Lexis Nexis 2004), pp. 54-55.

130. See *R. v. City of Sault Ste. Marie*, [1978] 2 S.C.R. 1299. The Court, which firmly established the strict liability offense in Canadian law with this decision, described it as follows:

Offences in which there is no necessity for the prosecution to prove the existence of *mens rea*: the doing of the prohibited act *prima facie* imports the offense, leaving it to the accused to avoid liability by proving that he took all reasonable care. This involves consideration of what a reasonable man would have done in the circumstances. The defence will be available if the accused reasonably believed in a mistaken set of facts which, if true, would render the act of omission innocent, or if he took all reasonable steps to avoid the particular event. These offenses may properly be called offenses of strict liability.

Ibid. at 1326. *Sault Ste. Marie* was a case involving a pollution offense under the *Ontario Water Resources Act*.

131. There are relatively few absolute liability offenses because the Supreme Court of Canada has held that section 7 of the *Charter of Rights and Freedoms* can be invoked to invalidate absolute liability offenses if individuals can be imprisoned for committing them: *Re B.C. Motor Vehicle Act*, [1985] 2 S.C.R. 486; *R. v. Big M Drug Mart Ltd.* (1985), 18 C.C.C. (3d) 385 (S.C.C.). However, the Supreme Court of Canada also has held that absolute liability offenses do not violate section 7 of the *Charter* if they apply only to corporations, because section 7 does not apply to protect corporations (because they cannot be imprisoned): *Irwin Toy Ltd. v. Quebec (Attorney General)*, [1989] 1 S.C.R. 927.

132. In *R. v. Sault Ste. Marie*, Dickson J. created the class of strict liability offenses. In that ruling he defined these strict liability offenses as “[o]ffences in which there is no necessity for the prosecution to prove the existence of *mens rea*; the doing of the prohibited act *prima facie* imports the offence, leaving it open to the accused to avoid liability by proving that he took all reasonable care. This involves consideration of what a reasonable man would have done in the circumstances. The defense will be available if the accused reasonably believed in a mistaken set of facts which, if true, would render the act or omission innocent, or he took all reasonable steps to avoid the particular event.” ([1978] 2 S.C.R. 1299, (1978), 40 C.C.C. (2d) 353 at 373, 374.)

defendant will not be convicted for violating s. 36(3) if the defendant proves on a balance of probabilities that the facts support an applicable defense (s. 78(6)). Crown prosecutors consider the viability of possible defenses or excuses, such as the defense of due diligence, mistake of fact, officially induced error, and abuse of process, in considering whether to prosecute.¹³³

6.4.1 *The defenses of due diligence and mistake of fact*

The defenses of due diligence and mistake of fact are embodied in *Fisheries Act* s. 78.6. Under the *Fisheries Act*, a defendant will avoid conviction if it can prove that it was duly diligent in trying to prevent the occurrence of the offense or reasonably and honestly believed in mistaken facts that, had they been true, would render the defendant's conduct innocent (s. 78.6).

In advancing a due diligence defense, "the onus on an accused is to establish, on a balance of probabilities, that he took all reasonable care to avoid the event."¹³⁴ Where the alleged offense is based on "inaction" on the part of the defendant and the defendant is accused of "permitting" a violation, the courts have suggested that "[...] the real issue is whether the accused had exercised due diligence."¹³⁵ Due diligence does not require superhuman efforts, but rather a high standard of awareness and decisive, prompt, and continuing action. In determining whether the accused took all reasonable steps to avoid the particular event, what is considered reasonable is what a reasonable person would have done in the circumstances.¹³⁶ Thus, due diligence requires the taking of all reasonable steps, not all conceivable steps.¹³⁷ To establish a due diligence

133. *Federal Prosecution Service Deskbook* (June 2000), at V-15-2.

134. *R. v. BHP Diamonds Inc.*, [2002] N.W.T.J. No. 91 (Quicklaw) (N.T.S.C.), at para. 152.

135. *R. v. Rivtow Straits Ltd.* (1993), 12 C.E.L.R. (N.S.) 153 (B.C.C.A.) at para. 45.

136. *R. v. Sault Ste. Marie (City)*, [1978] 2 S.C.R. 1299 at 1326.

137. *R. v. Ontario (Ministry of the Environment)*, [2001] O.J. No. 2581 (Ont. Ct. of Justice) at para. 177. Factors that courts have weighed and balanced in assessing due diligence include: 1) the nature and gravity of the adverse effect; 2) the foreseeability of the effect, including abnormal sensitivities; 3) the alternative solutions available; 4) legislative or regulatory compliance; 5) industry standards; 6) the character of the neighbourhood; 7) what efforts have been made to address the problem; 8) over what period of time, and promptness of the response; 9) matters beyond the control of the accused, including technological limitations; 10) skill level expected of the accused; 11) the complexities involved; 12) preventive systems; 13) economic considerations; and 14) actions of officials; *R. v. Commander Business Furniture* (1992), 9 C.E.L.R. (N.S.) 185 (Ont. Ct. J. (Prov. Div.)). However, the focus of the defense is on efforts to *prevent* an offense from occurring, and taking corrective action after the fact does not constitute a defense. See *R. v. Amoco Fabrics & Fibers Ltd.* (1992), 9 O.R. (3d) 306 (Ont. Prov. Ct.), at 317.

defense, an accused need only to have taken reasonable care in respect to risks that were reasonably foreseeable.¹³⁸

A defendant might demonstrate that he or she had exercised all reasonable care by establishing procedures to prevent the commission of the offense and by taking reasonable steps to ensure that the procedures operated effectively.¹³⁹ On the other hand, a defendant who is aware of a risk of discharge of a deleterious substance into fish-bearing water and fails to exercise all reasonable care, for example, by establishing procedures to prevent the offense and taking steps to ensure the effective operation of the procedures, might be found not to have demonstrated due diligence.¹⁴⁰ Courts have denied the defense of due diligence in cases where the defendant took a calculated risk regarding the possibility of a s. 36(3) violation. For example, in a case in which a municipality, in order to save money, designed a sewage treatment plant to discharge directly to a watercourse in an emergency, the municipality was found guilty for discharging sewage to a stream in an emergency, despite its due diligence in emergency response procedures and plant maintenance.¹⁴¹ Environment Canada informed the Secretariat that concerns regarding how a treatment system was designed can be taken into account with respect to the viability of a due diligence defense.¹⁴²

The “mistake of fact” defense embodied in s. 78.6(b) requires both 1) an honest belief in the existence of facts that, if true, would render the person’s conduct innocent, and 2) that, on an objective rather than a subjective basis, a person in the position of the accused must reasonably have believed in the existence of those facts.¹⁴³

The Secretariat is unaware of any reported cases in which the due diligence defense or mistake of fact defense was raised in a prosecution of alleged violations of the *PPER*.

6.4.2 *Defenses or excuses based on actions of the regulator*

Other defenses and excuses are available under the common law. These include (but are not limited to) “officially induced error” and

138. *R. v. BHP Diamonds Inc.*, [2002] N.W.T.J. No. 91 (Quicklaw) (N.T.S.C.).

139. *R. v. Sault Ste. Marie (City)*, [1978] 2 S.C.R. 1299 at 1331.

140. *R. v. Northwest Territories (Commissioner)*, [1994] 1 W.W.R. 441 (N.W.T. Terr. Ct.), appeal dismissed [1994] 8 W.W.R. 405 (N.W.T.S.C.).

141. *R. v. North Vancouver (District)* (1982), 3 F.P.R. 233 (B.C. Prov. Ct.), affirmed (1983), 3 F.P.R. 249 (B.C. Co. Ct.), which was affirmed (1984), 3 F.P.R. 491 (B.C.C.A.).

142. Meeting of Secretariat with Environment Canada staff (3 February 2005).

143. *R. v. Leveque* (2002), 43 C.E.L.R. (N.S.) 294 (Ont. Sup. Ct. of Justice), at para. 74.

“abuse of process,” both of which prevent convictions based on action or inaction that, at the time it occurred, appeared, from the perspective of a reasonable person, to meet with government approval.

6.4.2.1 Officially-induced error

Also known as “mistake of law,” the defense of officially induced error of law may be available if information or advice is provided by a person responsible for administration of the law which leads the defendant to believe that the defendant’s action or inaction is legally permissible. The courts have indicated that a defendant must satisfy four general conditions to invoke the defense of officially induced error of law successfully.¹⁴⁴ After first establishing that it made an error, the accused must show that it (1) considered its legal position; (2) sought legal advice from an official involved in the administration of the law in question; (3) obtained erroneous advice from the official that was reasonable in the circumstances; and (4) relied on that advice in good faith and without reason to believe that the advice is erroneous.¹⁴⁵ One court explained that the reasonableness of a defendant’s reliance on the erroneous advice “will depend upon several factors including the efforts he made to ascertain the proper law, the complexity or obscurity of the law, the position of the official who gave the advice, and the clarity, definitiveness and reasonableness of the advice given.”¹⁴⁶ Chief Justice Lamer of the Supreme Court of Canada has suggested that because it functions as an “excuse” and not as a “justification” for wrongful behavior—and therefore results in a stay of proceedings rather than an acquittal—an officially induced error of law argument “will only be successful in the clearest of cases.”¹⁴⁷

The existence of a permit or approval is sometimes invoked as providing the basis for a defense of officially induced error. In such cases, the defendant claims that it honestly, reasonably, and mistakenly believed that by complying with the permit, it was satisfying all requirements under the law. In a 1998 report on the enforcement of s. 36(3) by Environment Canada, the House of Commons Standing Committee on Environment and Sustainable Development identified “government-

144. See *R. v. Jorgensen*, [1995] 4 S.C.R. 55, 129 D.L.R. (4th) 510, reasons of Lamer J. at paras. 25-38. The majority of the Court did not address officially induced error. See also *R. v. Johnson and Wilson* (1987), 78 N.B.R. (2d) 411 (Prov. Ct.); *R. v. Imperial Oil Ltd.* (August 12, 1988) (Man. Prov. Ct.) [unreported], summarized in (1988), 6 W.C.B. (2d) 11.

145. *R. v. Jorgensen* at paras. 25-38.

146. *R. v. Cancoil Thermal Corporation* (1986), 27 C.C.C. (3d) 295 (Ont. C.A.) at p. 303.

147. *R. v. Jorgensen* at para. 37.

induced error” as a barrier to effective enforcement of federal legislation. The Committee explained:

A further barrier to the effective enforcement of the federal legislation occurs when authorizations or permits granted by another level of government conflict with the federal environmental legislation. These permits or authorizations might allow the release of pollutants into the environment in amounts that would constitute an offence under a federal law or regulation. Offenders, however, are not always prosecuted in such cases because, by reason of the permit or authorization, they can raise the defence of “government-induced error.” Since the chances of obtaining a conviction in such cases are questionable, charges may not be laid in the first place, or if they are laid, they may not be proceeded with, or again, they may result in acquittal.¹⁴⁸

The House of Commons Standing Committee recommended that Environment Canada take steps to make the regulated community aware of its obligations under federal laws.¹⁴⁹ Regarding the defense of officially-induced error, the courts have held that whether this defense will be successful depends on a consideration of all the factors that must be proved, including that the defendant was duly diligent by making appropriate inquiries.¹⁵⁰

6.4.2.2 Abuse of process

Abuse of process is not technically a defense. It relies on the court’s inherent jurisdiction to halt proceedings before the judicial process is in danger of being improperly used. The decision to abandon proceedings is taken when it is clear that prosecutorial powers are being used in an unfair, oppressive or vexatious manner and risk bringing the administration of justice into disrepute.

In the context of environmental prosecutions, abuse of process has occasionally been raised when charges have been laid despite some type

148. Canada, “Enforcing Canada’s Pollution Laws: The Public Interest Must Come First!” (Report of the Standing Committee of the House of Commons on Environment and Sustainable Development, Charles Caccia, Chair) (Ottawa: Queen’s Printer, 1998) at paras. 72 and 73.

149. *Ibid.*

150. See *R. v. Northwest Territories (Commissioner)* (1994), 15 C.E.L.R. (N.S.) 85 (N.W.T.S.C.), where the Town of Iqaluit was unsuccessful in arguing that its license under the *Northern Inland Waters Act*, which authorized it to “use waters,” covered sewer discharges, since it was discharging sewage to waters not covered by the license and in any event, nothing in the license exempted the town from complying with the *Fisheries Act*.

of understanding or agreement between the defendant and the government that no enforcement action would be taken, or after having agreed to a plan of remedial action and a timetable with the regulator and having implemented the plan in accordance with the negotiated schedule to reduce the discharges.¹⁵¹

The singling out of one individual or company over others is not, in and of itself, an abuse of process; neither is past non-enforcement, absent an express or implied promise not to prosecute. The case law on abuse of process suggests that a successful abuse of process motion would involve evidence that the defendant had relied in good faith on the authorities and had suffered some prejudice as a result of unfair dealings by the authorities.¹⁵² The Supreme Court of Canada has stated that there must be “overwhelming evidence that the proceedings under scrutiny are unfair to the point that they are contrary to the interest of justice.”¹⁵³

6.5 Compliance and Enforcement Practice and Policy for Fisheries Act s. 36(3) and the PPER

This section describes the Canadian government’s policies for enforcing and seeking compliance with *Fisheries Act* s. 36(3) and the PPER for the relevant time period.

By law, the federal Minister of Fisheries and Oceans is responsible for the administration and enforcement of the *Fisheries Act*.¹⁵⁴ However, in 1978, the Prime Minister assigned to the Minister of the Environment responsibility for administration and enforcement of s. 36(3) (formerly s. 33(2)). A 1985 Memorandum of Understanding (“MOU”) between the Department of Fisheries and Oceans and Environment Canada outlines the responsibilities of both departments for the administration and enforcement of the pollution prevention provisions of the *Fisheries Act*.¹⁵⁵

151. *Re Abitibi Paper Co. and the Queen* (1979), 47 C.C.C. (2d) 487 (Ont. C.A.).

152. *R. v. Simon* (January 24, 1992), file no. 1178/90 (Ont. C.A.) [unreported] and *R. v. Jordan Station Wholesale Florist Ltd. et al.* (November 5, 1991) (Ont. Ct. Prov. Div., McGowan J.) [unreported]. Taken from <http://www.atl.ec.gc.ca/enforcement/du_e_diligence.html>.

153. *R. v. Power*, [1994] 1 S.C.R. 601, 89 C.C.C. (3d) 1, at para. 12.

154. Section 4(1)(a) of the *Department of Fisheries and Oceans Act*, R.S.C., c. F-15.

155. Memorandum of Understanding between the Department of Fisheries and Oceans and the Department of the Environment on the Subject of the Administration of Section 33 of the *Fisheries Act* signed at Ottawa, Ontario, 6 May 1985.

Under the MOU, DFO and Environment Canada agree to cooperate and communicate openly and regularly on all matters related to the administration of s. 36(3) (s. 1). They also make joint decisions on enforcement actions (s. 4), but Fisheries and Oceans Canada reserves the right to take action directly in circumstances where the fisheries resource is being affected by the deposit of a deleterious substance and Environment Canada is unable or unwilling to take action (s. 8). At the federal level, only Environment Canada was involved in the enforcement actions that Canada took with respect to the ten mills of concern in this factual record.

Upon adopting the *PPER*, the Canadian government stated that

[e]nforcement will be ensured by regular inspections and monitoring to verify compliance and investigation of violations. The means implemented to guarantee compliance with the Regulations includes periodic audit through inspections of pulp and paper mills as well as through periodic audit of monitoring test results submitted by mills. The inspectors' findings will be compared with the results provided by the mills to ensure consistency. Response to violations is determined on the basis of the nature of the violation, the effectiveness in achieving the desired result and consistency in enforcement.¹⁵⁶

Environment Canada informed the Secretariat:

The challenge for Environment Canada in enforcing the Pulp and Paper Effluent Regulations is the availability of human and financial resources. In 2000, the Department of Fisheries and Oceans had over 630 fishery officers and fishery guardians to enforce the *Fisheries Act* and related legislation. Environment Canada had approximately 60 active fishery inspectors for the enforcement of s. 36(3) of the *Fisheries Act* and regulations made under s. 36(5) of that Act. As of May 2004, Environment Canada has a total of 107 active fishery inspectors and fishery officers who are also enforcement officers under the *Canadian Environmental Protection Act*, 1999. The laws they enforce are: s. 36(3) of the *Fisheries Act* and the six regulations made under s. 36(5); CEPA 1999 and 32 regulations made under that Act. The time of these personnel is spread over all these statutes and all their accompanying regulations.¹⁵⁷

156. *PPER Regulatory Impact Analysis Statement, Canada Gazette Part II, Vol. 126, No. 11, SOR/DORS/92-269*, at 2006.

157. Environment Canada Information (3 June 2004).

6.5.1 *Fisheries Act Habitat Protection and Pollution Prevention Provisions Compliance and Enforcement Policy*

Fisheries and Oceans Canada and Environment Canada officially issued a *Fisheries Act Habitat Protection and Pollution Prevention Provisions Compliance and Enforcement Policy* (“*Compliance and Enforcement Policy*”) in July 2001.¹⁵⁸ Although the final *Compliance and Enforcement Policy* was not in effect during the 1996-2000 time period referenced in Council Resolution 03-16, Canada informed the Secretariat that during most of that period, Canada informally followed a draft version of the policy that is in most respects the same as the final policy.¹⁵⁹

The *Compliance and Enforcement Policy*, applicable to persons exercising regulatory authority under the *Fisheries Act*, sets out the general principles for application of the pollution prevention and habitat protection provisions of the *Fisheries Act*. According to the policy, regulatory officials will secure compliance with the habitat protection and pollution prevention provisions of the *Fisheries Act* through compliance promotion and enforcement.¹⁶⁰ The policy distinguishes between compliance and enforcement measures. It states that enforcement is achieved through the exercise or application of powers granted under legislation and includes the following:

- site inspections,
- investigations,
- issuance of warnings,
- directions by fishery inspectors,
- authorizations and Ministerial orders, and
- court actions, such as injunctions, prosecutions, court orders upon conviction, and civil suits for recovery of costs.

Compliance measures outlined in the policy include:

- review of works or undertakings and issuance of authorizations,
- education and information dissemination,
- promotion of technology development and evaluation,
- technology transfer,

158. The *Compliance and Enforcement Policy* is available at <http://www.ec.gc.ca/eleale/policies/c_and_e_fisheries_act/main_e.asp>.

159. Environment Canada Information (3 February 2005).

160. *Compliance and Enforcement Policy* at 5.

- public consultation on regulation development and amendment,
- development of guidelines and codes of practice,
- promotion of environmental audits, and
- compliance monitoring, through inspections, mandatory reporting, sampling and other monitoring of regulatory requirements.

The *Compliance and Enforcement Policy* sets out guiding principles for the application of the habitat protection and pollution prevention provisions of the *Fisheries Act*.¹⁶¹ The guiding principles provide that compliance with the Act and accompanying regulations is mandatory. Enforcement action will be fair, predictable and consistent, using rules, sanctions and processes securely founded in law. Enforcement personnel will administer the statutory provisions and accompanying regulations with an emphasis on preventing harm to fish, fish habitat or human use of fish caused by physical alteration of fish habitat or pollution of waters frequented by fish. Priority for action to deal with suspected violations will be guided by degree of harm or risk of harm to fish, fish habitat or human health, and whether or not the alleged offense is a repeat occurrence. Enforcement personnel will take action consistent with the *Compliance and Enforcement Policy*, and the public will be encouraged to report suspected violations. Compliance will be promoted through communication with stakeholders.

Under “Responses to Alleged Violations,” the *Compliance and Enforcement Policy* states that “[e]nforcement measures are directed towards ensuring that violators comply with the *Fisheries Act* within the shortest possible time and that violations are not repeated.”¹⁶² The *Compliance and Enforcement Policy* provides that

[e]nforcement personnel will respond to suspected violations. They will take into account the harm or risk of harm to fish, fish habitat and/or human use of fish. If they determine that there is sufficient evidence a violation has occurred, they may take enforcement action.¹⁶³

Regarding harm or risk of harm to fish, fish habitat or human use of fish, Environment Canada informed the Secretariat:

Environment Canada fishery officers and fishery inspectors establish the expected degree of harm or risk of harm caused by a deleterious substance

161. *Ibid.* at 6.

162. *Ibid.* at 20.

163. *Ibid.*

based on the known characteristics and/or properties of the substance. The regulatory limits for total suspended solids and biochemical oxygen demanding matter are the “environmentally safe thresholds” in terms of the effect of these substances on fish, fish habitat and human use of fish. Likewise, the requirement for non-acutely lethal effluent should be self-evident in terms of its deleterious effect, since acutely lethal effluent kills fish within 96 hours under the prescribed test conditions of the Rainbow trout bioassay. Hence, if any alleged violation discovered through the monthly effluent report of a mill, a report from outside Environment Canada, a complaint from the public or tip from an informant leads to confirmation of the presence of one or both of TSS and BOD matter in excess of regulatory limits or acutely lethal effluent, the degree of harm or risk of harm would be established by those facts.¹⁶⁴

If enforcement personnel are able to substantiate that an alleged violation has occurred and there is sufficient evidence to proceed, the *Compliance and Enforcement Policy* states that they will decide on an appropriate action, taking into account certain criteria.¹⁶⁵ The *Compliance and Enforcement Policy* lists these criteria under three headings: (1) nature of the alleged violation; (2) effectiveness in achieving the desired result with the alleged violator; and (3) consistency in enforcement.

In considering the nature of the violation, enforcement personnel will consider the seriousness of the environmental damage; the intent of the alleged violator; whether it is a repeat occurrence; and whether there were attempts by the alleged violator to conceal information or otherwise circumvent the objectives and requirements of the habitat protection and pollution prevention provisions.¹⁶⁶

In regard to the effectiveness of a response,

[t]he desired result is compliance with the Act in the shortest possible time and with no further occurrence of violations, in order to protect fish and fish habitat and human use of fish.¹⁶⁷

164. Environment Canada Information (3 June 2004). In *R. v. Domtar Specialty Fine Papers*, [2001] O.J. No. 851/98 (Ontario Superior Court of Justice), at paragraph 109, noted that “the destruction of an ecosystem or environment is a gradual process affected by cumulative acts” and that “[a]ctivities that contribute incrementally to the gradual deterioration of the environment, even when they cause no discernible direct harm to human interests should also be treated seriously. Each actor must bear his share of the responsibility for any ultimate harm, if there is to be an effective deterrent to an eventual destruction which will harm human interests.” (Citation omitted.)

165. *Compliance and Enforcement Policy* at 20.

166. *Ibid.* at 20.

167. *Ibid.* at 20.

Factors to be considered are the alleged violator's history of compliance; willingness to cooperate with enforcement personnel; and the existence of enforcement actions by other federal or provincial/territorial authorities.¹⁶⁸ As further explained in Section 8 of the factual record, for several of the mills of concern, Environment Canada considered whether the mills took prompt action to address *PPER* non-compliance. Information that the Secretariat gathered indicated that Environment Canada personnel often consider such action by a mill to relate to the mill's due diligence. However, as a legal defense, due diligence involves a retrospective consideration of whether a mill took reasonable care to prevent non-compliance, not whether a mill was diligent in addressing non-compliance that already occurred. The Secretariat does not have information on whether the term "due diligence" as used by Environment Canada staff in documents regarding several of the mills of concern is intended to refer to the legal defense of due diligence, or whether use of the term caused confusion regarding the potential availability of a due diligence defense.¹⁶⁹

In regard to consistency, enforcement personnel will consider how similar situations in Canada are being or have been handled when deciding what enforcement action to take.¹⁷⁰ The Secretariat asked Environment Canada how "similar situations" were taken into account for possible *PPER* violations at each of the ten mills of concern, for *PPER* exceedances that occurred during the relevant time periods for each mill. The Secretariat received a response only from the Atlantic Region, which stated:

[Environment Canada] Atlantic Region attempts to ensure consistency in its responses to alleged violations, notwithstanding the different processes at each mill and the particular circumstances of any alleged violation. The Draft Enforcement Strategy was one such example of a tool for consistency. Each case is considered on its own merits.¹⁷¹

The Secretariat received no information on similar situations that were specifically taken into account with respect to *PPER* non-compliance at any of the ten mills of concern.

Warnings are one enforcement option that does not require the government to lay charges or to meet the burden of proof required for

168. *Ibid.* at 20.

169. See *R. v. Imperial Oil Ltd.* (2000), 148 C.C.C. (3d) 367 (C.A.); *R. v. Amoco Fabrics & Fibers Ltd.* (1992), 9 O.R. (3d) 306 (Ont. Prov. Ct.).

170. *Ibid.* at 21.

171. Environment Canada Information (3 February 2005).

prosecution.¹⁷² Warnings lay out the section of the Act or regulations involved; a description of the alleged offense; and a statement that if the alleged violator does not take necessary action, enforcement personnel will consider taking other steps. Warnings do not have the legal force of an order and are not a finding of guilt or liability. Nonetheless, they become part of an alleged violator's compliance history file, can be taken into account in future responses to alleged violations, and may influence the frequency of inspection. The *Compliance and Enforcement Policy* provides that enforcement personnel may use warnings when they have reasonable grounds to believe that a violation of the *Fisheries Act* has occurred; where the degree of harm or potential harm to the fishery resource, its supporting habitat and to human use of fish or both appears to be minimal; and where the alleged violator has made reasonable efforts to remedy or mitigate the negative impact of the alleged offenses. In addition to considering whether such reasonable efforts have been taken, enforcement personnel are to consider the alleged violator's *Fisheries Act* compliance history and whether the alleged violator has taken sufficient action to prevent future offenses.

Environment Canada explained to the Secretariat its consideration of a warning in regard to subsequent non-compliance with the *PPER*:

Should an alleged violation be a repeat occurrence of an offence for which an [Environment Canada] fishery officer/fishery inspector has previously issued a warning, the officer/inspector would likely take into account the factor of "effectiveness" on page 18 of the *Fisheries Act Compliance and Enforcement Policy* – i.e. effectiveness is compliance with the Act in the shortest time possible and with no further occurrence of violations – and may determine that a warning was not effective in securing compliance, and a further enforcement action such as a Ministerial order under s. 37(2), an injunction or prosecution would be appropriate in that particular case. Should a number of warnings be issued to a company for various alleged violations with different causes, the warnings would be an indication of whether or not a mill was exercising "all due diligence." The warning, as part of the compliance history, would be a factor in determining further enforcement responses and may be used as a consideration in sentencing if there was a conviction of the mill for violations of the *PPER*.¹⁷³

Environment Canada informed the Secretariat that it sometimes responds to possible violations of the *PPER* by issuing "enforcement compliance letters," which are also known as compliance promotion letters. These letters are not specifically mentioned in the *Compliance and*

172. The policy regarding use of warnings is discussed in the *Compliance and Enforcement Policy* at 22-23.

173. Environment Canada Information (3 February 2005).

Enforcement Policy. An enforcement compliance letter advises or reminds regulatees of the requirements of the *PPER* and could indicate the consequences of non-compliance. The fact that such a letter was sent would be recorded in the regulatee's compliance history file.¹⁷⁴

The *Compliance and Enforcement Policy* also allows Fishery Inspectors to issue a "direction" where immediate action is necessary to counteract adverse effects of a deposit of a deleterious substance or to prevent a serious and imminent deposit of a deleterious substance.¹⁷⁵ The direction may require the person with charge, management or control of a deposited substance or who caused or contributed to the deposit to take all reasonable measures, to counteract, mitigate, remedy or prevent any adverse effects from the incident. The policy notes that, because the *Fisheries Act* imposes the obligation to take such measures for deposits out of the normal course of events, fishery inspectors do not ordinarily issue directions unless the measures are not taken. Failure to comply with a direction by a Fishery Inspector may lead to prosecution. Also, in the event of failure or inability to comply with a direction by a Fishery Inspector, the Fishery Inspector is empowered under the *Act* to take remedial measures.

The *Compliance and Enforcement Policy* states that prosecution is the preferred course of action where evidence establishes that:

- the alleged violation resulted in risk of harm to fish or fish habitat;
- the alleged violation resulted in unauthorized harmful alteration, disruption or destruction of fish habitat;
- the alleged violator had previously received a warning for the activity and did not take all reasonable measures to stop or avoid the violation; or
- the alleged violator had previously been convicted of a similar offense.

Under the policy, prosecution will always be pursued where evidence establishes that:

- there is evidence that the alleged violation was deliberate;
- the alleged violator knowingly provided false or misleading information to enforcement personnel;

174. All from Environment Canada Information (3 February 2005).

175. *Compliance and Enforcement Policy*, at 20.

- the alleged violator obstructed enforcement personnel in the carrying out of their duties or interfered with anything seized under the *Fisheries Act*;
- the alleged violator concealed or attempted to conceal or destroy information or evidence after the alleged offense occurred; or
- the alleged violator failed to take all reasonable measures to comply with a direction or an order issued pursuant to the *Fisheries Act*.

The policy notes that the Attorney General approves prosecutions based on evidentiary and public interest considerations. The *Federal Prosecution Service Deskbook* states that under federal policy, the decision to prosecute is based on whether the evidence is sufficient to justify the institution or continuation of proceedings, and whether the public interest requires a prosecution to be pursued.¹⁷⁶ For a prosecution to be instituted, evidence must demonstrate a reasonable prospect of conviction, taking into account availability, competence and credibility of witnesses; the admissibility of evidence; and any defenses that are plainly open to, or have been indicated by the accused.¹⁷⁷ In terms of public interest, the *Deskbook* notes that not all offenses for which evidence is sufficient to initiate a prosecution must be prosecuted, and that, in general, the more serious the offense, the more likely the public interest will favor prosecution.¹⁷⁸ In the regulatory context, the *Deskbook* provides:

Consideration of what the public interest requires will of necessity require consideration of how the regulatory purpose of the statute might best be achieved. If, for example, the relevant regulatory authority has a mechanism for dealing with the alleged offender such as a compliance program, Crown counsel should consider whether an alternative such as this might better serve the public interest than prosecution.¹⁷⁹

The *Deskbook* states:

Deciding whether to prosecute is among the most important steps in the prosecution process. Considerable care must be taken in each case to ensure that the right decision is made. A wrong decision to prosecute and, conversely, a wrong decision not to prosecute, both tend to undermine the confidence of the community in the criminal justice system.¹⁸⁰

176. *Federal Prosecution Service Deskbook* (June 2000), at V-15-1.

177. *Ibid.* at V-15-2.

178. *Ibid.* at V-15-3–V-15-4.

179. *Ibid.* at V-15-6.

180. *Federal Prosecution Service Deskbook* (June 2000), at V-15-1.

Regarding penalties, the *Compliance and Enforcement Policy* states that upon conviction, enforcement personnel will recommend that Crown prosecutors request penalties that are proportionate to the nature and gravity of the offense. In making recommendations, enforcement personnel are to consider the nature of the violation and the benefit gained as a result of it; the number and nature of the offender's previous convictions; the effectiveness of the penalties in deterring the offender from committing similar violations; general deterrence considerations; precedents in similar cases; and the effectiveness of the penalty in remediating any area of impact and in addressing future protection of fish and fish habitat and pollution prevention.

In assessing the recovery of profits in addition to any other fine, Environment Canada notes that "[c]alculation of illegal profit can be a very complex issue."¹⁸¹ Environment Canada provides the following as a hypothetical example of one such calculation:

The cost of a secondary effluent treatment facility required for a manufacturing plant to come into compliance with a specific regulation might be in the range of \$30 million. It might be determined that, in order to save money a company had delayed design, construction, and commissioning of their treatment facility for a year.

A conservative estimate of the monetary benefit derived by such a company through delay of the project can be made by assuming a project cost of \$30 million, with payment deferred 1 year, and an opportunity cost of 10% per annum, yielding \$3 million.

A recent trend in environmental enforcement favours a mechanism whereby any profit recovered from a company be directed to local programs or used to establish a trust fund or funds, in perpetuity for the creation of scholarships for environmental studies, support of local post secondary teaching institutions specializing in environmental, support of environmental education programs in schools, or some combination thereof.¹⁸²

Environment Canada informed the Secretariat that in determining whether to inspect a mill or in deciding what enforcement measure to apply, fishery inspectors and fishery officers based their decisions on the risk to fish and fish habitat, and "the economic and environmental situation of the mills does not factor into the decision."¹⁸³

181. See Environment Canada, <http://www.ns.ec.gc.ca/enforcement/sentencing_considerations.htm>.

182. *Ibid.*

183. Environment Canada Information (3 June 2004).

6.5.2 *Policies and Practices Specific to Enforcing and Seeking Compliance with the PPER*

In addition to factors and criteria set out in the *Fisheries Act Compliance and Enforcement Policy*, Environment Canada has developed policies specifically for enforcing the *PPER*. The main policies and practices relevant to enforcing and seeking compliance with the *PPER* are policies and practices concerning 1) margins of error in connection with analytical tests and flow, 2) acute lethality testing and 3) use of self-disclosed information in enforcement actions.

6.5.2.1 Margins of error for TSS and BOD tests

In deciding upon an enforcement response to an alleged offense based on non-compliance with the *PPER*, Environment Canada takes into account margins of error, or the precision, associated with the analytical methodologies used to determine the amount of TSS or BOD matter in mill samples. As well, because the *PPER* require flow meters at mills to be accurate within 10%, a margin of error in flow measurements is also relevant to enforcement of the *PPER*.

Canada's response to the submission stated:

The methods to determine compliance with the daily BOD and the monthly BOD limits are stipulated in the *PPER*. These consist of the 5-day BOD tests set out in:

- the *Standard Methods For the Examination of Water and Wastewater*, 17th edition, 1989, sub-part 5210, jointly published by the American Public Health Association, the American Water Works Association and the Water Pollution Control Federation pages 5-2 to 5-10; or
- the *Determination of Biochemical Oxygen Demand Method H-2*, published by the Technical Section of the Canadian Pulp and Paper Association. The first method has a precision of plus or minus [20]%. If the result of BOD transmitted by a mill is within the interior superior precision range limit of the norm, Environment Canada considers this fact in its evaluation of the *Fisheries Act Compliance and Enforcement Policy's* criteria for choosing an enforcement response in the case of a violation.

The methods to determine compliance with the daily TSS and the monthly TSS limits are stipulated in the *PPER*. They consist of the tests set out in:

- the *Standard Methods For the Examination of Water and Wastewater*, 17th edition, 1989, sub-part 2540 sections A to E, jointly published by the American Public Health Association, the American Water Works Asso-

ciation and the Water Pollution Control Federation pages 2-71 to 2-79;
or

- the *Determination of Solids Content of Pulp and Paper Effluent*, Method H-1 published by the Technical Section of the Canadian Pulp and Paper Association.

The first method has a range of precision, depending on the concentration of TSS found in effluent to be measured. Based on Environment Canada experience, the concentration of TSS in mill effluent is such that the precision of the first method is approximately plus or minus [15]%. If the result of TSS transmitted by a mill is within the interior superior precision range limit of the norm, Environment Canada considers this fact in its evaluation of the *Fisheries Act Compliance and Enforcement Policy's* criteria for choosing an enforcement response in the case of a violation (the standard of proof required for conviction of an alleged violation of the *PPER* is guilt beyond a reasonable doubt).¹⁸⁴

Canada provided the Secretariat with Environment Canada's *Draft Revised Enforcement Strategy for the Pulp and Paper Effluent Regulations (PPER) of the Fisheries Act During the Period From December 2, 1992 to December 31, 1993 (April 1, 1993)* (hereafter *1993 Draft PPER Enforcement Strategy*).¹⁸⁵ This draft strategy was never finalized. This document indicates an enforcement approach regarding margins of error. Environment Canada officials informed the Secretariat that, because the strategy was only a draft, Environment Canada regions could choose to follow this approach or not, at their discretion.¹⁸⁶

For BOD,¹⁸⁷ the 1993 draft *PPER* enforcement strategy states that inspectors will:

-
184. Response at 4. The response attributed a 15% margin for the BOD test and a 20% margin test for the TSS test, but a review of all of the information received in connection with the factual record indicates that these figures are inverted, and the correct precision limits are 20% for BOD and 15% for TSS.
185. This document was provided along with Environment Canada's June 2004 response to the Secretariat's first information request. In addition to presenting enforcement approaches for non-compliance with TSS, BOD and acute toxicity limits, the draft enforcement strategy sets out enforcement responses for other alleged violations of the *PPER*, including failure to use stipulated test methods; failure to submit monthly reports on BOD, TSS and/or acute lethality; failure to make required reports in connection with deposits out of the normal course of business; failure to properly adjust the RPR for a mill when production decreases; and failure to comply with a fishery inspector's direction.
186. Environment Canada Information (3 February 2005).
187. The 1993 draft *PPER* enforcement strategy indicates the correct precision limits for the BOD and TSS tests.

- a. check mill's laboratory records to ensure that the mill is using one of the two BOD test methods stipulated in the *PPER* and that the mill carried out the tests properly.
- b. where BOD results are 7% to 20% higher than the BOD limit allowed in the *PPER*, get copies of the results of the BOD tests done by the mill or its laboratory; have them checked by Environmental Protection laboratory personnel to ensure the validity of the results (if the data show marked fluctuations, EP laboratory personnel may recommend that the inspector take a three-day composite sample).

...

- [c.] For BOD results that exceed the limits allowed in the regulations . . . by between 20.1% or 29.9%,
 - (a) on the first occurrence, . . . warning.
 - (b) On the second occurrence, . . . examine the circumstances to determine whether the regulatee has taken all reasonable measures to meet the allowed BOD limit (i.e. has been duly diligent). If so, warning. If not, injunction¹⁸⁸ . . . or prosecution, or both.

[d.] For BOD results that exceed the limits allowed in the regulations or TA by 30% or more, . . . injunction . . . or prosecution, or both.

For TSS, the 1993 draft *PPER* enforcement strategy states that inspectors will:

- a. check mill's laboratory records to ensure that the mill is using one of the two TSS test methods stipulated in the *PPER* and that the mill carried out the tests properly.
- b. where TSS results are 5% to 15% higher than the TSS limit allowed in the *PPER*, get copies of the results of the TSS tests done by the mill or its laboratory; have them checked by Environmental Protection laboratory personnel to ensure the validity of the results (if the data show marked fluctuations, EP laboratory personnel may recommend that the inspector take a three-day composite sample).

...

- [c.] For TSS results that exceed the limits allowed in the regulations . . . by between 15.1% or 24.9%,
 - (c) on the first occurrence, . . . warning.

188. The 1993 draft *PPER* enforcement strategy notes that injunctions are useful where there is continuing deposit of deleterious substances, or there is refusal or omission by the mill to take any effective measures to prevent or reduce the unauthorized deposits.

- (d) On the second occurrence, . . . examine the circumstances to determine whether the regulatee has taken all reasonable measures to meet the allowed TSS limit (i.e. has been duly diligent). If so, warning. If not, injunction . . . or prosecution, or both.

[d.] For TSS results that exceed the limits allowed in the regulations or TA by 25% or more, . . . injunction . . . or prosecution, or both.

The Secretariat asked Canada how, if at all, Environment Canada accounts for uncertainty in effluent flow measurements in considering enforcement responses for TSS or BOD exceedances. Canada indicated that the approach reflected in the 1993 Draft *PPER* Enforcement Strategy for BOD and TSS accounted for flow.¹⁸⁹ Atlantic Region staff indicated that in exercising their professional judgment, if test results are “close to the line” in terms of the 15% and 20% precision limits, they will not prosecute.¹⁹⁰ However, the precision limits for the BOD and TSS tests of 20% and 15% respectively are associated solely with the laboratory tests. The 10% margin of error that the *PPER* allow for flow measurements is an additional source of uncertainty in calculating the total daily BOD or TSS discharged at a mill, or in determining monthly averages. Table 5 provides the Secretariat’s technical expert’s summary of the total margin of error associated with the TSS and BOD tests.¹⁹¹

Table 5. Summary of Precision Limits for TSS and BOD Effluent Measurements

Parameter (in tonnes/day)	Precision limit for laboratory analysis	Margin of accuracy of flow measurement	Total margin of accuracy for daily or monthly average load
Suspended solids (TSS)	15%	10%	26.5%
BOD ₅	20%	10%	32%

6.5.2.2 Acute lethality

The 1993 Draft *PPER* Enforcement Strategy indicates that in response to a failure of a monthly rainbow trout acute lethality test, the inspector will investigate, monitor implementation of the mill’s reme-

189. Environment Canada Information (3 February 2005).

190. Meeting of Secretariat with Environment Canada staff (3 February 2005).

191. McCubbin Report.

dial plan and monitor the mill's re-test of the effluent. The draft strategy states that if the mill passes three consecutive trout lethality tests following failure of a monthly test, the enforcement response is a warning for the original failure. If the mill does not pass the three consecutive tests, enforcement responses are 1) a ministerial request for plans, specifications under *Fisheries Act* s. 37(1), to be followed by a ministerial order under s. 37(2); 2) an injunction; 3) prosecution; or 4) both injunction and prosecution. The draft enforcement strategy notes that use of ministerial requests and orders under *Fisheries Act* s. 37 "is available but not recommended due to the fact that it is time-consuming."¹⁹²

Environment Canada indicated that there is no margin of error associated with the acute lethality trout test, as with TSS and BOD.¹⁹³ However, in December 1999, Environment Canada published a "Guidance Document on Application and Interpretation of Single-species Tests in Environmental Toxicology," which noted that inter-laboratory variation can result in a coefficient of variation for tests results of 30% to 50% and intra-laboratory variation can result in a coefficient of variation of 20% to 40%. A study undertaken by the Ontario Ministry of the Environment indicated that the likelihood that a second test repeated on a single sample will produce a different result is 38%.¹⁹⁴ Environment Canada switched to a triplicate sample procedure in 2001 and states that conducting tests in triplicate reduces potential variability in bioassay results.¹⁹⁵ In *R. v. Domtar*,¹⁹⁶ the court upheld a ruling that the prosecution had sufficiently proven that the mill discharged acutely lethal efflu-

192. The 1993 Draft *PPER* Enforcement Strategy notes that even if a Ministerial request can be issued without undue delay, Environment Canada and the Department of Fisheries and Oceans (DFO) must review the information provided and agree on terms of any Ministerial order to be issued under s. 37(2), and DFO must then allow the mill an opportunity "to make representations" and offer to consult with the relevant provincial or territorial government. The draft enforcement strategy notes that "if the Ministerial order seeks to close the operation, the order WILL REQUIRE GOVERNOR IN COUNCIL APPROVAL." 1993 *Draft PPER Enforcement Strategy*, at 10. The draft enforcement strategy indicates that "[i]t is also possible to secure the restriction, modification or closure of a mill's operations envisioned by a s. 37(2) Ministerial order faster through the injunction process." *Ibid.* Environment Canada confirmed that the considerations reflected in the 1993 Draft Enforcement Strategy regarding ministerial requests and orders was valid in 2000 and are still valid. Environment Canada, Response to follow-up information request (3 February 2005).

193. Meeting of Secretariat with Environment Canada staff (3 February 2005).

194. Zajdik & Associates, *Misclassification Rates of Effluent Compliance Tests*, prepared for Standards Development Branch, Ministry of the Environment (25 April 2001); B. Zadjik et al., *The \$500,000 Fish*, in *SETAC Globe* (January-February 2001).

195. Environment Canada Information (3 February 2005).

196. [1998] O.J. No. 6407 (Ontario Court of Justice Provincial Divisions); [2000] O.J. No. 5112 (Ontario Superior Court of Justice).

ent, even though the mill argued that, because the confidence limit for the acute lethality test was 10% to 30%, 95% of the time, a failed acute lethality test on which the prosecution relied might not have been acutely lethal.

In opening an investigation based on non-compliance indicated by a failed trout lethality test, a failed test is considered an on/off switch: Environment Canada treats a marginal failure, for example where not all of the ten test fish die during the test, the same as a failure with a high degree of lethality, for example a test with an LC50 of 10%.¹⁹⁷ The Secretariat noted an e-mail, dated 28 September 2000, from Ontario Ministry of the Environment staff to Environment Canada that stated as follows with respect to the acute lethality trout test:

[A]s far as the power of the test goes, a single concentration is as powerful in determining toxicity as an LC50. An LC50 just gives you additional information as to HOW toxic it is. Moreover, based on events at recent court cases, it is almost better to use single concentration data instead of LC50 data because the defence like to waste a lot of the court's time arguing over the confidence limits surrounding the LC50 estimate (that is, if the 95% confidence limits surrounding the sample LC50 exceed 100% then the defence can argue that there is a good chance the true "population of effluent" LC50 exceeds 100%. This clouds the issue of toxicity, which can be established simply on the basis on response of fish in the undiluted effluent.¹⁹⁸

The Environment Canada staff responding to this e-mail indicated that Environment Canada was "having the same problem with court cases . . . and want[s] to review the present test requirements in light of recent court cases."¹⁹⁹ Environment Canada informed the Secretariat that it continues to use the test method referenced in the *PPER* and has referred the issues raised in these e-mails to the federal Justice Department for guidance.²⁰⁰ The Secretariat's legal expert notes: "Prosecutions have been vigorously defended on the basis that the acute lethality test is unreliable. We do not have statistics on the number of charges that have been dropped or settled as a result of such arguments; however, courts are unwilling to abandon the acute lethality test."²⁰¹

197. *Ibid.*

198. Environment Canada Information (June 2004).

199. *Ibid.*

200. Environment Canada Information (23 November 2005).

201. W+SEL memorandum to Secretariat (15 April 2005), citing *Fletcher v. Kingston*, 240 D.L.R. (4th) 734, 185 C.C.C. (3d) 446, 187 O.A.C. 143, 2004 CarswellOnt 1860, 70 O.R. (3d) 577, 7 C.E.L.R. (3d) 198 (Ont. C.A. May 12, 2004) reversing [2002] O.J. No. 2324 (Ont. S.C.J. June 07, 2002), leave to appeal denied by Supreme Court of Canada January 20, 2005.

Several of the mills with whom the Secretariat met during preparation of the factual record informed the Secretariat that they conducted detailed studies, called Toxicity Identification Evaluations (TIEs), to attempt to determine the cause of toxicity problems at the mills. Environment Canada informed the Secretariat that, while Environment Canada enforcement personnel would not take a TIE at “face value,” and would consult program staff in regard to it, it can be difficult nonetheless to prosecute a mill while a TIE is underway. According to Environment Canada, a TIE may indicate that the mill does not know the reason for a toxicity failure and therefore may be able to put forth a successful due diligence defense, on the grounds that they could not have reasonably foreseen the failure and prevented it from occurring. However, Environment Canada officials stated they were unaware of any situations in which a mill has claimed that the need to conduct a TIE indicates that due diligence would not have prevented a toxicity failure.²⁰² In addition, the Secretariat’s legal expert stated: “If a mill has done everything in its power to exercise due diligence and some unexpected discharge occurs, there could be a due diligence argument. On the other hand, due diligence would require a mill to know its systems to the extent there should not generally be a discharge whose cause is not understood.”²⁰³

The Secretariat gathered information indicating that some mills collect duplicate samples for acute lethality testing and have the samples tested at more than one laboratory. Reasons for doing so varied; mills indicated they took duplicate samples to increase the likelihood of inconsistent results (so as to cast doubt on test results indicating toxicity), or to gather information from more than one laboratory in order to better understand a problem with toxic effluent. In the Atlantic Region starting in 2000, and in other regions before 2000, Environment Canada required mills to take their own sample for acute lethality testing, as opposed to taking a portion of the sample collected by Environment Canada.²⁰⁴ One mill indicated that Environment Canada now requires

202. All from Meeting of Secretariat with Environment Canada staff (3 February 2005) and Environment Canada Information (3 February 2005).

203. Personal communication with W+SEL lawyer (1 March 2006).

204. Environment Canada Information (3 June 2004). A 22 March 2000 Environment Canada letter informed one of the Atlantic Region mills: “I want to take this opportunity to advise you of a policy change for mills in this region who wish to obtain a split sample from inspections conducted by Environment Canada at their facilities. In past, inspectors allowed companies to split an effluent sample with the inspection sample for TSS and BOD. This practice will no longer be permitted if the sample is from an Environment Canada sampler. Therefore, if the inspector uses the mill’s sampler to get their sample, then the mill is entitled to obtain a split sample for TSS and BOD if they wish. If Environment Canada collects the sample from its own sampler, then the company will not be provided a sample. The company would have to

all test results to be reported, even tests not required to be taken, but only since May 2004.

6.5.2.3 Use of information self-disclosed by mills

Use in prosecutions of information that mills have self-disclosed through routine reporting to environmental agencies of the results of effluent testing raises two potential issues. The first issue is the reliability of the self-disclosed data in the context of a prosecution, where the burden of proof is beyond a reasonable doubt. The second is the possibility that, where individual mill managers face charges, protection from self-incrimination under the *Canadian Charter of Human Rights and Freedoms* could be asserted.

In terms of the overall policy applicable to all Environment Canada regions, Environment Canada stated:

[Environment Canada] has used [self-reported] data as the basis for prosecution and often uses these data as the basis to inspect to verify compliance following the report of the data or to investigate when the data provided sufficient grounds to believe that a violation may have occurred. It is useful to have data or other evidence gathered by [Environment Canada] fishery inspectors and/or fishery officers to support an alleged violation indicated via self-reported data, but Supreme Court of Canada decisions recognize the use of self-reported data themselves as possible grounds for prosecution.²⁰⁵

6.5.2.3.1 Reliability of self-disclosed information

Environment Canada indicated that all Environment Canada regions follow the national policy that self-reported data may be used in prosecutions of *PPER* non-compliance.²⁰⁶ Environment Canada officials in the Atlantic Region provided information to the Secretariat on considerations related to the reliability of self-disclosed mill data. Atlantic Region staff indicated that they never base a *PPER* prosecution *solely* on data that is self-reported by a mill through routine reporting required under the *PPER*.²⁰⁷ Environment Canada indicated that the Ontario

get its sample through other means. The samples collected for lethality tests will not be split as well. The company is free to collect their own sample as long as it does not interfere with the inspectors collecting theirs. This policy is not new to Environment Canada in other regions and merely provides a consensus.”

205. Environment Canada Information (23 November 2005).

206. *Ibid.*

207. Meeting of Secretariat with Environment Canada staff (3 February 2005).

region had no such practice during the time period relevant to the factual record.²⁰⁸ In Environment Canada's Quebec region, investigators were advised in May 2003 that charges under the *PPER* could be based solely on self-reported data, reversing previous advice from regional prosecutors that prosecutions should be supported with evidence collected by Environment Canada.²⁰⁹

According to Atlantic Region staff, Justice Department officials in the region still indicate that they will not pursue prosecutions based solely on self-reported data, although such data can be used along with data or evidence obtained through other means.²¹⁰ Such other evidence includes "legal samples" taken during an investigation, as well as expert testimony that a mill has deposited a substance that is deleterious under s. 36(3) of the *Fisheries Act*.²¹¹ Canada informed the Secretariat:

The Atlantic Region has adopted the practice of undertaking prosecution on the basis of substantiated and verifiable samples. [Environment Canada] has full confidence in the accuracy of effluent samples collected by [Environment Canada] fishery inspectors/fishery officers, kept in strict continuous custody and control, and analyzed by *Fisheries Act* analysts in an [Environment Canada] laboratory that has been inspected by the Canadian Association of Environmental Analytical Laboratories (CAEAL) and accredited by the Standards Council of Canada.²¹²

Some mills informed the Secretariat that they consider that a "legal sample," in which chain-of-custody and other requirements are applied to ensure reliability, is required to support prosecution for exceeding *PPER* effluent limits, and that mill samples do not generally meet the requirements for "legal samples."²¹³ Canada informed the Secretariat that the Atlantic Region considers a "legal sample" to involve the "use of manufacturer certified clean containers for TSS and BOD; the use of new sample container liners for trout bioassay; collection according to generally accepted, scientific sampling protocols, sometimes under a search warrant; and strict maintenance of [chain-of-custody] from collection through analysis."²¹⁴ Canada confirmed that "[s]amples that have not

208. Environment Canada Information (23 November 2005).

209. *Ibid.*

210. Meeting of Secretariat with Environment Canada staff (3 February 2005).

211. *Ibid.* For example, Atlantic Region officials noted that in the event of a spill of "green liquor" from a mill, an expert could give testimony showing that "green liquor" is a deleterious substance.

212. Environment Canada Information (3 February 2005).

213. The Secretariat's legal expert indicates that, according to their research, reliable laboratories will not conduct effluent tests without adequate chain-of-custody documentation. Personal communication with W+SEL attorney (3 January 2006).

214. *Ibid.*

been collected under this regime are open for challenge by defense counsel in the event of a prosecution or securing an injunction.”²¹⁵ Although providing poor or unreliable data could subject the mill to a separate charge of failing to meet requirements of the *PPER* other than the effluent limits (for example, requirements regarding analytical or sampling methodologies), Atlantic Region staff explained that enforcement officials prefer to avoid a situation where an original charge based on effluent limits would have to be dismissed in order to pursue a different alleged violation.²¹⁶

Atlantic Region staff indicated that the practice of never relying solely on self-reported data may result in an inability to prosecute small upsets or one-time events, because short-term events might no longer affect mill effluent quality by the time Environment Canada arrives on-site to take a legal sample.²¹⁷ As well, the practice of relying always on legal samples makes it impracticable to prosecute non-compliance with monthly average limits for TSS and BOD. Environment Canada informed the Secretariat that “[a]ny prosecution for a monthly exceedance would likely use self-reported data. Obtaining legal samples on-site related to a monthly average would require an [Environment Canada] fishery inspector or fishery officer to be at the mill sampling site for a month (24 hours a day) collecting samples.”²¹⁸ An Environment Canada document from the Atlantic Region dated 21 June 2002 states: “Prosecuting for daily exceedances is practical if they are consistently occurring and the company is not diligent in addressing them [and prosecuting monthly limit exceedances] based on self-reported data should be valid.”²¹⁹ Atlantic Region staff indicated that the practice of not relying solely on self-reported data does not affect their ability to prosecute longer-term or chronic non-compliance with the *PPER*.²²⁰ Atlantic Region staff cited the prosecution of the ACI mill in Grand Falls in 2002, which led to a guilty plea, as an example of their ability to prosecute chronic non-compliance.²²¹

6.5.2.3.2 *Self-incrimination*

Use of self-reported data in prosecutions raises the possibility of *Charter*-based objections that use of such data amounts to impermissible

215. *Ibid.*

216. Personal communication with Atlantic Region staff (20 October 2005).

217. Meeting of Secretariat with Environment Canada staff (3 February 2005).

218. Environment Canada Information (3 February 2005).

219. *Ibid.*

220. *Ibid.*

221. *Ibid.*

self-incrimination. The *Canadian Charter of Human Rights and Freedoms*²²² protects against self-incrimination, so as to exclude evidence that a defendant was compelled to provide to the government. Corporations, as opposed to individual company officials, may have difficulty raising these arguments because courts have found that the right not to be deprived of life, liberty and security of the person is intended to protect individuals and not corporations.²²³ The following are the *Charter* provisions relating to the protection against self-incrimination that would most likely be invoked:²²⁴

7. Everyone has the right to life, liberty and security of the person and the right not to be deprived thereof except in accordance with the principles of fundamental justice.

8. Everyone has the right to be secure against unreasonable search or seizure.

Canada informed the Secretariat that “[t]he Supreme Court of Canada has ruled that it is not self-incrimination for regulatees to report data showing non-compliance if they are required by laws or regulations to submit information. It is thus possible to prosecute regulatees on the basis of self-reported data.”²²⁵

Consistent with Canada’s statement, the right against self-incrimination does not automatically render inadmissible all evidence that a defendant was compelled to provide to the government.²²⁶ The extent of the right against self-incrimination varies according to the circumstances.²²⁷

222. Part I of the *Constitution Act, 1982* being Schedule B of the *Canada Act 1982* (U.K.), c. 11 [hereinafter cited as *Charter* by section number].

223. See *Irwin Toy Ltd. v. Quebec*, [1989] 1 S.C.R. 927. However, the Supreme Court has ruled that corporations may raise arguments based Charter provisions that apply to individuals when they have been brought involuntarily before a court and they are challenging the constitutionality of a legislative provision. See *R. v. Big M Drug Mart Ltd.*, [1985] 1 S.C.R. 295.

224. Section 11 of the *Charter* provides that “[a]ny person charged with an offence has the right ... not to be compelled to be a witness in proceedings against that person in respect of the offence.” Section 13 provides additional procedural protections relating to the right against self-incrimination. Section 24 provides a remedy, in the form of exclusion of evidence.

225. Environment Canada Information (3 February 2005).

226. See *Watt’s Manual of Criminal Evidence* (Toronto: Carswell, 2004) 670; Henri BRUN, *Alter Ego Chartes des droits de la personne 2004* (Montréal: Wilson & Lafleur, 2004) at 279.

227. See, e.g., *R. v. Fitzpatrick* (1995), 18 C.E.L.R. (N.S.) 237; [1995] 4 S.C.R. 154 [hereinafter cited as *Fitzpatrick*], para. 25, page 249 (Courts must begin “‘on the ground’, at it were, with a concrete and contextual analysis of the circumstances”).

In *R. v. Fitzpatrick*,²²⁸ which addressed the admissibility of statutorily-compelled data in an environmental context,²²⁹ the Supreme Court in 1995 upheld the use as evidence, in a prosecution for exceeding fishing quotas, of the defendant's "hail reports" and fishing logs, both of which he was required to provide pursuant to section 61 of the *Fisheries Act*. The Court set out the following factors to be considered in assessing the context in which protection against self-incrimination is sought:

- the nature of the relationship between the individual and the State (whether it be adversarial or not);
- the coercion element (whether the State exercised coercion in obtaining the evidence in question);
- the need to protect against unreliable confessions (as this is one of the concerns underlying the rule against self-incrimination); and
- the need to protect against State abuse of power (as this is another main concern underlying the rule against self-incrimination).²³⁰

In 2002, the Supreme Court again addressed the admissibility of statutorily-compelled evidence in *R. v. Jarvis*²³¹ and *R. v. Ling*,²³² two cases involving the admissibility in tax evasion proceedings of documents obtained in the course of administering the *Income Tax Act* and later used in the investigation and prosecution of offenses the documents revealed.²³³ The decision established a "predominant purposes" test that examines whether relationship between the government and the defendant at the time the evidence is obtained is adversarial, taking into account all of the circumstances.²³⁴ Once the relationship becomes adversarial, *Charter* protections against self-incrimination and unreasonable searches and seizures are engaged; information obtained

228. *R. v. Fitzpatrick* (1995), 18 C.E.L.R. (N.S.) 237; [1995] 4 S.C.R. 154 [hereinafter cited as *Fitzpatrick* by paragraph and page number]. Likewise, earlier case law on the subject found the statutorily compelled evidence to be admissible. See, for example, *R. v. Courtlands Fibre Canada* (1992), 9 C.E.L.R. (N.S.) 304 (Ont. Ct. J.) (Prov. Div.) in which the spill-reports required by statute are used in prosecution under the *Ontario Water Resources Act*.

229. The Supreme Court followed and confirmed the propriety of a contextual approach to the right against self-incrimination in *R. v. Richard*, [1996] 3 S.C.R. 525; *R. v. White*, [1999] 2 S.C.R. 417; *R. v. Brown*, [2002] 2 S.C.R. 185 and *R. v. Jarvis*, [2002] 3 S.C.R. 757.

230. *Fitzpatrick*, pp. 250-56.

231. [2002] 3 S.C.R. 757 [hereinafter cited as *Jarvis* by paragraph and page number].

232. [2002] 3 S.C.R. 814. *Jarvis* and *Ling* have been followed by lower courts. See, for example: *R. v. Wilder*, [2003] B.C.J. No. 3081; 2003 B.C.S.C. 859.

233. *Jarvis* at para. 68; p. 795 – references omitted.

234. *Ibid.* at para. 88, p. 803. The factors used to determine the predominant purpose are listed at para. 94, p. 807.

through administrative powers prior to the commencement of penal proceedings does not have to satisfy these *Charter* protections.²³⁵ The “predominant purposes” test has been followed and applied in other regulatory contexts.²³⁶

As with section 7, the Supreme Court of Canada has established a contextual approach to section 8, based on an accused’s privacy expectation in the evidence in question. In *Fitzpatrick*, Justice La Forest explained:

In applying a contextual approach under s. 8, this Court has repeatedly emphasized that searches and seizures of documents relating to activity known to be regulated by the state are not subject to the same high standard as searches and seizures in the criminal context. This is because a decreased expectation of privacy exists respecting records that are produced during the ordinary course of business.²³⁷

Neither the Secretariat nor its legal expert have found any reported cases in Canada directly addressing whether the use of data reported under the *PPER* as evidence in a prosecution infringes the *Charter* rights to privacy or against self-incrimination. However, lower courts in Canada have relied on such self-reported data in assessing charges against an accused polluter. For example, in *R. v. Domtar*, a mill that produced packaging materials was convicted under the *Fisheries Act* for violating *PPER* effluent limits. The Justice of the Peace explained the use of self-reported information as follows:

In order to monitor a mill’s compliance with the legislation, periodic reports to Environment Canada and the Ontario Ministry of the Environment are required. These reports basically set out the production levels of the mills and the quantity of effluent which result from that production. In addition to these regular periodic reports, the mills are required to advise the regulatory bodies of any out of the ordinary incidents which result in the allowable limits of effluent discharged being exceeded. These exceedence reports are investigated, with varying degrees of thoroughness by the regulators, and if deemed to be of sufficient significance, charges are laid under the pertinent legislation. It was as a result of such investigation by Environment Canada triggered by exceedence reports made by the Domtar Red Rock Mill that the corporation was charged with these offences contrary to the *Fisheries Act* (hereinafter “the Act”) and the *Pulp and Paper Effluent Regulations* (hereinafter “the Regulations”) made pursuant to the Act.²³⁸

235. *Ibid.* at para. 96-97, p. 808-09.

236. See, for example: *R. v. Wilder*, [2003] B.C.J. No. 3081; 2003 B.C.S.C. 859.

237. Para. 49, p. 258.

238. *R. v. Domtar*, [1998] O.J. No. 6407 (Ct. of J.) at paragraph 8.

The Secretariat's legal experts indicated that the use of self-reported data under the *PPER* in the prosecution of pulp and paper mills for environmental violations is most likely to be an issue where individual mill officials are exposed to charges and, even in those situations, does not automatically constitute a violation of *Charter* rights. The key is determining the line between the administrative collection of data regarding pulp and paper mills effluent and the penal investigation and prosecution of offenses. Pulp and paper mills will generally not be successful in using section 7 of the *Charter* to exclude self-reported data collected in routine administration of the *PPER*, and not during investigation and prosecution of offenses, self-reported data. While there may be exceptions, the right against self-incrimination could not be used in 2000 or today to exclude self-reported data in the *PPER* context.²³⁹

6.5.3 *Regional policies and practices and coordination with provinces*

In 1999-2000, Environment Canada conducted 1,584 inspections of pulp and paper mills across Canada for compliance with the *PPER*, in which 62 were on-site inspections and 1,522 were paper reviews. There were 4 enforcement investigations, no prosecutions or convictions, 1 fishery inspector direction, 26 referrals to others (such as other federal ministries or provinces), 69 written warnings and 74 "other dispositions."²⁴⁰

In 2000-2001, Environment Canada conducted 1,696 inspections of pulp and paper mills across Canada for compliance with the *PPER*, in which 76 were on-site inspections and 1,620 were paper reviews. There were 10 enforcement investigations, no prosecutions or convictions under the *PPER* in that time period. There were 59 referrals to others, 71 written warnings and 166 "other dispositions."²⁴¹ In its annual *Fisheries Act* enforcement report for fiscal year 2000-2001, Environment Canada highlighted four court cases under the *PPER* that were ongoing or concluded in that period against pulp and paper mills in Ontario, one which resulted in a total penalty of \$130,000, another of \$210,000, another of

239. All from Gertler Memorandum, July 2005.

240. Environment Canada, <http://www.ec.gc.ca/ele-ale/stats/fa/pdf/fa_natl_1999_2000_e.pdf> and <http://www.dfo-mpo.gc.ca/canwaters-eauxcan/info/centre/publications/reports-rapports/ann00/annex8_e.asp>. In these statistics, a written warning to a single mill that cites three sections of a regulation is counted as three written warnings.

241. Environment Canada, <http://www.ec.gc.ca/ele-ale/stats/fa/pdf/fa_natl_2000_2001_e.pdf>.

\$200,000 and another of \$50,000.²⁴² The annual report does not mention any ongoing or concluded cases involving pulp and paper mills in Quebec or the Atlantic provinces.

Put in a broader context, during the period April 1999 through June 2005, the Atlantic Region carried out a total of 8 prosecutions under s. 36(3) of the *Fisheries Act* (not only pulp and paper mills), the Quebec Region carried out no prosecutions, and the Ontario Region carried out 4 prosecutions for offences under s. 36(3) that occurred or were charged in 2000.²⁴³

In terms of inspection planning, Environment Canada explains as follows:

Every fiscal year, EC develops a national inspection plan and compliance promotion plans for the legislation that it administers under CEPA, 1999 and the *Fisheries Act*. One component of the National Inspection Plan 2000-2001 sets out the national and regional priorities for Fishery Inspectors to verify compliance with the pollution prevention provisions of the *Fisheries Act*. It identifies the regulations that are in force under those provisions and the proposed number of inspections to be carried out by each of the five EC Regional Offices (see Fig. 8-1). Those regional and national priorities for inspections are determined by the risk to fish and fish habitat; the coming into force of a new regulation; the compliance rate of a given sector during the previous years; and work-sharing arrangements under federal-provincial or federal-territorial administrative agreements related to the regulations under the *Fisheries Act*.²⁴⁴

In all provinces, Environment Canada administers and enforces the *Fisheries Act* and the *PPER* in coordination with provincial authorities. In Alberta, Saskatchewan and Quebec, the federal government has entered administrative agreements regarding either the pollution preventions of the *Fisheries Act* generally or, in the case of Quebec, regarding administration of federal and provincial regulations for pulp and paper

242. Environment Canada, *Administration and Enforcement of Pollution Prevention Provisions by Environment Canada: Report on FY 2000-2001 Activities*, <http://www.dfo-mpo.gc.ca/canwaters-eauxcan/infocentre/publications/reports-rapports/ann00/annex8_e.asp>. The case involving a penalty of \$130,000 was under appeal at the end of the period.

243. Environment Canada, *Fisheries Act Current Legal Activities Report (May 2002)*, <http://www.ec.gc.ca/ele-ale/stats/fa/pdf/fa_legl_curr_1999-04-01_2002-01-31_e.pdf>.

244. Environment Canada, *Administration and Enforcement of Pollution Prevention Provisions by Environment Canada: Report on FY 2000-2001 Activities*, <http://www.dfo-mpo.gc.ca/canwaters-eauxcan/infocentre/publications/reports-rapports/ann00/annex8_e.asp>.

effluent. Environment Canada describes its general approach to federal-provincial coordination as follows:

Investigations by either or both orders of government occasionally identify violations that fall under federal and provincial/territorial laws. In those situations, the enforcement authorities of both orders of government cooperate to determine whether one or both will lay charges or select other alternatives. Often in these cases, one order of government is best suited to pursue the case and will take the lead while the other provides support. Finally, federal and provincial/territorial enforcement staff meets annually to share information and experiences and discuss case histories.²⁴⁵

6.5.3.1 Environment Canada Ontario Region

Environment Canada informed the Secretariat that in 2000, resources allocated to promoting compliance with the *PPER* in the Ontario Region were 0.1 person-years and \$1,000 in overhead costs. Resources for enforcement of the regulations in 2000 were one person-year and approximately \$40,000 in overhead costs.²⁴⁶ There was no standing or permanent arrangement between provincial environmental authorities in Ontario regarding enforcement of the *PPER* and equivalent provincial laws and regulations. However, the information in section 8.10 below regarding the Interlake mill indicates a considerable degree of coordination between federal and provincial authorities in that specific case.

6.5.3.2 Environment Canada Quebec Region

Environment Canada informed the Secretariat that in 2000, resources allocated to compliance promotion of the *PPER* in the Quebec Region were 0.5 person-years and \$5,000 in overhead costs. Resources for enforcement of the regulations in 2000 were 0.5 person-years and \$5,000 for inspections, and 2 person-years and \$8,000 in overhead costs for investigations.²⁴⁷

245. Environment Canada, *Administration and Enforcement of Pollution Prevention Provisions by Environment Canada: Report on FY 2000-2001 Activities*, <http://www.dfo-mpo.gc.ca/canwaters-eauxcan/infocentre/publications/reports-rapports/ann00/annex8_e.asp>.

246. Environment Canada Information (3 June 2004). Environment Canada explains that a person-year represents 240 days, but time reflected as person-years normally reflects the activity of more than one individual. *Ibid.* Overhead costs for enforcement include costs such as for travel to mills and laboratory analysis. *Ibid.*

247. Environment Canada Information (3 June 2004).

The *Agreement between the Governments of Quebec and Canada Regarding the Implementation in Quebec of Federal Regulations Respecting Pulp and Paper Mills* (Canada-Quebec Agreement) was first signed in May 1994 for a three-year term and renewed in November 1997. The renewed agreement expired on 31 March 2000, but the federal and provincial governments agreed to continue to work in the same spirit.²⁴⁸ In 2003, Canada and Quebec signed a new *Administrative Agreement between the Government of Quebec and the Government of Canada Regarding the Implementation in Quebec of Federal Regulations Pertaining to the Pulp and Paper Sector*, which was made retroactive to cover the period 1 April 2000 to 31 March 2005. It largely continues the terms of the original 1994 and 1997 agreements.²⁴⁹ The stated purpose of the Agreement in effect in 2000 is “to define the terms and conditions of co-operation between Canada and Quebec in enforcing federal pulp and paper mill regulations in Quebec.”²⁵⁰ This section describes the terms of the agreement in effect from 1997 to 2000.

The agreement adopts a single window for industry with respect to the environmental regulation of pulp and paper mills in Quebec, “whereby Quebec becomes the sole party through which relations and communications with pulp and paper mills in Quebec are channeled.”²⁵¹ The preamble notes that the requirements of the Quebec and federal regulations are generally comparable and that Quebec has already implemented inspections and monitoring measures to ensure compliance. It notes that Quebec has played a leading role with pulp and paper mills and the commitment of both governments to minimizing duplication and overlap. It states that “information collected by Quebec under its regulations and needed by Canada to ensure compliance with its regulations and to fulfil its obligations to the Parliament of Canada, will be accessible to Canada.” Canada states that it is prepared to reduce to a minimum the number of administrative actions it requires of the pulp and paper industry in order to enforce its regulations in Quebec.

The agreement covers the federal *Pulp and Paper Effluent Regulations* made under the *Fisheries Act*, as well as the federal *Pulp and Paper Mill Effluent Chlorinated Dioxins and Furans Regulations* and *Pulp and Paper Mill Defoamer and Woodchip Regulations*. On the Quebec side, it

248. *Ibid.*

249. Administrative Agreement between the Government of Quebec and the Federal Regulations Pertaining to the Pulp and Paper Sector, C. Gaz. 2002. I. 2282. See <http://www.ec.gc.ca/ceparegistry/documents/agree/QcPP_agree.cfm>.

250. Canada-Quebec Agreement, s. 2.

251. Canada-Quebec Agreement, s. 3. See also Paul R. Granda, “Les fabriques de pâtes et papiers: premières victimes de l’attestation d’assainissement”, in Service de la formation permanente du Barreau du Québec, *Développements récents en droit de l’environnement*, 1994, Cowansville, Éditions Yvon Blais, pp. 223-289 at pp. 262-264.

covers the 1979 and 1992 regulations on pulp and paper mills, as well as the regime of depollution attestations.

Section 4 states that, except as noted, "Quebec will act as sole contact with pulp and paper mills." Accordingly, Quebec agrees to gather all the information required under the *PPER* with respect to effluent quality, reported on a monthly basis, and provide it to Canada within an agreed time,²⁵² as well as to provide certain information on EEM studies and on accidental releases from mills. In addition, Quebec agrees to submit to Canada results of effluent characterization from 10 mills, as well as toxicity measurements from 20 mills.²⁵³ During 2000, Environment Canada reviewed monthly reports on mills' compliance with the *PPER* one and a half to three months after the reports were received by the Quebec environment ministry.²⁵⁴

In Section 6, Canada and Quebec agree to establish a single system for managing, recording and communicating data in order to ensure follow-up and enforcement of federal and Quebec regulations.

Under section 7, Quebec agrees to provide Canada, three times per year, information, as agreed by a Canada-Quebec management committee, from Quebec's systematic inspection program for pulp and paper mills the enforcement of its regulations.

In Section 8, Canada and Quebec acknowledge that they each retain their authority to intervene in the case of alleged violations of their respective regulations, and they agree to inform each other of their actions with respect to offenses under their respective regulations.

Section 10 deals with financing. Canada agrees to transfer to Quebec \$300,000 annually for data acquisition by Quebec under its regulations with \$50,000 of that amount dedicated to improving the computerized data system. The Secretariat asked why payments from the federal government to Quebec under this provision went from \$317,000 in 1999-2000 to zero in 2000-2001, and what effect this had on the provision of information by Quebec to the federal government relevant to enforcing the federal *PPER*. Environment Canada explained:

Under the Canada-Quebec Agreement respecting the Pulp and Paper Sector, the federal government bought equipment for the provincial govern-

252. Canada-Quebec Agreement, s. 4. The specific information to be gathered is listed in Appendix 1, and includes, *inter alia*, daily effluent flow, daily production, daily and monthly TSS and BOD data and results of trout toxicity tests.

253. Canada's comments on SEM-02-003 (Pulp & Paper) draft Factual Record (10 May 2006), at 6.

254. Environment Canada Information (23 November 2005).

ment to use in the gathering and electronic transmission of data required under the PPER for the monthly effluent quality reports submitted by mills and [other data]. The value of the federal government purchases was \$225,000 per year for the five years that the agreement was in force from April 1, 1995 to March 31, 2000. Upon expiry of the agreement, the federal government no longer provided funds for the purchase of equipment. Nevertheless, with the equipment already paid for by the federal government, the Quebec Ministry of Environment continued to provide the required data to Environment Canada in the spirit of the agreement. Therefore, the fact that the federal government no longer provided funds to purchase equipment for the fiscal year 2000-2001 did not affect the transmission of the required data. Since the purchased equipment was in place and functioning.²⁵⁵

Section 11 sets up a management committee to administer and manage the cooperative agreement.

Section 12 states that nothing in the agreement shall be interpreted as affecting the division of powers between the federal and Quebec governments or the application of any federal or provincial act or regulation in force in Quebec.

Environment Canada described the status of cooperation between Quebec and the federal government in FY 2000-2001, after the 1997 agreement had expired, as follows:

While the negotiations are ongoing, the federal and Quebec Governments have agreed to continue co-operating in the spirit of the expired accord. . . .

Under the expired agreement, the Province collected information under the authority of the Quebec regulations that apply to the pulp and paper sector. Quebec then provided the data needed by EC to determine compliance with the federal regulations governing the pulp and paper sector under the *Fisheries Act* and CEPA, 1999. The Province also conducted inspections under its own regulations. In continuing to operate in the spirit of the agreement, the Quebec Government has agreed to maintain transmission of data to EC until a new agreement between both governments takes effect.

255. Environment Canada Information (23 November 2005). In its comments on the draft factual record, Canada further explains:

The 1997 agreement expired on March 31, 2000. From April 1, 2000 to the signing of the subsequent agreement in 2003, there was no transfer of funds to Québec. The new agreement signed in 2003 was retroactive to April 1, 2000, and the equivalent of \$225,000 per year in equipment purchase was made for Québec. In the interim period – i.e. from April 1, 2002 to September 2003, the governments agreed to continue to collaborate in the spirit of the agreement to be officialized. Thus, there was no impact on the transmission of self-monitoring data from the mills. Canada's comments on SEM-02-003 (Pulp & Paper) draft Factual Record (10 May 2006), at 6.

In FY 2000-2001, EC reviewed 946 monthly and quarterly reports from the mills and the municipalities, produced monthly reports on compliance, discussed problematic mills with Quebec, and took appropriate action in conformity with the enforcement and compliance policy. Sixteen warnings were issued and five investigations were carried out by fishery inspectors during that year.²⁵⁶

Other information indicates that in 2000-2001, the Quebec Region of Environment Canada conducted 4 on-site inspections, 882 administrative verifications and 5 investigations under the *PPER*, resulting in 70 “written notices.”²⁵⁷

The Secretariat has no information indicating that any of the four on-site inspections in 2000 were conducted at any of the five Quebec mills that are the subject of the factual record. Environment Canada’s inspections of those mills were off-site verifications of mill data in reports made to the Quebec Ministry of Environment and then passed on to Environment Canada. Environment Canada informed the Secretariat that “[r]eview of relevant data by Environment Canada takes place within a month and a half and three months from the date that the Quebec Ministry received the data from the mill.”²⁵⁸ In connection with one file, the investigator noted that by the time Environment Canada reviews the data, it is too late for enforcement action or even referral to investigators to have an impact.²⁵⁹

In response to its requests for information to Canada, the Secretariat received no documents indicating that Environment Canada received and reviewed any provincial administrative notices of infraction, corrective action plans or any other documentation of provincial enforcement action relating to effluent discharges not in compliance with the *PPER* or *Fisheries Act* s. 36(3) in 2000 at any of the five Quebec mills of concern in this factual record. On 1 June 2006, Canada provided the Secretariat with the Canada-Quebec Agreement Management Committee’s annual report for 2000, which indicates that provincial officials conducted one on-site inspection of the Uniforêt, Tembec St. Raymond and Fjordcell mills and two on-site inspections of the J. Ford and FF

256. Environment Canada, *Administration and Enforcement of Pollution Prevention Provisions by Environment Canada: Report on FY 2000-2001 Activities*, <http://www.dfo-mpo.gc.ca/canwaters-eauxcan/infocentre/publications/reports-rapports/ann00/annex8_e.asp>.

257. Environment Canada, Quebec Region, *Inspections and Investigations under the Fisheries Act*, <http://lavoieverte.qc.ec.gc.ca/dpe/Anglais/dpe_main_en.asp?insp_lpr_resultants#rgl_pates_papiers and http://lavoieverte.qc.ec.gc.ca/dpe/Anglais/dpe_main_en.asp?insp_lpn>.

258. Environment Canada Information (23 November 2005).

259. *Ibid.*

Soucy mills in 2000. The annual report also indicates action that the province took or noted with respect to infractions of provincial effluent regulations that occurred at four of the mills (all except the FF Soucy mill) in 2000. Actions noted in the report with respect to the infractions at the four other mills included notices of infractions, telephone conversations, corrective works, company justifications for the infractions, a meeting (Unifôret), a letter (Unifôret) and an action plan (Tembec St. Raymond). The report indicates that during 2000, the Management Committee met on February 8, March 29, April 11, May 4, October 12 and November 2.

6.5.3.3 Environment Canada Atlantic Region

Environment Canada's Atlantic Region covers the provinces of New Brunswick, Nova Scotia, Prince Edward Island and Newfoundland and Labrador. Environment Canada informed the Secretariat that in 2000, resources allocated to compliance promotion of the *PPER* in the Atlantic Region were 0.3 person-years and approximately \$2,000 in overhead costs. Resources for enforcement of the regulations in 2000 were between 0.5 and 0.75 person-year and between \$25,000 and \$35,000 in overhead costs.²⁶⁰

The Atlantic Region has a practice of never basing an enforcement action solely on self-disclosed information, such as information that pulp and paper mills are required to submit to the government regarding effluent quality. A detailed discussion of the considerations underlying this policy are presented in section 6.5.2.3 of this factual record.

Atlantic Region staff informed the Secretariat that regional Environment Canada fishery inspectors reviewed compliance history of all Atlantic Region mills included in this factual record when considering how to address non-compliance at those mills in 2000. They explained that the compliance history reviewed included previous enforcement actions, mill reported data and a discussion with Environment Canada program experts on mill performance (including possible due diligence factors). They indicated that both historical information indicating a recurring problem, as well as history about problems unrelated to non-compliance observed during an inspection, are relevant in considering the mill's overall approach to due diligence. An Atlantic Region fishery inspector explained:

Each violation is reviewed and investigated by the program manager. If the company was not diligent in their efforts to address the issue, enforce-

260. Environment Canada Information (3 June 2004). Environment Canada explains that a person-year represents 240 days, but time reflected as person-years normally reflects the activity of more than one individual.

ment action may be taken through [many] routes, i.e.: promotion letter, Warning Letter, Prosecution or provincial enforcement action. The nature of the violation and the diligence of the company to address it are the more guiding factors for enforcement, not the number of violations. A company may be charged based on a single offence if the offence was significant and the company was negligent in dealing with the situation or there may be more than two violations before enforcement action is considered.²⁶¹

With respect to *PPER* non-compliance based on failures of trout toxicity tests, Atlantic Region staff explained that prosecutions in the region for acutely lethal effluent as determined by a trout test failure were in cases where all 10 test fish died during the course of the 96-hour test. They explained that a failed trout test will trigger an investigation regardless of whether it is a “marginal failure” where between five and ten of the test trout die, or a failure in which all ten fish die. However, they said a decision to prosecute may involve consideration of whether a failure was marginal. Regarding potential defense arguments based on reproducibility of trout test results, they noted that the reference test method in the *PPER* does not require that a sample be tested more than once for acute lethality. They stated that Environment Canada considers a failure of a trout test to show non-compliance and “reproducibility of the test does not enter into the matter.” They said questions of reproducibility have not arisen in *PPER* prosecutions for acutely lethal effluent in the Atlantic Region. They further indicated:

If a mill decided to sample its own effluent on the same day and at the same discharge point as EC did and subjected that effluent to the sample acute lethality test and the mill’s sample passed, while the EC sample failed, this could inject an element of reasonable doubt and may influence the decision by a Crown prosecutor as to whether or not to prosecute.²⁶²

They noted that a mill can produce evidence of such test results at any time – in negotiations, at trial or otherwise. If a case is already being prosecuted, a pass of the effluent sample taken by the mill at the same time as the Environment Canada sample may inject reasonable doubt at trial and require the prosecutor to convince the court of the credibility of Environment Canada’s results. In 2001, the Atlantic Region began conducting triplicate tests for trout lethality, which reduces the possibility that tests results will vary; Atlantic Region staff said they have not had inconsistent results among triplicate samples tested since 2001.

Some mills in the Atlantic Region indicated to the Secretariat that they sometimes conduct duplicate tests of the trout lethality test, in part

261. All from *ibid.*; Environment Canada Information (3 February 2005).

262. Environment Canada Information (3 February 2005).

because of the possibility that they will obtain results inconsistent with each other or with the federal sample. Atlantic Region staff stated that they stopped splitting samples with mills in 2000 at the request of the federal Justice Department. They said they are not convinced that when mills (including mills of concern in this factual record, during the relevant time periods) conduct more than one trout test for a single test period, they report all of the results to Environment Canada. They believe that sometimes this is a failure to report results that were taken according to the *PPER* reference test method for acute lethality to trout. In this case, they explained that the mills could potentially be liable for a pure *Fisheries Act* s. 36(3) violation, due to failure to meet all of the conditions for authorized discharges under the *PPER*. In other cases, they noted a concern that some mills may have avoided the requirement to report all trout test results for a split sample by doing some tests that falls short of meeting the *PPER* reference test method. For example, a mill could avoid reporting a failed trout test by stopping the test at a point less than the full 96 hours, if it appears that more than half of the fish will be dead at the end of 96 hours.

The Secretariat asked Canada whether, in coordinating enforcement activity with the New Brunswick provincial environmental authorities in connection with the two mills in New Brunswick, any consideration is given to New Brunswick's ability to impose absolute liability for certain offenses to which a due diligence defense would apply to federal charges. Environment Canada stated that no specific consideration was given to the province's ability to impose absolute liability. They explained:

In cases where provincial regulations overlap with federal ones, EC does strive to avoid duplication of action to deal with an alleged violation of the *PPER* and the corresponding provincial regulation. Therefore a charge or warning by a province would likely result in EC closing a file for the same incident.²⁶³

The Atlantic Region inspection plans for fiscal years 1997-98, 1998-99, 1999-2000 and 2000-01 all state that in addition to reviewing monthly data, each mill in the region should be inspected twice annually, once by Environment Canada and once by the province in Nova Scotia and New Brunswick.²⁶⁴ Atlantic Region staff informed the Secretariat that they conducted 23 planned on-site inspections of pulp and paper mills in the region in 2000, including on-site inspections at the ACI, Bowater, Irving Pulp and Paper and AV Cell mills. In determining the number of planned on-site inspections for the *PPER*, they consider

263. *Ibid.*

264. Environment Canada Information (16 May 2005).

the compliance history of mills, mill-reported data (e.g., reviews of monthly effluent reports), the time since the last inspection, advice from regional program staff and available resources. Their resources in 2000 included one inspector in Newfoundland for 3 mills and six inspectors in Nova Scotia and New Brunswick for 16 mills.²⁶⁵

Regional staff informed the Secretariat that in New Brunswick and Nova Scotia, all of the planned on-site inspections at Bowater, Irving Pulp and Paper and AV Cell during the relevant time periods were unannounced inspections. This included 3 planned on-site inspections of the Irving Pulp and Paper mill during the period 1997-2000, one planned on-site inspection of the AV Cell mill in 2000 and two planned on-site inspections of the Bowater mill in 2000. This does not include any unplanned inspections that would have responded to complaints, mill-reported problems or intelligence program charges.²⁶⁶

In Newfoundland, all on-site inspections at the ACI mill were announced in 2000, because Environment Canada had only one fishery officer to conduct inspections in the province, located three hours from the mill, and announcing the inspection ensured that key personnel would be available during the inspection. Regional staff explained:

EC has found that pulp and paper mills cannot, or will not, shut down operations to circumvent an on-site inspection. Treatment systems such as that in Grand Falls have multiple day retention times for effluent and as such cannot physically be changed “quickly” by the turn of a valve. Furthermore, training and experience with pulp and paper mill operations would allow the fishery inspector to quickly recognize any “unusual” circumstances.²⁶⁷

Environment Canada does not have any formal administrative agreements with any of the Atlantic Region provinces on enforcement of the *Fisheries Act* or the *PPER*. Environment Canada provided information on attempts at coordination with Nova Scotia prior to 2000. A May 1997 letter from Environment Canada to the Director of Regional Offices of the Nova Scotia Department of Environment states:

I will describe what we expect from your people for the inspections. You indicated that the regional people were not committed to doing the one inspection requested of them and were concerned about the time and cost involved. They did not see the need for the inspection since they get the

265. All from Environment Canada Information (3 February 2005). Atlantic Region staff informed the Secretariat during a 3 February 2005 meeting that in 1997 or 1998, the regional program and enforcement staff were placed into separate units.

266. All from Environment Canada Information (3 February 2005).

267. Environment Canada Information (3 February 2005).

monthly reports from the mills anyway. I do see the need for inspections as a way of verifying the results the mills present to us. I realize that one inspection may not seem to be a lot but with the one by us and another by yourselves, it provides us with some assurance that compliance is verified. We have been requested and released mill compliance information for the region to the Sierra Legal Defence Fund. This group has a lot of respect in the environmental community and would be very disappointed and aggressive if they perceive that we are not inspecting these mills. I know they have requested similar information in other regions in the country and will compare the number of inspections from region to region. Therefore, I feel it is important to do these inspections.

As far as the cost is concerned, I explained that we would do the toxicity tests at our lab in Moncton. . . . We only require a sample for the trout toxicity test. This involves collecting 4 five-gallon pails of effluent. The TSS and BOD samples can be collected as a split sample from the mill's composite. . . . Your inspection people . . . are welcome to accompany our inspectors during the first inspection in the summer if they are not sure what is involved.²⁶⁸

6.6 *Relevant Provincial Laws, Regulations and Policies*

This section provides background on the main provincial laws and regulations applicable to pulp and paper mill effluent in Ontario, Quebec, New Brunswick, Nova Scotia and Newfoundland and Labrador.

6.6.1 *Ontario*

The *Environmental Protection Act* ("OEPA") and the *Ontario Water Resources Act* ("OWRA") are the principal pollution control statutes addressing sources of water pollution in Ontario. The *EPA* and the *Effluent Monitoring and Effluent Regulations* made under it create a regulatory framework for effluent control in the pulp and paper sector. However, permitting and enforcement by the Ontario Ministry of Environment occurs under the *OWRA*. In addition to these two statutes, the *Lakes and Rivers Improvement Act* ("OLRIA") also applies to the discharge of mill effluent to certain water bodies.

6.6.1.1 *Ontario Environmental Protection Act and Effluent Monitoring and Effluent Regulations*

Section 6 of the *OEPA* forbids the discharge of any contaminant to the natural environment in amounts, concentrations or levels exceeding the limits prescribed by regulations.²⁶⁹ Section 14 of the *OEPA* makes it

268. Environment Canada Information (16 May 2005).

269. *OEPA*, s. 6; Willms and Shier report (August 2004), at 10.

an offense to “discharge a contaminant or cause or permit the discharge of a contaminant into the natural environment that causes or is likely to cause an adverse effect.”²⁷⁰ Pulp and paper mill effluent are regulated under Ontario Regulation 760/93, *Effluent Monitoring and Effluent Limits – Pulp and Paper Sector*, which was adopted pursuant to the OEPA.²⁷¹ This regulation establishes detailed requirements relating to the sampling, monitoring, and maximum effluent concentrations for pulp and paper mills.

Section 2 of the *Effluent Monitoring and Effluent Limits – Pulp and Paper Sector* sets out the purpose of the regulation:

The purpose of this regulation is to monitor and control the quality of effluent discharged from the plants listed in Schedule 1 and to require dischargers to prepare reports that describe methods that could be used to work towards the Ministry’s goal of eliminating the generation of [absorbable organic halide] at dischargers’ plants by the year 2002.²⁷²

The mills listed in Schedule 1 include the Interlake mill in St. Catharines, now owned by Kimberly-Clarke, which is one of the ten mills listed in Council Resolution 03-16.

Daily loading limits and monthly average loading limits for various substances are prescribed by the Regulation for each plant. Schedule 2 sets out the daily and monthly average limits (in kg/day) and monitoring frequencies for BOD, TSS, chloroform, toluene, phenol, and total phosphorus. Daily plant limit loadings and monthly average plant limit loadings in kg/day are also set out in the Schedule.²⁷³

The Regulation prescribes monthly acute lethality tests on rainbow trout²⁷⁴ and *Daphnia magna*.²⁷⁵ The trout and *Daphnia magna* lethality test procedures required under the Regulation are the same as the tests required under the PPER.²⁷⁶ For both rainbow trout and *Daphnia magna*, lethality testing may be reduced to a quarterly basis provided the mill passes the test for twelve consecutive months.²⁷⁷ The failure of a quar-

270. OEPA, s. 14(1).

271. *Effluent Monitoring and Effluent Limits – Pulp and Paper Sector*, O. Reg. 760/93.

272. *Ibid.*, s. 2.

273. *Ibid.*, s. 14(4, 6). The Regulation allows mills to revise total loading limits for TSS, BOD matter and other regulated substances to reflect changes in the rate of production of finished product, s. 15.

274. *Ibid.*, s. 23(3).

275. *Ibid.*, s. 24.

276. *Ibid.*, ss. 23(1), 24(1).

277. *Ibid.*, ss. 23(6), 24(2). Mills that are entitled to conduct quarterly lethality testing are required to perform chronic toxicity tests on fathead minnows and *Ceriodaphnia dubia* every six months. *Ibid.*, s. 25.

terly test requires the mill to return to monthly testing until the mill has once again passed the test for a period of twelve consecutive months.²⁷⁸

The regulation requires pulp and paper mills to maintain detailed electronic records of all analytical results relating to monitoring requirements, including records of maintenance and calibration procedures.²⁷⁹ All of the required data must be reflected in a publicly available annual report that must be submitted to the Ontario Ministry of Environment no later than June 1 of the following calendar year.²⁸⁰ In addition, mills are required to provide the Ontario Ministry of Environment with detailed quarterly reports relating to monitoring, monthly average volumes, lowest daily plant loadings, highest and lowest pH results and number of days that the process effluent was discharged from the pulp and paper mill.²⁸¹ Mills are also required to report to the Ontario Ministry of the Environment when effluent by-passes a sampling point before being discharged, as well as any loadings, concentrations or other results that exceed the limits established under the regulations.²⁸² As well, under the *OEPA*, every person who discharges or causes or permits the discharge of a contaminant into the natural environment that causes or is likely to cause an adverse effect must forthwith notify the Ministry of Environment.²⁸³ In addition, the *OEPA* imposes an obligation to report and clean up spills and provides for civil liability for damages caused by spills.²⁸⁴

Under s. 186 of the *OEPA*, any contravention of the *OEPA* or its regulations, as well as failure to comply with an order issued under the Act or with a term or condition of a certificate of approval, license or permit issued under the Act, is considered an offense. Section 187 sets out penalties for both individuals and corporations. Any individual who contravenes the *OEPA* or its regulations is subject to a fine of up to \$20,000 for each day on which the offense occurred.²⁸⁵ For subsequent convictions, offenders are subject to a maximum fine of \$50,000 per day and imprisonment of up to one year.²⁸⁶ For corporations, the maximum daily penalty is a fine of \$100,000 for a first conviction and a fine of \$200,000 for subsequent convictions.²⁸⁷ Regarding the penalties for subsequent

278. *Ibid.*, s. 23(11).

279. *Ibid.*, s. 30.

280. *Ibid.*, s. 31.

281. *Ibid.*, s. 34.

282. *Ibid.*, s. 33.

283. *OEPA*, s. 15(1).

284. *OEPA*, ss. 92, 93 and 99.

285. *Ibid.*, s. 187(1).

286. *Ibid.*

287. *Ibid.*, s. 187(2).

convictions, prior convictions include those under the *OWRA*, the *OEPA* or the Ontario *Pesticides Act*.²⁸⁸

The *OEPA* provides for increased penalties for certain offenses, including those that pose or may pose a risk of an adverse effect and those that result in an adverse effect. The maximum penalty for individuals for offenses that pose or may pose a risk of an adverse effect is imprisonment of one year and a fine of \$50,000 (\$100,000 for subsequent convictions), and for corporations a fine of \$250,000 (\$500,000 for subsequent convictions).²⁸⁹ Prior to November 2000, the maximum penalty for individuals for offenses that resulted in an adverse effect was imprisonment of two years less one day and a fine of \$100,000 (\$200,000 for subsequent convictions), and for corporations a fine of \$1,000,000 (\$2,000,000 for subsequent convictions).²⁹⁰ Since November 2000, offenses resulting in an adverse effect have been subject to a maximum penalty for individuals of imprisonment of five years less one day and a fine of \$4,000,000 (\$6,000,000 for subsequent convictions), and for corporations a fine of \$6,000,000 (\$10,000,000 for subsequent convictions).²⁹¹

As with the *Fisheries Act*, the defenses of due diligence and mistaken set of facts are available to any person or corporation charged with an offense under the *OEPA*.²⁹²

In addition to prosecution, the *OEPA* gives the Ontario Ministry of Environment the authority to issue control orders, which are based on a finding that a contaminant is being discharged in a manner contrary to regulations, and stop orders, which are based upon reasonable and probable grounds that the discharge of a contaminant constitutes an immediate danger to human life or health or to property.²⁹³ The Ministry may also order a person causing or permitting the discharge of a contaminant that injures, damages or endangers, or is likely to injure, damage or endanger, land, water, property, animal life, plant life or human health or safety, to repair or prevent the injury or damage, or to provide alternate water supplies if the discharge has damaged or endangered, or is likely to damage or endanger, existing water supplies.²⁹⁴ The *EPA* also empowers the Ministry to issue orders to prevent, decrease or eliminate the adverse effect of a contaminant.²⁹⁵

288. *OEPA*, s. 188; W+SEL report (August 2004), at 13.

289. *OEPA*, ss. 4 and 5.

290. *Ibid.*, ss. 7 and 8.

291. *Ibid.*

292. W+SEL report (August 2004), at 13.

293. *OEPA*, ss. 7, 8.

294. *Ibid.*, s. 17.

295. *Ibid.*, s. 18.

6.6.1.2 Ontario *Water Resources Act*

The *OWRA* is a general water management statute governing water quality and quantity. The *OWRA* regulates the use of water and the discharge of wastewater to water bodies and grants the Ontario Ministry of the Environment the authority to issue permits for discharges into surface water.²⁹⁶ Section 30 of the *OWRA* makes it an offence to discharge, or to cause or permit to be discharged, any material into any waters that may impair the quality of the waters.²⁹⁷ During the time periods relevant to the factual record, waters were considered impaired when the material discharged had either caused, or had the potential to cause, harm to any person, animal, bird or other living matter, or where there had been harm to any living matter caused by the consumption of any plant, fish or other living matter in the water, or in the soil in contact with the water.²⁹⁸ The *OWRA* requires that the Minister of Environment be notified immediately of any discharges that occur outside of the normal course of events or that could impair water quality.²⁹⁹ While this provision applies to pulp and paper mills, as explained above, the *OEPA* sets out regulations specifying the amount of TSS, BOD matter and other substances that mill effluent are permitted to contain.

Unlike with the *Fisheries Act*, to establish that an offence has occurred under section 30(1) of the *OWRA*, it must be proven beyond a reasonable doubt that the discharge may impair water quality. In *R. v. Inco Ltd.*, the Ontario Court of Appeal held that in determining whether a substance that is not inherently toxic impairs the quality of the water, the amount, concentration and length of time the discharge occurred must be considered.³⁰⁰ Inherently toxic substances have the ability to impair the quality of water in any concentration, and discharge of any amount of inherently toxic substances will be found to have the ability to impair water quality and is therefore proscribed.³⁰¹

296. *Ibid.* at 13, 15.

297. Specifically, s. 30(1) states:

Every person that discharges or causes or permits the discharge of any material of any kind into or in any waters or on any shore or bank thereof or into or in any place that may impair the quality of the water of any waters is guilty of an offence.

Ontario Water Resources Act, R.S.O. 1990, c. E.19 at s. 30(1).

298. *Ibid.*, s. 28.

299. *Ibid.*, s. 30(2).

300. *R. v. Inco*, 54 O.R. (3d) 495 (Ont. C.A.), [2001] O.J. No. 2098.

301. *Ibid.* The Ontario Court of Appeal established a two-tier test and held at paragraph 52: "The Imperial Oil test should be applied when determining whether an offence under s. 30(1) has been made out. Inherently toxic substances will always fail that test, reflecting the zero-tolerance for discharging materials that, by their nature, may impair water quality. If the material in the discharge is not inherently toxic, then it will be necessary to consider the quantity and concentration of the discharge as well as the time frame over which the discharge took place."

Under s. 107, any contravention of the *OWRA* or its regulations, or of a term or condition of a license, permit or approval made under the Act, is considered an offense. Sections 108 and 109 set out the maximum penalties for individuals and corporations. The penalties for violations of the *OWRA* are the same as those for the *OEPA*, including the enhanced penalties for offenses that pose or may pose a risk of impairment of water quality and offenses that impair water quality and the increases in those enhanced penalties that took effect in November 2000.³⁰² The *OWRA*, like the *OEPA*, also gives the Ontario Ministry of the Environment the authority to issue orders.³⁰³

6.6.1.3 Ontario *Lakes and Rivers Improvement Act*

The purpose of the *OLRIA* is to manage, protect and preserve the use of the waters of lakes and rivers.³⁰⁴ The *OLRIA* also regulates the management and use of fish, wildlife and other natural resources that are dependent on the lakes and rivers. The Ministry of Natural Resources is responsible for administering and enforcing the provisions of the *OLRIA*.³⁰⁵ The *OLRIA* prohibits anyone from throwing, depositing or discharging any refuse or substance into a lake or river.³⁰⁶ The *OLRIA* defines mills as “any plant or works in which logs or wood-bolts are processed,” which includes saw mills, pulp mills and pulp and paper mills. The Ontario Minister of Natural Resources has the ability to order the removal of a substance from the lake or river.³⁰⁷ Generally, the Ontario government does not rely upon the *OLRIA* to prosecute mills who are unlawfully discharging substances to surface water.³⁰⁸

6.6.1.4 Ontario compliance and enforcement policy

The Ontario Ministry of the Environment has adopted a Compliance Guideline describing the ministry’s approach for using both abatement and enforcement to achieve province-wide compliance with the laws and regulations for which the ministry is responsible, including the *OEPA* and the *OWRA*.³⁰⁹ The *Compliance Guideline* defines abatement as “measures to bring about and maintain compliance, usually focused

302. *OWRA*, ss. 108-09; Willms and Shier Report (August 2004), at 15.

303. See *OWRA*, s. 16.

304. *Lakes and Rivers Improvements Act*, R.S.O. 1990, c. L.3.

305. W+SEL report (August 2004), at 16.

306. *LRIA*, ss. 36, 38.

307. *Ibid.*, s. 36(2).

308. W+SEL report (August 2004), at 16.

309. Ontario, Ministry of the Environment, *Compliance Guideline*, Guideline F-2 (1995).

directly on the control, prevention, reduction and elimination of pollution.”³¹⁰ Regarding enforcement, the *Compliance Guideline* states:

In general, this entails an investigation by staff of the Investigations and Enforcement Branch (IEB), to determine whether reasonable and probable grounds exist for laying charges in order to penalize non-compliance or to compel compliance with the legislative and regulatory requirements of the ministry. Enforcement may include issuing a *Provincial Offences Act* (POA) ticket or summons by any provincial offences officer. Enforcement which is prompt and certain serves as a general deterrent to others who might be tempted to contravene the environmental laws and regulations.³¹¹

The *Compliance Guideline* confirms that at any stage of the abatement process the ministry may pursue enforcement action as a means of addressing violations.³¹²

To pursue an abatement approach, the ministry has the authority to issue a “voluntary abatement request” that the person responsible undertake a voluntary abatement program, although approval of such a program does not affect the decision whether to prosecute for ongoing or past non-compliance.³¹³ A program approval is a form of voluntary abatement that is authorized under ss. 10 and 11 of the *OEPA*.³¹⁴ It must be approved by the Director and is subject to public notification and consultation.³¹⁵ Failure to comply with a program approval can result in prosecution for the original violation for which the abatement program was established, or in mandatory abatement.³¹⁶ Mandatory abatement involves the issuance of control documents, which include orders authorized by statute, or authorizing documents, which include permits, certificates of approval or other documents authorized by statute that permit or control an activity.³¹⁷ Control documents and authorizing documents are directly enforceable.³¹⁸

Enforcement is initiated when the ministry’s Investigation and Enforcement Branch (IEB) receives an occurrence report regarding a possible violation and determines that further investigation is war-

310. *Compliance Guideline*, at 1.0.

311. *Ibid.*

312. *Ibid.*, Synopsis.

313. *Ibid.*, s. 5.0.

314. *Ibid.*, s. 5.4.

315. *Ibid.*

316. *Ibid.*, ss. 5.3, 5.4, 5.6, 6.0.

317. *Ibid.*, ss. 1.0, 6.0.

318. *Ibid.*

ranted.³¹⁹ Investigations are conducted to establish whether reasonable and probable grounds exist for laying charges. In determining whether enforcement action is appropriate the IEB considers:

- the seriousness of the violation, including whether there is a significant risk to, or an adverse effect on human, plant or animal life, property or the environment;
- the seriousness of the violation in the context of the ministry's overall regulatory scheme, including the effect of the violation on achieving air or water quality objectives;
- whether the violation appears to have been deliberate;
- whether the violation appears to be the result of negligence;
- whether the violation has been repeated or is ongoing;
- whether the offender demonstrates a negative attitude towards complying with environmental legislation;
- whether pertinent information has been concealed;
- whether ministry warnings have been disregarded;
- the offender's compliance record;
- the deterrent effect of enforcement action;
- whether enforcement is necessary to maintain the integrity of the regulatory process; and
- whether the failure to pursue enforcement action would tend to bring the law into disrepute.

The ultimate decision whether to prosecute rests with the Ontario Attorney General.³²⁰

6.6.2 Quebec

The principal laws and regulations addressing pulp and paper mill effluent in Quebec are the *Environment Quality Act* and the *Regulation Respecting Pulp and Paper Mills*. This section describes the relevant provisions of those laws and regulations and the policies for enforcing and seeking compliance with them.

319. *Ibid.*, s. 9.0.

320. *Ibid.*, s. 9.6.

6.6.2.1 The Quebec *Environment Quality Act*

The generally applicable Quebec law governing discharges of pollutants to surface waters is the *Environment Quality Act* (“QEQA”),³²¹ which was first enacted in 1972.³²² Among other things, the QEQA contains provisions regarding the emission of contaminants into the environment, the right to a healthy environment, and depollution attestations. Table 6 provides a summary of the matters addressed by relevant provisions of the QEQA, several of which are discussed in more detail below.

Table 6. Relevant Provisions of the Quebec EQA

<i>EQA</i> section	Matter addressed
19.1-19.7	Right to a healthy environment and to the protection of living species; certain individuals, municipalities and Quebec Attorney General empowered to seek injunctions to protect this right.
20	Prohibition of contamination contrary to regulations or such as to be likely to affect human life, or damage environment, etc.
22-24	General requirement that industrial establishments obtain authorization from the Minister to undertake or expand an industry that discharges contaminants.
25-26	Ministerial orders and emergency orders authorized to stop or limit the release of contaminants contrary to section 20.
27	Ministerial orders authorized to require installation of equipment to reduce or eliminate release of contaminants or equipment to sample, measure and analyze contamination.
31	Quebec government empowered to make regulations.

321. R.S.Q., c. Q-2. A good general introduction to the law in 1996 (and applicable to the time to be covered by the factual record) is provided by Lorne Giroux, “La Loi sur la qualité de l’environnement: grands mécanismes et recours civils”, in Service de la formation permanente du Barreau du Québec, *Développements récents en droit de l’environnement* (1996), pp. 263-349.

322. *Environment Quality Act*, S.Q. 1972, c. 49.

<i>EQA</i> section	Matter addressed
31.1-31.9	Impact assessment, public hearing (if requested) and government authorization required to build new paper mills.
31.10-31.41	Depollution attestation requirements.
32	Specific requirement of Ministerial authorizations for waste water treatment.
96	Allowing orders of the Minister to be contested before the Administrative Tribunal of Quebec, with certain exceptions.
106.1	An offense under s. 20 for release of a contaminant where prohibited or in a quantity prohibited by regulation, is punishable for corporations by a fine of \$6,000 to \$250,000, of \$50,000 to \$1,000,000 for a second offence and of \$500,000 to \$1,000,000 for any additional offence.
107	Failure of an individual to produce information or reports as required by the <i>QEQA</i> or regulations is an offense punishable by a fine of \$500 to \$12,000 for the first infraction and \$1,000 to \$20,000 for additional offenses. For a corporation found guilty of such a violation, the minimum fine shall be three times higher and the maximum fine six times higher.
109-109.1	All breaches of the Act or regulations for which no penalty is provided are infractions giving rise to fines of \$300 to \$5,000; the government has the power to prescribe higher fines by regulation.
109.1.1	Provides for additional remedies upon conviction, including court orders for corrective or remedial measures and reimbursement of government clean-up costs.
109.1.2	Provides for an additional fine equivalent to the amount of the pecuniary benefit derived from the infraction.
110	Makes each day of infraction a separate offense.
110.1	Sets two-year time-limit for penal proceedings under the <i>QEQA</i> .

Table 6. (cont.)

EQA section	Matter addressed
120.1-121	Provides for search and seizure in accordance with the Quebec Code of Penal Procedure for the enforcement of the <i>QEQA</i> and regulations.
122.1 et seq.	Provide for amendment or cancellation of authorizations issued on the basis of erroneous information or of failure of a holder to comply with the authorization, the <i>QEQA</i> or its regulations.

6.6.2.1.1 *Emission of contaminants, certificates of authorization and the right to a healthy environment*

Section 20 of the *QEQA* states:

No one may emit, deposit, issue or discharge or allow the emission, deposit, issuance or discharge into the environment of a contaminant in a greater quantity or concentration than that provided for by regulation of the Government.

The same prohibition applies to the emission, deposit, issuance or discharge of any contaminant the presence of which in the environment is prohibited by regulation of the Government or is likely to affect the life, health, safety or comfort of human beings, or to cause damage to or otherwise impair the quality of the soil, vegetation, wildlife or property.³²³

Where a discharge of a contaminant occurs, the person responsible has a duty to immediately notify the Minister.³²⁴ The Minister may make various orders, including ordering the person responsible to temporarily or permanently cease the discharge of the contaminant, or specify the use of particular pollution-control or monitoring equipment.³²⁵ The Minister may also issue emergency orders where the Minister believes that there exists an immediate danger to the life or health of persons or a danger of serious or irreparable harm to property.³²⁶ The regulations on discharge of contaminants, including those applicable to pulp and paper mill effluent, are made under *QEQA*, s. 31. The s. 20 general prohibition against discharge of contaminants is backed by penal provisions.³²⁷

323. *Environment Quality Act*, R.S.Q., c. Q-2.

324. *Ibid.*, s. 21.

325. *Ibid.*, ss. 25, 27.

326. *Ibid.*, s. 26.

327. S.Q. 1972, c. 49, s. 106. In 2000, the relevant provision was *QEQA*, s. 106.1, with corporate fines of up to \$250,000 for a first offense.

Section 22 of the *QEQA* requires a ministerial certificate of authorization for new or increased production in an industry likely to result in the emission or discharge of contaminants in the environment. This authorization requirement, and the companion requirement under s. 32 of a certificate of authorization for the installation of devices for treatment of waste water, calls for authorizations to be granted as of a specified date, on the basis of plans and specifications. Such authorizations are required even where contaminant discharge is specifically dealt with by regulations, as with pulp and paper mills.³²⁸ However, authorizations make no provision for ongoing monitoring, regulation and progressive reduction of discharge loadings.³²⁹

Sections 19.1 to 19.7 of the *QEQA*³³⁰ provide for the right to a healthy environment and to its protection to the extent provided for by the *QEQA* and its regulations and authorizations and allow specified individuals, affected municipalities or the Quebec Attorney General to seek injunctions and interlocutory injunctions to prohibit acts or operations which interfere or might interfere with the exercise of this right.³³¹ Approved undertakings, including undertakings for which a “depollution attestation”³³² is issued, are exempt from suits for injunction unless the plaintiff can establish contravention of an approval, regulation, or decontamination certificate or demonstrate that an entire certificate of approval is null and void.³³³ Violation of the regulations applicable to pulp and paper mills removes the immunity from suits for injunctions offered by s. 19.7.³³⁴

Penalties for violating relevant provisions of the *QEQA* are set forth in ss. 106-110 and are summarized in Table 6, above. For illegal releases of contaminants into the environment, the penalties for corpora-

328. Gertler Report (August 2004), at 4.

329. *Ibid.*

330. The right to a healthy environment was added to the *QEQA* in 1978. *An Act to amend the Environment Quality Act*, S.Q. 1978, c. 64.

331. Gertler Report (August 2004), at 4; *QEQA*, ss. 19.1-19.7.

332. The French regulation refers to “attestation d’assainissement.” The English version of the regulation translates “attestation d’assainissement” as “depollution attestation.” This may be thought of as a certificate of pollution reduction or pollution control. Depollution attestations are permits issued pursuant to the Quebec Ministry of the Environment’s Industrial Discharge Program. The attestation “seeks to allow for a progressive reduction of industrial discharges and permits industries to plan reduction. The Attestation sets out the norms relating to the discharge of contaminants that are applicable to an establishment, as well as any corrective program or management plan.... The Regime seeks to consolidate the obligations that are found in environmental permits and legislation that is applicable to an industry.” Quoted from Faskin Martineau’s *EnvironBulletin*, June 2002.

333. *QEQA*, s. 19.7 (first exception).

334. See *Regulations respecting pulp and paper mills*, R.R.Q., c. Q-2, r. 12.1, *infra*.

tions range from \$6,000 to \$1,000,000. Penal proceedings can only be brought within two years of the commission of the offense, except in cases of false representation or for offenses relating to hazardous waste, for which proceedings can be brought within two years of becoming aware that the offense has been committed.³³⁵ Relevant offenses include:

- failure to notify the Minister about the accidental presence of a contaminant (s. 106);
- pollution offenses, such as emitting, depositing, releasing or discharging into the environment, or allowing the deposit, release, or discharge into the environment for which the Minister has refused to issue a “depollution attestation” (s. 31.11);
- general offense of contravening the Act or a regulation (s. 109).

In addition to the monetary penalties provided for in sections 106-109.1, a judge may also order an offender to take any remedial measures to “return things to the state they were in before the offense took place.”³³⁶ Where someone refuses or neglects to comply with any order under the Act, the Minister also has the powers to undertake the work and recover the cost from the offender by court order.³³⁷

6.6.2.1.2 Depollution attestations

In 1988, provisions calling for “depollution attestations” were added to the *QEQA*, as part of the Ministry of the Environment’s development of a new *Programme de réduction des rejets industriels* (PRRI).³³⁸ The 1988 PRRI initiative was designed to address the problem of contaminants and industrial pollution through an integrated multimedia approach using renewable operating permits, and to update and render more effective the regulatory regime in place for the large industrial polluters.³³⁹ The “depollution attestation” provisions did not come into force until April 28, 1993,³⁴⁰ and became fully operational with

335. *Ibid.*, s. 110.1.

336. *Ibid.*, s. 109.1.1.

337. *Ibid.*, s. 113.

338. *QEQA*, ss. 31.10-31.41; see *An Act to amend the Environment Quality Act and other legislation*, S.Q. 1988, c. 49, s. 8; Gertler Report (August 2004), at 12.

339. All from Gertler Report (August 2004), at 12. For a description of the history and policy context, see Paule Halley, “Les permis d’exploitation négociés et la réglementation environnementale”, in Service de la formation permanente du Barreau du Québec, *Développements récents en droit de l’environnement*, 2003 (vol. 193), Cowansville, Éditions Yvon Blais, pp. 221-264, at pp. 224-228.

340. Décret 600-93, 28 April 1993, 125 G.O.Q. II.

respect to the pulp and paper industry only as of June 2000. Nonetheless, since at least 1993, the approach, mechanisms, policy context and transition to depollution attestations for the pulp and paper sector form part of the legal and policy context for the provincial administrative and enforcement effort regarding the sector.³⁴¹

A depollution attestation is a five- or ten-year renewable operating permit that sets the conditions for the discharge and reduction over time of contaminants for each facility in the sectors covered.³⁴² The permit includes a description of points of emission of contaminants into the environment, as well as detailed conditions regarding applicable effluent or emissions standards, ongoing monitoring of effluent data, and other applicable regulatory requirements or requirements imposed by the Ministry of Environment.³⁴³ After negotiating a proposed depollution attestation with an industrial establishment, the Ministry of Environment must notify the public of the proposed attestation or a decision not to issue one, and must allow 45 days for public consultation.³⁴⁴ Once a depollution attestation is issued, *QEQA* s. 31.23 requires its holder to comply with its contaminant discharge standards, notify the Minister of any accidental releases of contaminants, keep records, furnish reports and other information requested by the Minister and inform the Minister of contraventions.

A depollution attestation must reflect regulatory requirements and, in certain circumstances in which regulatory requirements are deferred or do not adequately protect the environment, requirements that the Minister of Environment imposes different from those imposed by regulation.³⁴⁵ Under s. 31.15 of the *QEQA*, if the contaminant discharge standards set by government regulations³⁴⁶ are insufficient to ensure environmental protection, the Minister may establish other standards for each industrial establishment and set a date by which those standards must be achieved. The Minister may also defer the application of a general regulatory standard when measures for meeting that standard would interfere with the introduction of the measures necessary to

341. Gertler Report (August 2004), at 12.

342. *QEQA*, s. 31.27. Only establishments that begin operations after the coming into force of the order defining the class of industrial establishments to which the establishment belongs are entitled to a ten-year term. *Ibid.*

343. *QEQA*, s. 31; Gertler Report (August 2004), at 13.

344. *QEQA*, ss. 31.18-31.22.

345. *QEQA*, ss. 31.12-31.13.

346. For pulp and paper mills, the relevant standards are those set by the *Regulation respecting pulp and paper mills, 1992*.

meet the more stringent discharge standards established by the Minister.³⁴⁷

Depollution attestations are only applicable to the classes of industrial establishments designated by order-in-council.³⁴⁸ In 1993, Quebec's sixty paper mills became the first sector subject to the new regime.³⁴⁹ All mills had to apply within six months for a depollution attestation.³⁵⁰ There followed seven years of studies, technical work and negotiations, with some public participation.³⁵¹ In June 2000, the first depollution attestations, valid for five years, were issued to mills by the Minister of Environment. As of 15 July 2002, 61 out of 62 Quebec pulp and paper mills had received a depollution attestation.³⁵²

In March 2000, the Quebec Ministry of Environment entered into a *Protocole d'entente* with the *Association des industries forestières du Québec* regarding the implementation of depollution attestations for the pulp and paper sector.³⁵³ Section 5.3 of this Agreement states that it does not affect or limit the powers of the Minister under the *EQA* nor the application of other laws and orders-in-council.³⁵⁴ The Agreement states that the first round of depollution attestations for the pulp and paper sector

347. *QEQA*, s. 31.15.

348. *QEQA*, s. 31.10.

349. O.C. 602-93, 26 May 1993, 125 G.O.Q. II, No. 22, p. 2799. It remained the only sector under the new regime until a further order-in-council on 1 May 2002 extended its application to the mining, non-metallic mineral products (e.g. cement) and metals smelting sectors: O.C. 515-2002, 134 G.O.Q. II, No. 20.

350. *QEQA*, s. 31.15.4 and *Regulations respecting industrial depollution attestations*, O.C. 601-93, 28 April 1993, 125 G.O.Q. II, No. 20, p. 2672.

351. Gertler Report (August 2004), at 13.

352. Environnement Québec, *Le Programme de réduction des rejets industriels et l'attestation d'assainissement*, Consultation on Internet: <<http://www.menv.gouv.qc.ca/programmes/prri/index.htm>>. This process of negotiated environmental permits has been a significant subject of the legal literature. See Paule Halley, "Les permis d'exploitation négociés et la réglementation environnementale", in Service de la formation permanente du Barreau du Québec, *Développements récents en droit de l'environnement*, 2003 (vol. 193), pp. 221-264; Paule Halley, "Les ententes portant immunité de poursuite et substitution de norme en droit de l'environnement québécois", (1998) 39 *Les Cahiers de Droit* 3-50; Paul R. Granda, "Les fabriques de pâtes et papiers: premières victimes de l'attestation d'assainissement", in Service de la formation permanente du Barreau du Québec, *Développements récents en droit de l'environnement*, 1994, pp. 223-289; and Maryse Grandbois, "Entre la déréglementation et la surréglementation: le droit québécois de l'environnement", (1999) 78 *Canadian Bar Review* 111-125.

353. *Protocole d'entente (AIFQ-MENV) sur la mise en œuvre des attestations d'assainissement dans le secteur des pâtes et papiers conformément à la section IV.2 de la LQE*, mars 2000.

354. *Ibid.*

will include the regulatory requirements, including discharge standards, that already apply to the sector, as well as any corrective programs that the Minister imposes under s. 31.15.1 of the *QEQA*.³⁵⁵ However, under the Agreement, the stricter discharge standards allowed by s. 31.15.2, as well as other provisions that allow the Minister to impose requirements that go beyond existing regulatory requirements, will not apply to the first round of attestations.³⁵⁶ Discussion of whether an agreement such as this, between an industry association and a government ministry regarding the ministry's exercise of statutory or regulatory powers, would apply to individual industrial establishments is beyond the scope of this factual record.³⁵⁷

Under s. 19.7 of the *QEQA*, an industrial establishment in compliance with its depollution attestation is immune from suits for injunction allowed under s. 19.2 of the *QEQA* to enforce the right to a healthy environment. However, a depollution attestation does not immunize a facility from the general prohibition of the discharge of the contaminants set out in *QEQA* s. 20.³⁵⁸ Nonetheless, a depollution attestation might serve as the basis for a defense of due diligence in the case of any such prosecution.³⁵⁹

6.2.2.2 Quebec Regulation Respecting Pulp and Paper Mills

A new *Regulation respecting pulp and paper mills*³⁶⁰ (*RRPPM*) came into force on 22 October 1992, replacing prior regulation adopted in 1979.³⁶¹ Under its transitional provisions, it entirely replaced the old regulation by 31 December 1996.³⁶² The 1992 regulation regulates mill effluent with respect to total suspended solids (TSS), five-day biochemical oxygen demand (BOD₅), adsorbable organic halogens (AOH), chlorinated dioxins and chlorinated furans, hydrocarbons, polychlorinated biphenyls (PCBs), effluent pH, toxicity and temperature.

355. *Ibid.*

356. *Ibid.*

357. See Paule Halley, "Les permis d'exploitation négociés et la réglementation environnementale", in Service de la formation permanente du Barreau du Québec, *Développements récents en droit de l'environnement, 2003* (vol. 193), p. 221 at pp. 239-242.

358. Gertler Report (August 2004), at 14.

359. *Ibid.*

360. O.C. 1353-92, 16 September 1992, 124 G.O.Q. II, No. 43, p. 4453 (hereinafter "*Regulation respecting pulp and paper mills, 1992*").

361. R.R.Q. 1981, c. Q-2, r. 12 (hereinafter "old regulation" or "*Regulation respecting pulp and paper mills, 1979*").

362. *Regulation respecting pulp and paper mills, 1992*, ss. 155-158.

Sections 8 through 22 of the *RRPPM* set out the general standards for mill effluent quality. These provisions:

- require a submerged outfall (s. 8);
- prohibit visible foam on the surface of the watercourse at the point of discharge (s. 9);
- require that final effluent pH be between 6.0 and 9.5 (s. 10) and that its temperature be lower than 65 °C (s. 12);
- set limits on the discharge of hydrocarbons (s. 13), chlorinated dioxins and chlorinated furans (s. 14) and PCBs (s. 15);
- prohibit the discharge of acutely lethal effluent (s. 16), where acute lethality is defined in reference to lethality to rainbow trout, the same as with the federal *PPER*;³⁶³
- prohibit dilution of effluent (s. 17); and
- only allow mixing of effluent under certain conditions (s. 18-19).

For mills already in existence on 22 October 1992, ss. 25-33 set average or daily discharge limits, calculated by multiplying average production by an average or daily factor in kg/ton of production, for TSS, BOD₅ and AOH, expressed in kg of loading per ton of production. Sections 34-42 of the regulations establish a similar set of standards for the final effluent from new mills.

Table 7 shows the effluent discharge standards for TSS, BOD and lethality in the 1992 regulation which were applicable in 2000:

363. 50% trout mortality in a 96-hour assay in undiluted effluent.

Table 7. Quebec Effluent Discharge Standards³⁶⁴

Parameters			Mills	
			Existing mills ¹	New mills ²
TSS ³	Daily	kg/mtp ⁴	16	6
	30-day Average	kg/mtp ⁴	8	3
BOD ₅ ³	Daily	kg/mtp ⁴	8	4
	30-day Average	kg/mtp ⁴	5	2.5
Acute Lethality ³ (rainbow trout)		UTa (toxic unit) ⁵	1	1

1. Mills for which construction was completed before October 22, 1992.
2. Mills for which construction was completed on or after October 22, 1992.
3. These norms do not apply for mills whose final effluent go into a domestic or combined municipal sewer systems.
4. Metric tonne of production (10% moisture).
5. Defined in s. 1 as 50% mortality of trout in 96-hour bio-assay.

The Quebec regulation limits daily suspended solids discharges to 16 kg/t product for existing mills, whereas the *PPER* value is 18.75 kg/t. However the “ton” in the Quebec regulations is the average of the previous 30 days, whereas Canada uses the “reference production rate” (RPR). This value is defined as “the highest value of the 90th percentiles of the daily production of finished product at the mill for any of the previous three years.”³⁶⁵ The RPR is normally above the average production rate for 30 days. Typically, it is roughly 10% above the average rate, but the actual values vary from day to day, and there is no consistent correlation. Because the reference production rate is generally higher than average production and the applicable standard is 15% lower than the federal standard, allowable daily discharges of TSS under Quebec regulations are lower and stricter than those of the *PPER*. The Quebec regulation limits daily discharges of BOD to 8 kg/t, whereas the *PPER* value is 12.5 kg/t, so that for most scenarios, the Quebec regulation is more stringent than the federal one for BOD. The Quebec regulation on acute lethality to rainbow trout is equivalent to *PPER*.³⁶⁶

364. Adapted from Ministère de l'Environnement, *Bilan annuel de conformité environnementale: secteur des pâtes et papiers 2001*, Publications du Québec, Tableau 2, part 2.2, <<http://www.env.gouv.qc.ca/publications/2003/ENV20030098.htm>>.

365. *PPER*, s. 12.

366. All from McCubbin report.

Sections 63-85, require continuous monitoring of flow, pH and temperature; daily measurements of TSS and BOD₅, weekly measurements of hydrocarbons, monthly measurement of chemical oxygen demand and of certain metals; measurement of AOH three times per week (for chlorine-process mills); monthly measurement of PCB, chlorinated dioxins and furan and chlorofinal levels (for chlorine-process mills); and monthly acute toxicity and resinic and fatty acid samples. Under s. 85, within thirty days following the end of each month, the results of these measurements must be forwarded to the Quebec Environment Minister together with production data, a report on compliance and reasons for any violation of the standards. The operator must also keep a register of these data for two years. The Ministry of Environment carries out a sampling program to verify the validity of data obtained through self-reporting.³⁶⁷

Division VI (sections 152-154) of the 1992 regulation provides for penalties. For corporations, depending on the nature of the offense, the fines range from \$12,500 to \$500,000 for a first offense and double for repeat offenses.

6.6.2.3 Quebec compliance and enforcement policy

Prosecutions of *QEQA* offenses and offenses under the *RRPPM* are penal procedures subject to a 2-year limitations period. Penal procedure in Quebec is governed by the Quebec *Code of Penal Procedure*.³⁶⁸ Penal proceedings in Quebec are begun by “a statement of offense” (“constat d’infraction”) under s. 144 of the *Code*. Section 60 of the *Code* recognizes the defenses, justifications and excuses generally applicable in penal matters and in criminal matters. Therefore, the general law on the defenses such as the defenses of due diligence, mistake of fact and officially induced error applies to prosecution of the strict liability offenses created by ss. 106-109.1 of the *QEQA* and by the Quebec *RRPPM*.³⁶⁹

367. Ministère de l’Environnement, *Bilan annuel de conformité environnementale: secteur des pâtes et papiers 2001*, Publications du Québec, part 3.3.

368. R.S.Q., c. C-25.1, s. 1.

369. See *R. v. Sault Ste. Marie*, [1978] 2 S.C.R. 1299; *R. v. Wholesale Travel Group*, [1991] 3 S.C.R. 154 and *Alex Couture Inc. v. Piette* (1991), 5 C.E.L.R. (N.S.) 314 (Que. C.A.) at 327. *Alex Couture* was a prosecution under *QEQA*, s. 20 in which the Court of Appeal referred to the defense of due diligence as available under the general law. Under Quebec’s *Regulation respecting pulp and paper mills, 1979*, the Superior Court ruled that allowing discharge of mill waste was a strict liability offense for which the defense of due diligence was available: *Procureur général du Québec v. Domtar Inc.*, Sup. Ct. St-François, no. 450-36-000007-956, 30 May 1995 (Péloquin j.c.s.) (leave to appeal refused by the Quebec Court of Appeal). In contrast, the federal *Fisheries Act* partially codifies the due diligence defense. *Fisheries Act*, s. 78.6.

The Quebec Ministry of Sustainable Development, Environment and Parks (formerly the Ministry of Environment) informed the Secretariat that the approach for enforcing and seeking compliance with the *RRPPM* is set out in a 250-page “Guide sur le processus d’inspection” used by the Inspectors at the ministry’s regional offices.³⁷⁰ The Guide was updated in 1994 and 1996 and is now in the process of being updated again. The inspection guide is a non-public document used by ministry personnel, and the ministry staff contacted did not provide it to the Secretariat. However, ministry staff explained to the Secretariat the general approach used to enforce the *RRPPM*. Ministry staff explained that every mill in Quebec is subject to a control action at least once a year. A control action can be either an on-site inspection or an off-site verification of information that a mill has provided through mandatory reporting. If non-compliance is observed in the course of a control action, the ministry can issue the mill an administrative warning (“avis d’infraction”) and require a corrective action plan with a deadline for correcting the non-compliance. At the expiration of the deadline, the ministry will confirm whether or not the corrective action was taken. If it was, the ministry usually closes the file, although it retains discretion to assemble evidence and to seek a penalty through a prosecution. If the corrective action was not taken, the ministry will either extend the deadline for the non-compliance to be corrected or conduct an investigation to gather evidence for a civil action for injunction or remedial order or a penal action for sanctions, or both. Penal actions are initiated with a notice of violation (“constat d’infraction”). The decision to seek a civil or penal remedy in court is taken by the Justice Ministry, on the recommendation of the environment ministry.

6.6.3 *New Brunswick*

The principal laws and regulations that apply to pulp and paper effluent in New Brunswick are the *Clean Environment Act* and its regulations and the *Clean Water Act*. This section describes the relevant provisions of those laws and regulations and the policies for enforcing and seeking compliance with them.

6.6.3.1 *New Brunswick Clean Environment Act*

New Brunswick’s *Clean Environment Act*³⁷¹ contains a broad range of environmental protection provisions. With regard to pulp and paper mill effluent, the relevant provisions include the pollution control provi-

370. Personal communication with MDDEP staff (17 August 2005).

371. *Clean Environment Act*, R.S.N.B. 1973, c. C-6, as amended.

sions of the Act and environmental impact assessment regulation under the Act.

The Act creates a blanket prohibition against pollution, subject to explicit authorizations. Section 5.3(1) states

No person shall release any contaminant or waste or any class of contaminant or waste into or upon the environment or any part of the environment if to do so would or could

- (a) affect the natural, physical, chemical or biological quality or constitution of the environment;
- (b) endanger the health, safety or comfort of a person or the health of animal life;
- (c) cause damage to property or plant life; or
- (d) interference with visibility, the normal conduct of transport or business or the normal enjoyment of life or property

unless that person is acting under and in compliance with authority or permission given under an act of the Legislature.³⁷²

Industrial waste is defined in section 1 of the Act to include “any liquid, solid or other waste, or any combination thereof, resulting from any process of industry or manufacture or the exploration for, or development of natural resource”³⁷³ A contaminant is:

any solid, liquid, gas, micro-organism, odour, heat, sound, vibration, radiation or combination of any of them, present in the environment,

- (a) that is foreign to or in excess of the natural constituents of the environment,
- (b) that affects the natural, physical, chemical or biological quality or constitution of the environment,
- (c) that endangers the health, safety or comfort of a person or the health of animal life, that cause damage to property or to plant life that interferes with visibility, the normal conduct of transport or business or the normal enjoyment of life or use or enjoyment of property, or
- (d) that is prescribed by the regulation to be a contaminant,

and includes a pesticide.³⁷⁴

372. *Ibid.*

373. *Ibid.*, s. 1.

374. *Ibid.*

Where a provincial inspector reasonably believes that a contaminant or waste is being produced and that it is likely that the contaminant or waste will either be released or otherwise pose a threat to quality, quantity, or allocation of water, the inspector can inspect any building, machinery or material on the premises and take samples.³⁷⁵ The Act gives the Minister of the Environment and Local Government broad authority to issue and enforce orders to control, reduce or eliminate the release of a contaminant or waste or to take clean-up or other remedial measures where a contaminant or waste has been released.³⁷⁶ The Minister may issue an order even where a person is acting under authority or permission given under an Act of the Legislature.³⁷⁷

Section 33(1) of the Act creates a general offense of violating any provision of the Act or regulations, including violating the terms or conditions of any approval, license, permit, or other authorization. The common law defenses of due diligence and mistake of fact is available to any person or corporation causing or permitting the discharge. Certain offenses under the Act are also offenses under the *Pesticides Control Act*. For these offenses, the penal provisions in the *Clean Environment Act* do not apply, and offenders must be charged under the *Pesticides Control Act*.³⁷⁸

The *Clean Environment Act* is broad in its scope and application and can be used to issue orders against mills discharging effluent to surface water. Nonetheless, the *Clean Water Act*, which is narrower in its scope and application, is the primary Act used to regulate industrial effluent, including effluent from pulp and paper mills.³⁷⁹ The *Clean Water Act* is discussed below.

6.6.3.2 Regulations under the *Clean Environment Act*

Two regulations made under authority of the *Clean Environment Act* are relevant to the control of pulp and paper effluent: the *Environmental Impact Assessment Regulation* and the *Water Quality Regulation*. The Environmental Impact Assessment Regulation passed under the *Clean Environment Act* applies to undertaking the construction, modification, extension, abandonment, demolition or rehabilitation of pulp

375. *Ibid.*, s. 24.

376. *Ibid.*, ss. 5-5.3.

377. *Ibid.*, s. 5.3(2).

378. *Ibid.*, s. 33(3).

379. W+SEL memorandum (August 2004).

and paper mills.³⁸⁰ Where in the opinion of the Minister a proposed undertaking is likely to result in a “significant environmental impact,” an environmental impact assessment [(EIA)] is mandatory.³⁸¹ When the Minister determines that an EIA is not necessary, certain terms and conditions may still be imposed on an approval.³⁸² Under the regulation, the Minister can impose terms and conditions on an undertaking. The *Water Quality Regulation* establishes additional requirements for approval to construct, modify or operate sources of water pollution.³⁸³ Effluent discharge limits are established through the approval process.³⁸⁴ It is prohibited to carry on any undertaking to which the regulation applies unless the Minister either has determined that no EIA is required, or approval by the Lieutenant-Governor in Council is obtained following the completion of an EIA.³⁸⁵

6.6.3.3 New Brunswick *Clean Water Act*

The *Clean Water Act*³⁸⁶ creates a general prohibition against pollution:

No person shall directly or indirectly release a contaminant or waste or a class of contaminant or waste into or upon water if to do so would or could:

- (e) affect the natural, physical, chemical or biological quality or constitution of water;
- (f) endanger the health, safety or comfort of a person or the health of animal life;
- (g) cause damage to property or plant life; or
- (h) interfere with visibility, the normal conduct of transport or business or the normal enjoyment of life or property,

unless the person is acting under and in compliance with authority or permission given under an Act of the Legislature.³⁸⁷

380. *Environmental Impact Assessment Regulation – Clean Environment Act*, N.B. Reg. 87-83, Sch. A.

381. *Ibid.*, s. 6(4).

382. *Ibid.*, s. 6(6).

383. *Water Quality Regulation-Clean Environment Act*, N.B. Reg. 82-126.

384. W+SEL memorandum (August 2004).

385. *Ibid.*, s. 4.

386. *Clean Water Act*, S.N.B. 1989, c. 6.1.

387. *Ibid.*, s. 12(1).

The definitions of “industrial waste” and “contaminant” are the same as for the *Clean Environment Act*.³⁸⁸ Like the *Clean Environment Act*, the *Clean Water Act* gives the Minister of the Environment and Local Government broad authority to issue and enforce orders to control, reduce or eliminate the release of a contaminant or waste or to take clean-up or other remedial measures where a contaminant or waste has been released.³⁸⁹ As with the *Clean Environment Act*, the Act allows the Minister to issue orders even where the discharge or release is in compliance with any regulatory terms of approval.³⁹⁰

The Minister can appoint provincial inspectors under the Act.³⁹¹ Where an inspector reasonably believes that a contaminant or waste is being produced and that it is likely that the contaminant or waste will either be released or otherwise pose a threat to quality, quantity, or allocation of water, the inspector can inspect any building, machinery or material on the premises and take samples.³⁹²

Section 25(1) of the Act creates a general offense of violating any provision of the Act or regulations, including the terms or conditions of any approval, registration, license or permit. Each day a violation continues is a separate offense.³⁹³ Proceedings with respect to any violation must be brought within two years.³⁹⁴ Individuals are subject to fines not less than \$500 and not more than \$50,000, and corporations are subject to fines not less than \$1,000 and not more than \$1,000,000.³⁹⁵ Notwithstanding the maximum fine amounts, where an offense is committed for financial advantage, courts may impose fines that ensure that no financial gain is obtained, and where an offense is committed to avoid the financial burden of compliance, courts may impose an appropriate fine.³⁹⁶ An offense by a non-individual, such as a pulp and paper mill, is an absolute liability defense, which means that the due diligence defense is not available.³⁹⁷

Though the prohibition provision is very similar to that of the *Clean Environment Act*, the *Clean Water Act* is intended to provide a compre-

388. *Ibid.*, s. 1.

389. *Ibid.*, ss. 4-6.

390. *Ibid.*, s. 12(2).

391. *Ibid.*, s. 17(1).

392. *Ibid.*, s. 17(2).

393. *Ibid.*, s. 25(2).

394. *Ibid.*, s. 27.

395. *Ibid.*, s. 25(1).

396. *Ibid.*, s. 26(1).

397. *Ibid.*, s. 27.

hensive regulatory framework specifically for water. As noted above, the *Clean Water Act* is the primary Act used to monitor and control the discharge of effluent into surface water, including effluent from pulp and paper.

6.6.3.4 New Brunswick compliance and enforcement policy

New Brunswick Department of the Environment has adopted a Compliance and Enforcement Policy that outlines the process the Department follows in administering its regulatory responsibility, including its responsibility under the *Clean Environment Act* and the *Clean Water Act*, among others. Specifically, the policy

sets out the framework for enforcement activities undertaken by the Department. It also aims to provide the public with a clear picture of the Department's enforcement responsibilities and identifies other agencies that play a role in enforcing New Brunswick's environmental statutes.³⁹⁸

The policy promotes the development of resources that help industry comply with the relevant legislation through education and information, and also provides a framework of enforcement where non-compliance has occurred. The policy states:

Since suspected violations vary, so will the appropriate responses. They will in all cases, however, follow the criteria outlined in this document. The primary concern is to protect the environment and to promote compliance with the law. Should compliance not be achieved, enforcement according to these guidelines will be applied.³⁹⁹

Enforcement is defined as "undertaking various actions which encourage and compel compliance."⁴⁰⁰ Actions that the Department may pursue besides active enforcement include activities to educate the public and regulated entities on environmental laws and regulations and their enforcement, consultations with regulated entities, cooperation on appropriate application of new environmental control technology, publication of codes of practice and standards on environmental compliance, encouraging or requiring contingency plans and promoting the use of environmental audits.⁴⁰¹

398. New Brunswick Environment, *Compliance and Enforcement Policy*, at 1.

399. *Ibid.*

400. *Ibid.*

401. *Ibid.* at 3-4.

The policy includes six guiding principles:

- Compliance with the law is mandatory;
- Enforcement officials will apply environmental law in a fair, firm, and consistent manner;
- Environmental law will be administered with emphasis on the prevention of damage to the environment;
- Enforcement officials will examine every suspected violation of which they have knowledge and undertake appropriate action consistent with the policy;
- The “polluter pays” principle will be applied so that public funds are not a principal source of funding for environmental clean-ups;
- Public education programs will be established to promote compliance with environmental law, and assist members of the public in the reporting of suspected violations.⁴⁰²

When enforcement officials suspect a violation of environmental legislation, they apply three principal criteria in considering a course of responsive action:

- Gravity of Violation. The inspector will consider whether there is a threat to human, animal, plant or aquatic life or long term harm to the environment.
- Effectiveness of Achieving Desired Results. Compliance by the violator in a timely manner, without any further intervention or violations, is the desired result. Factors considered by enforcement officials are the violator’s history of compliance, willingness to cooperate with inspectors, and clear evidence of action already taken to achieve compliance.
- Equitable and Consistent Enforcement. When faced with an infraction of environmental law, inspectors will attempt to ensure fairness by considering the circumstances and how similar situations have been dealt with before deciding how to bring about compliance.⁴⁰³

After inspection reveals that a violation has occurred, the Department may consider administrative options. These options are generally considered in the following order: warnings,⁴⁰⁴ compliance schedules,

402. *Ibid.* at 2.

403. *Ibid.* at 4.

404. Warnings are considered appropriate where there are reasonable and probable grounds to believe a violation has occurred or is continuing, but the harm or potential for harm is considered minimal. *Ibid.* at 7.

ministerial orders,⁴⁰⁵ court injunctions⁴⁰⁶ and government-initiated remediation.⁴⁰⁷ If the violation is blatant or there is a threat to human health or severe environmental damage, the Department may immediately initiate remediation measures and commence an investigation.

The first step in a prosecution is an investigation, which involves the gathering of evidence to support a charge in the courts.⁴⁰⁸ The Department may proceed directly to prosecution; or proceed concurrently, while administrative orders are in place; or proceed to prosecution only pursuing a compliance schedule or a Ministerial order.⁴⁰⁹ As well, a prosecution may be brought even though a violation has been brought into compliance.⁴¹⁰ Inspectors must submit all evidence to a Crown Prosecutor for approval prior to laying the charges.⁴¹¹

Although prosecution is generally discretionary, the policy requires prosecution to be pursued where:

- there has been death or bodily harm to any person;
- there is significant harm or risk to human health or the environment;
- the alleged violator does not take all reasonable steps to comply with the terms and conditions of a certificate, license, permit, or Ministerial Order;
- a violation is repeated, warnings disregarded or there is an unsatisfactory record of compliance;
- the violation is deliberate in nature, or if not deliberate, the degree of negligence involved will be considered;
- the alleged violator provides false or misleading information to an inspector, obstructs an inspector during his or her duties, conceals information of an offence, or interferes with a substance seized by an inspector;

405. Ministerial orders are used require the responsible person to take action to address the non-compliant activity, such as stopping, limiting or controlling release of contaminants or remediating a contaminated site. *Ibid.* at 8.

406. Court injunctions are pursued in conjunction with the Department of Justice to stop or prevent a violation of environmental law, but proceeding directly to prosecution is usually the more expedient and preferred route. *Ibid.* at 8.

407. *Ibid.* at 7-8. Where the government takes remediation action, it can pursue cost recovery in a civil action against the polluter. *Ibid.* at 9, 11.

408. *Ibid.* at 6, 9.

409. *Ibid.* at 9.

410. *Ibid.*

411. *Ibid.*

- the violation is a result of not having taken reasonable preventative measures prior to the event.⁴¹²

The policy notes the respective roles of the federal, provincial and municipal levels of government in the enforcement of environmental laws, and states:

Unfortunately [federal, provincial, and municipal] roles often overlap, thus causing confusion among those being regulated. To rectify this problem, governments are in the process of harmonizing their environmental laws and the role each plays in enforcing them. This effort will mean a more streamlined “one window approach” to the administration of environmental legislation.⁴¹³

6.6.4 *Nova Scotia*

The principal legislation that applies to pulp and paper effluent in Nova Scotia is the *Environment Act*. This section describes the relevant provisions of the Act and the policies for enforcing and seeking compliance with it.

6.6.4.1 *Nova Scotia Environment Act* and related regulations

Section 67 and 68 of the *Environment Act* create broad prohibitions against pollution.⁴¹⁴ Section 67(1) prohibits anyone from knowingly releasing into the environment a substance in an amount, concentration, or level that causes or may cause a significant adverse effect, unless authorized by an approval or regulation,⁴¹⁵ whereas s. 67(2) creates a general prohibition on such releases, unless authorized, even if not done knowingly.⁴¹⁶ Similarly, ss. 68(1) and 68(2) prohibit the release, either knowingly or not, of a substance in excess of levels expressly permitted

412. *Ibid.* at 10.

413. *Ibid.* at 11.

414. *Environment Act*, S.N.S. 1995, c. 1.

415. *Ibid.* Section 67(1) states that “no person shall knowingly release or permit the release into the environment of a substance in an amount, concentration or level or at a rate of release that causes or may cause a significant adverse effect, unless authorized by an approval or by the regulations.”

416. *Ibid.* Section 67(2) states that “no person shall release or permit the release into the environment of a substance in an amount, concentration or level or at a rate of release that causes or may cause a significant adverse effect, unless authorized by an approval or the regulation.”

by an approval or regulation.⁴¹⁷ As explained below, offenses done knowingly are subject to higher penalties.

Where a prohibited release has occurred, the person responsible for the release must notify the Department of the Environment and Labour, the owner of the substance, the person in charge of the substance, and any person that may be affected by the release.⁴¹⁸ The responsible person must take all reasonable measures to reduce or remedy the adverse effects, must take all measures required by a provincial inspector, and must rehabilitate the site.⁴¹⁹

Where the Minister believes on reasonable grounds that a person has contravened the Act in any way, he or she has recourse to several different types of administrative orders. Orders include stop orders, a requirement to limit, change or control emissions⁴²⁰, or a requirement to install or change any pollution control equipment.⁴²¹ Remedial orders can also be issued.⁴²² The Act and the *Activities Designation Regulation*⁴²³ made under it make it an offense to construct, operate, reclaim or modify a pulp or pulp and paper manufacturing plant without first obtaining the required approval certificate.⁴²⁴ However, Nova Scotia does not have a regulation similar to the *PPER* that applies specifically to pulp and paper mills. Approval holders are required to conduct compliance monitoring as specified in the approval, and the results must be reported to the ministry.⁴²⁵ An approval holder must report any effluent releases that exceed the limits specified in the approval.⁴²⁶

Section 159 of the Act establishes different penalty structures for different categories of offenses.⁴²⁷ Offenses committed “knowingly,”

417. *Ibid.*, Section 68(1) states that “no person shall knowingly release or permit the release of a substance into the environment in an amount, concentration or level or at a rate of release that is in excess of that expressly authorized by an approval or the regulations.” Section 68(2) states that “no person shall release or permit the release of a substance into the environment in an amount, concentration or level or at a rate of release that is in excess of that expressly authorized by an approval or the regulations.”

418. *Ibid.*, s. 69.

419. *Ibid.*, s. 71.

420. *Ibid.*, s. 125(a) (cease specified activity), (b) (stop, limit, or control the release of any substance).

421. *Ibid.*, s. 125(d).

422. *Ibid.*, s. 125(f).

423. N.S. Reg. 47/95.

424. *Ibid.*, s. 50; *Activities Designation Regulation*, s. 18(2)(b).

425. *Approvals Procedure Regulation*, N.S. Reg. 48/95, s. 20(1,2).

426. *Ibid.*, s. 20(3).

427. *Environment Act, supra*, s. 159.

including offenses under ss. 67(1) and 68(1), offenses in which false or misleading information is knowingly provided pursuant to a requirement of the Act,⁴²⁸ and offenses for knowingly contravening an order,⁴²⁹ are subject to imprisonment up to two years and/or a fine of not less than \$1,000 and not more than \$1,000,000.⁴³⁰ Offenses under ss. 67(2) and 68(2), as well as other listed offenses not done knowingly,⁴³¹ are subject to a fine of not more than \$1,000,000.⁴³² Offenses for provisions of the Act not specifically listed in s. 159 are subject to a fine of not more than \$500,000. In addition to the fine amounts in s. 159, courts may impose and additional fine equal to the amount of any monetary benefit the court estimates were accrued as a result of the offense.⁴³³ The Act provides that every day on which an offense continuing more than one day occurs is a separate offense.⁴³⁴

In addition to these penalties, courts may issue various orders. Among other things, these orders can prohibit the offense from continuing or being repeated, require measures to prevent or remedy adverse effects due to the offense, direct the offender to publish the facts regarding the offense or provide them to affected parties, post bonds to ensure compliance, direct the offender to compensate the Minister for the costs of remedial action, and direct the offender to perform community service.⁴³⁵

The *Environment Act* codifies the defenses of due diligence and mistaken set of facts for all offenses under the Act.⁴³⁶ In addition, any person who voluntarily provides the Department of the Environment detailed information obtained through an environmental audit or environmental site assessment about non-compliance under the Act shall not be prosecuted, as long as 1) the person complies with any agreement or order to address the noncompliance and 2) the Department did not

428. *Ibid.*, s. 158(a), (e).

429. *Ibid.*, s. 158(g).

430. *Ibid.*, s. 159(1).

431. These offenses include failing to report releases under s. 69; failing to take remedial or preventive measures to address a released substance under s. 71; failing to comply with a ministerial order under s. 132; failing to provide information, or providing false or misleading information, pursuant to a requirement of the Act under s. 158; and contravening an order or a term or condition of an approval or other authorization under s. 158.

432. *Environment Act*, s. 159(2).

433. *Ibid.*, s. 161.

434. *Ibid.*, s. 162.

435. *Ibid.*, s. 166.

436. *Ibid.*, s. 160.

independently become aware of the non-compliance before the person reported it.⁴³⁷

6.6.4.2 Nova Scotia compliance and enforcement policy

The Nova Scotia Department of the Environment relies on the Operation Bulletin on Law Enforcement, adopted in November 1997, to enforce the *Environment Act*.⁴³⁸ The policy says that “[t]he Department will use an appropriate and fair mix of legal remedies to ensure compliance with the environmental laws it administers.”⁴³⁹

The Investigations and Enforcement Branch of the Department of Environment is responsible for investigating and enforcing environmental legislation.⁴⁴⁰ The policy acknowledges that “the availability of investigative resources will naturally control the number of investigations which can be conducted at any particular time.”⁴⁴¹ Accordingly, the policy sets out eight priorities to guide field personnel in prioritizing their investigations:

- Immediate danger – situations posing an immediate danger to human life or health or to property shall be responded to immediately and are the top priority for investigators;
- Emergency situation or spill – an inspector will always be on-site in the event of an emergency or spill, and an immediate investigation will be done where there is evidence of negligence, carelessness or non-compliance;
- Environmental or health damage – consideration is given to the seriousness and persistence of environmental damage resulting from non-compliance;
- Potential environmental or health hazard – where the nature and extent of an adverse environmental impact or danger to human health, life or property is unknown, the Department will promptly initiate action to determine the nature and extent of the situation such that appropriate action can be taken;
- Compliance history – “When a person has shown in the past a propensity for violations of environmental laws and regulations . . . , measures

437. *Ibid.*, s. 70.

438. Nova Scotia, Department of Environment and Labour, Operation Bulletin on Law Enforcement (1997).

439. *Ibid.*, s. 3(a).

440. *Ibid.*, s. 6

441. *Ibid.*, s. 12(a).

beyond the routine or customary compliance activities, such as enforcement responses, should be initiated”;

- Need for general deterrence – The policy acknowledges that large segments of an industrial sector may be in chronic non-compliance as a result of inadequate past enforcement, new laws or regulations or enhanced competition, and that general deterrence may be gained by subjecting carefully-selected participants with a known history of non-compliance to an investigation and appropriate enforcement response;
- Public expectation – rising public expectations for environmental enforcement in Nova Scotia requires the Department “to consistently investigate [and] prosecute where necessary”;
- Consistency – decisions on initiation of investigations should take into account the manner in which similar industries have been dealt with across the Province and the country.⁴⁴²

An investigation can lead to the issuance of a summary offense ticket, a warning, a more detailed investigation involving additional staff from the Investigations and Enforcement Branch, or the laying of charges.⁴⁴³

An investigator may issue a summary offense ticket for minor offenses where there are reasonable and probable grounds to believe that an offense has occurred and the investigator has discussed the matter with the investigator’s immediate superiors and/or the Investigations and Enforcement Branch.⁴⁴⁴ Summary offense tickets are punishable on summary conviction and may result in fines of not more than two thousand dollars (\$2,000.00), to imprisonment up to six months, or to both a fine and imprisonment.⁴⁴⁵ An investigator can also issue a warning for a minor offense.

For offenses of a more serious nature, or those offenses involving repeat offenders, a more thorough investigation involving Investigations and Enforcement Branch staff will be conducted. The decision to lay charges is made in consultation with the Public Prosecution Service of the Department of Justice.⁴⁴⁶ In making a decision whether or not to

442. Paraphrasing *ibid.*, s. 12(b).

443. *Ibid.*, s. 6.

444. *Ibid.*, s. 6(c)(i).

445. Provincial Court of Nova Scotia, Information Guide, Summary Offence Tickets, at 2. Available on the Internet at <www.courts.ns.ca/self_rep/provincial_summary_offence_tickets.pdf>.

446. *Ibid.*

prosecute, the Crown Attorney must take into account various “public interest considerations” such as whether the alleged offense is trivial, the staleness of the offense (six-month limit), the likely effect of a prosecution on public order and morale, the obsolescence or obscurity of the law, the availability or efficacy of alternatives to prosecution, whether the consequences of conviction would be unduly harsh, the likely length and expense of a trial, whether the alleged offender is cooperative, the likely sentence upon conviction, and the need to maintain public confidence in laws and the administration of justice.⁴⁴⁷

6.6.5 *Newfoundland and Labrador*

The Newfoundland Department of Environment regulates the environment through the management of water resources, the environmental assessment of undertakings and the control and management of substances and activities that may pollute the environment. The Newfoundland Department of Environment administers and enforces the *Environment Act* and its associated regulations.

6.6.5.1 Newfoundland and Labrador *Environment Act*

The *Environment Act* was the primary statute in Newfoundland and Labrador regulating the discharge of pulp and paper effluent during 2000. The Act was assented to in 1995 and remained in force until the passing of the *Environmental Protection Act* in 2002.⁴⁴⁸

The *Environment Act* made it unlawful to “discharge or deposit material of any kind into a body of water or on a shore or bank of a body of water or in a place that may cause pollution or impair the quality of water for a beneficial use.”⁴⁴⁹ The *Act* authorized the issuance of perma-

447. Nova Scotia, Department of Environment and Labour, Operation Bulletin on Law Enforcement, Appendix A, Part C.

448. *Environment Act*, S.N. 1995, c. E-13.1.

449. *Ibid.*, s. 9. Section 2 of the Act defines “pollution” as:
 an alteration of the physical, chemical, biological or aesthetic properties of air, soil or waters in the province, including a change in temperature, taste or odour, or the addition of a liquid, solid, radio-active, gaseous or other substance to the air, soil or waters, or the removal of those substances from the air, soil or waters, which will render or is likely to render the air, soil or waters of the province harmful to the public health, safety or welfare, or harmful or less useful for domestic, agricultural, industrial, power, municipal, navigational, recreational or other lawful uses, or for animals, birds, or aquatic life.

Section 2 defines “beneficial use” as:

A use of water, including the method of diversion, storage, transportation and

ment or temporary “stopping orders” to prevent, restrict or prohibit an activity that is causing or is likely to cause pollution.⁴⁵⁰ It also authorized the Lieutenant-Governor in Council to make a broad range of regulations, including regulations regarding the prevention or restriction of water pollution, the permitting of the discharge of effluent to water, the investigation of environmental complaints, the issuance of additional orders and other matters.⁴⁵¹ Under section 15, provincial inspectors could enter onto land, works or premises to conduct tests as reasonably necessary to determine compliance with the Act.⁴⁵²

Under section 14 the Lieutenant-Governor in Council set maximum allowable discharge limits for a range of pollutants.⁴⁵³ Prior to 26 May 1999, the maximum fine for a corporation and municipal authority was \$25,000.00 and a maximum of \$1,000.00 for persons.⁴⁵⁴ After 27 May 1999, the fines for corporations and municipal authorities were increased to a maximum of \$1,000,000 and a maximum of \$50,000 for persons.⁴⁵⁵ Every day during which an offense continues constitutes a separate offense under the Act.⁴⁵⁶

6.6.5.2 Newfoundland and Labrador *Environmental Control Water & Sewage Regulation*

Sewage was defined broadly under the *Environment Act* to include industrial effluent such as pulp and paper mill effluent.⁴⁵⁷ All sewage discharges, including industrial effluent are regulated by the *Environmental Control Water & Sewage Regulation*.⁴⁵⁸ The Schedules to the *Environment Control Water & Sewage Regulation* specify discharge limits. Schedule A applies to effluent discharged into a body of water and

application, that is reasonable and consistent with the public interest in the proper utilization of water resources, including but not limited to domestic, agricultural, industrial, power, municipal, navigational, fish and wildlife and recreational uses.

450. *Ibid.*, s. 12(1).

451. *Ibid.*, s. 14.

452. *Ibid.*, s. 15. The power to enter “works and premises” was added by S.N. 1996, c. R-10.1, s. 28(3).

453. *Ibid.*, s. 14.

454. *Ibid.*, s. 19(1)(a).

455. *An Act to amend the Environment Act*, S.N. 1999, c. 15, s. 1(1).

456. *Environment Act*, *supra*, s. 19(2).

457. *Ibid.*, s. 2. “Sewage” includes residential, municipal, commercial or industrial waterborne or solid wastes, which would, if left untreated, cause pollution, but does not include drainage and storm water collected from natural run-off.

458. *Environmental Control Water & Sewage Regulation*, Nfld. Reg. 1078/96.

establishes a limit of 20 mg/l for BOD and a limit of 30 mg/l for TSS.⁴⁵⁹ There are no specified sampling or monitoring requirements set out in the regulation. However, the regulation gives the Minister of Environment and Lands the authority to require monitoring and reporting of effluent quality at any time.⁴⁶⁰

6.6.5.3 Newfoundland and Labrador environmental statutes since 2002

In 2002, Newfoundland and Labrador made considerable changes to its environmental legislation. Eight statutes were repealed: the *Environment Act*; the *Environmental Assessment Act*; the *Pesticides Control Act*; the *Waste Management Act*; the *Waste Material Disposal Act*; the *Well Drilling Act*; the *Water Resources Protection Act*; and the *Crown Lands Act*. In their place, the legislature enacted two comprehensive new statutes: the *Environmental Protection Act* ("NEPA")⁴⁶¹ and the *Water Resources Act* ("NWRA").⁴⁶²

The NEPA explicitly authorizes compliance agreements to remedy contraventions as an alternative to prosecution.⁴⁶³ Under the EPA the Ministry can enforce tougher monitoring requirements and issue stop orders. Penalties include the prosecution of corporate officers, and whistleblower protection for employees who report offenses or refuse to contravene the Act.⁴⁶⁴ The NWRA operates alongside the NEPA to ensure the "fair allocation and proper utilization of the Province's water resources to maximize socio-economic benefits."⁴⁶⁵ The WRA creates a comprehensive licensing scheme for undertakings that affect water resources. Compliance provisions under NWRA are similar to the provisions set out in the NEPA.

459. *Ibid.*, s. 6. The regulation states that if water is taken from a water course, used, treated and then returned to the same water course, the TSS limit is a limit on the amount of TSS that can be added to what was in the water originally.

460. *Ibid.*, s. 10.

461. *Environmental Protection Act*, S.N.L. 2002, c. E-14.2.

462. *Water Resources Act*, S.N.L. 2002, c. W-4.01.

463. Newfoundland and Labrador, Department of the Environment, *Guide to the Environmental Protection Act (2002)*. Available online at <<http://www.gov.nl.ca/env/ActsReg/epaguide.pdf>>.

464. *Ibid.* at 3.

465. Newfoundland and Labrador, Department of the Environment, *Guide to the Water Resources Act (2001)*. Available online at <<http://www.gov.nl.ca/env/ActsReg/wraguide.pdf>>.

7. Background on Mill Production and Effluent Treatment Processes

According to the FPAC, Canada's forest products industry, of which the pulp and paper sector is a part, is a \$53 billion industry directly or indirectly employing over 1 million people and the biggest net contributor to Canada's international trade balance (\$36.8 billion).⁴⁶⁶ FPAC estimates that the pulp and paper mill sector has spent over \$6 billion on new technology and equipment to reduce emissions and effluent wastes since 1989.⁴⁶⁷

This section provides background information on the pulp and paper production processes and effluent controls that are used at the ten mills that are the subject of the factual record. Background information on ISO 14001 and other environmental management certification systems is also presented, because several of the mills have attained or are in the process of attaining ISO 14001 certification or have other environmental management systems in place.

7.1 *Pulp and paper processes at the mills of concern*⁴⁶⁸

The pulp and paper industry uses a wide variety of processes and equipment to produce various papers. Although other raw materials are used, most paper in the world, and all the paper in the mills of concern to this report, is made from wood. Each process used in the ten mills of concern in this factual record is described briefly below.⁴⁶⁹ In general, regardless of the pulp or papermaking process used, there are three principal steps in converting raw wood into finished paper: 1) wood preparation, 2) pulping and 3) papermaking. One, two or all three pro-

466. FPAC, *Growing Up: The history of pulp and paper in Canada* (2005), visited at <<http://www.fpac.ca/english/info/grow.htm>>.

467. *Ibid.*

468. All information in this section is taken from the McCubbin Report, unless otherwise noted.

469. There is an extensive body of literature on all aspects of pulp and paper manufacture as well as the environmental impact and control of effluent. Recent comprehensive textbooks on the manufacturing processes include Kocurek (1989) and Gullichsen *et al.* (2000), both multi-volume series. Smook (1988) describes the industry well in one volume, while Dence and Reeve (1996) focus on pulp bleaching. These all include information on environmental issues, although their emphasis is on production of pulp and paper. The environmental regulatory agencies in the European Union have developed a useful report (IPPC 2000) on environmental protection technology, which also includes data on a number of low-effluent mills. Northcote (2003) examines environmental impacts of the industry, and includes process descriptions.

cesses may operate in any one mill. Virtually all mills today also have utility systems to prepare water, and raise steam.⁴⁷⁰ All of the manufacturing processes generate wastewaters, more generally known as “effluent,” and all mills in Canada have some form of effluent treatment.

7.1.1 *Wood preparation*

Branches are removed from trees in the forest when they are harvested. In rare cases, bark is also removed in the forest by mechanical knives.

Most trees are transported to centralized processing locations where they are cut to suitable lengths, all bark is removed and the wood is cut into chips. Over the past 25 years, the forest industry in Canada has largely abandoned the use of whole logs for manufacturing wood chips. In most situations, lumber is now first cut from the logs, and only the residue that cannot be converted to lumber in a cost effective manner is used to manufacture wood chips.

In **wet debarking**, the bark is removed from the logs by tumbling hundreds of logs together in a slowly rotating drum, while they are sprayed with water to carry away the bark particles. This water becomes highly contaminated with organic matter leached from the wood. It is quite toxic to fish due to the range of toxic substances that trees generate naturally to protect themselves against insects and microbial attacks.

In **dry debarking**, mechanical knives are used to remove the bark, or else drums similar to those described above are used, but without the introduction of water. Apart from a relatively modest amount of wash water, this process produces no effluent.

Today, most debarking is dry, and is generally practiced in sawmills that produce wood chips from the residue and sell them to pulp mills. Only a few pulp mills in Canada receive raw logs. Of these, the only one of concern to the submission is the ACI mill, which has a wet debarking process.

7.1.2 *Pulping processes*

Regardless of the final product, the wood chips must be converted to pulp: a matrix of fibers with all unacceptable bark, dirt, lignin and

470. A few mills, including Bowater at Liverpool, NS, contract out some or all utility supply services.

other contaminants removed. Pulping (with any associated bleaching) normally has a much greater impact on effluent characteristics than the manufacture of paper itself. All of the mills of concern to this factual record have a pulping process, except the Interlake mill, which processes pulp that is manufactured elsewhere.

Pulping operations consist essentially of separating the useful fiber from the raw material, and cleaning it to the extent necessary for the final product specifications. The mass yield of useful fiber can be from about 35% to 99% of the raw material, so that the quantity of waste products can range from approximately 2000 kg/ton product to under 10 kg/ton.

In the kraft and sulphite processes, product yield is typically between 40% and 50%, so that there are 1000 to 1500 kg of organic waste generated per ton of product. In addition, chemicals are added in these processes, which increases the quantity of waste material by up to about 50%. In the past, before the current regulatory regime, some mills discharged all this waste directly to watercourses. Today, as discussed below, most of this material is recovered in the mill's chemical recovery system. The efficiency of the recovery process is one of the most significant characteristics of a pulp mill with respect to effluent discharge control.

Fiber separation may use either chemical processes (kraft or sulphite) or thermomechanical processes. Some mills use a combination of both chemical and thermomechanical processes. Each of these is discussed below.

7.1.2.1 Mechanical pulping

The Soucy, Tembec St. Raymond, Bowater and ACI mills of concern to this factual record use mechanical pulping. All of these mills use some form of thermomechanical pulping (TMP). In this process, the fibers are separated in a device known as a refiner, where the chips pass, under pressure, between two serrated plates, one (or both) of which is rotating. This process requires a considerable amount of electrical energy, but no chemicals are used. The process yield for the standard TMP process is typically over 95%, and no form of recovery is practiced for the residual organics that are discarded to the mill effluent.

The quantity of organics discarded is up to about 50 kg/ton of product, with a BOD of up to 25 kg/ton of product. The untreated effluent is generally quite toxic to fish due to the presence of resin acids,

extractives and other unidentified substances, and requires treatment to reduce toxicity. The few chemicals normally used in the process are not known or believed to contribute to the toxicity of the effluent, so it is generally considered that the toxic substances in untreated effluent are released from the wood in the pulping process.

The pulp may be bleached somewhat using sodium hydrosulphite and/or hydrogen peroxide, but the process is very mild relative to that used for bleached chemi-thermomechanical pulp (BCTMP), and kraft and sulphite pulps, described below. Bleaching of mechanical pulps, at the mills of concern to this factual record, generates very little effluent, and is frequently known as “brightening” to distinguish it from the more powerful bleaching processes.

In all of the mechanical pulp mills of concern in the factual record, the pulp is pumped as a slurry, without being dried, to adjacent paper mills that are part of the same facility.

7.1.2.2 Bleached Chemi-Thermomechanical Pulping

Bleached chemi-thermomechanical pulping is most commonly known as the BCTMP process. The Uniforêt mill used the BCTMP process in 2000, but converted to TMP manufacture in 2004.

BCTMP is an evolution of the TMP process mentioned above. It uses similar equipment, but sodium sulphite is used to soften the chips before refining, which results in the release of a greater quantity of soluble organic material than in TMP. The pulp is bleached aggressively with hydrogen peroxide and other chemicals, raising brightness to over 80% ISO,⁴⁷¹ which is approximately mid-way between the brightness of TMP and bleached kraft pulps. The bleaching process separates a significant quantity of soluble organics, which are discarded with the effluent in most BCTMP mills.

The overall process yield of a typical BCTMP mill is about 80%, which means that about 250 kg of organic material is discarded per ton of product. The sodium sulphite and bleaching chemicals are also discarded. This results in a relatively high BOD load on the effluent treatment plant, typically around 100 kg BOD/ton pulp. The effluent is generally quite toxic to fish before effluent treatment.

471. Brightness of pulp is measured on various arbitrary scales, relative to “pure” white. All scales provide values close to one another. The scale defined by the International Standards Organization (ISO) is very widely used.

7.1.2.3 Kraft pulping

The Irving Saint John mill and the Fjordcell mill at Jonquière both use the kraft process. In the kraft process, the wood chips are broken down to individual fibers by reaction (“cooking” is the normal industry terminology) in a strong alkali solution of sodium sulphide and sodium hydroxide, at elevated temperature, in a pressure vessel known as a “digester.” Overall process yield, including bleaching, is generally around 40%, so that approximately 1,800 kg waste product is generated per ton pulp produced, in the form of dissolved organic material and spent cooking chemicals. From about 95% to 99%+ of this is recovered by washing the pulp. The recovered material contains the cooking chemicals and unwanted ligneous matter, and is known as “black liquor.” The key factor affecting the characteristics of liquid effluent is the efficiency of this recovery of black liquor.

The pulp is the color of a brown paper grocery bag, and is known as “brown stock” at this stage. In both mills, the brown stock produced is chemically bleached, using mostly chlorine dioxide and sodium hydroxide, and all unwanted material is discarded. The Irving Saint John mill uses a two-stage oxygen delignification system to separate, recover and burn about half of the unwanted material from the brown stock, so it discharges about half as much organic waste in the mill effluent per ton pulp as the Jonquière mill. About three-quarters of the kraft mills in the world use oxygen delignification.

The bleached kraft pulp is produced in slurry form. It may be dried for sale to paper mills, or simply pumped to an on-site paper mill.

The existence of the **recovery cycle** sets the chemical pulp sub-sector (kraft and sulphite) of the industry apart from most other sub-sectors of the paper industry, and from many other industries. This integral part of modern chemical pulping processes has the capability to convert almost all the pollutants formed during manufacture into energy, without generating any significant air pollution or other environmental problems. Both the kraft and sulphite processes produce almost two tons of waste per ton pulp dissolved in water to form “spent pulping liquors.”

The chemical recovery system in a kraft mill collects the spent liquor known as “black liquor,” concentrates it by evaporation, and burns it in a specialized reactor (the recovery boiler) to produce steam and a byproduct (smelt) which consists of sodium salts. The smelt is

dissolved in water and reacted with calcium oxide to convert the principal sodium salt present (sodium carbonate) to sodium hydroxide. The product (white liquor) is the principal chemical used in the digester.

The black liquor concentrating process generates waste condensates, which are aqueous solutions of methanol, volatile sulphides and terpenes, often contaminated with black liquor. They are quite toxic to waterborne organisms, but if accidental black liquor contamination is avoided, the remaining toxic substances are readily biodegradable in conventional biological treatment systems, with little or no effect on the toxicity or BOD of biologically treated kraft mill effluent.

The Irving Saint John mill uses an unconventional approach to control of effluent discharges, instead of treating them all biologically, as is the conventional practice. Control of losses of the black liquor at the Saint John mill is unusually tight, with the process designed for efficient washing of the brown stock, and equipment is installed to recover unplanned and accidental losses. The following conventional process modifications have been made at the Saint John mill since 1989. Many of these techniques are used in other kraft mills, and have become largely standard practice in new kraft mills built since about 1990:

- Large capacity black liquor evaporators;
- High solids crystallizer to further concentrate black liquor before burning;
- Separation and stripping of contaminated condensates;
- Burning reduced sulphur gases and methanol removed from condensates;
- High-efficiency brown stock washing;
- Closed water cycle in brown stock screening;
- Oxygen delignification of brown stock prior to bleaching;
- Recovery sumps in areas handling black liquor to recover accidental losses;
- Updated process control systems; and
- Use of hydrogen peroxide to manufacture chlorine dioxide, instead of methanol.

7.1.2.4 Sulphite pulping

The sulphite pulping process is similar to the kraft process, except that an acidic solution of magnesium sulphite and sulphurous acid is used in the digester. Subsequent processing is similar to kraft, except that the recovered liquor containing the organic matter removed from the wood fibers and the spent cooking chemicals is known as "red liquor." In the sulphite recovery process, the red liquor is concentrated by evaporation and burned to recover the cooking chemicals and raise steam.

Although the sulphite pulp is bleached in a manner similar to kraft, the processing conditions differ substantially at the AV Cell mill in Atholville, since it produces almost pure cellulose which is sold as a feedstock for plants producing rayon and related textile fibers. The pulp, known as "dissolving pulp," is unsuitable for papermaking. Greater quantities of effluent are generated in bleaching this type of pulp than for paper grade kraft pulping, but the components of the bleach plant are quite similar.

At the Atholville mill, the dissolving pulp is dried and shipped to remote chemical plants for further processing.

7.1.3 Papermaking processes

All the mills of concern to this factual record except AV Cell manufacture paper and/or paper-grade pulp. AV Cell manufactures textile-grade pulp.

All papermaking processes use the same process concept, which is very simple in principle, although it is mechanically sophisticated in modern practice. The pulp fibers are mixed with water to form a suspension with around 100 parts of water to 1 of pulp. This is cleaned mechanically to remove impurities and any clumps of fiber, then spread in a thin layer on a wire conveyor belt. Water drains off by gravity, some of the residual water is removed by pressing, and the rest is removed by drying on steam-heated drums.

Tissue paper (at Irving Saint John) is manufactured from bleached kraft pulp, without the addition of other material. The pulp is delivered in dry form. Most of the water used in the tissue-making process is recycled within the process, but there is some effluent, which is lightly contaminated with fine fibers, and very little dissolved matter. BOD and

toxicity of the effluent is generally low, relative to most paper making processes.

At the Bowater, Tembec St. Raymond, ACI and Soucy mills, newsprint is manufactured from TMP produced on-site. The very small quantity of non-fibrous material added is environmentally benign, but since the TMP carries some dissolved organic material from the pulp manufacture, the paper mill effluent is significantly more contaminated than that of a tissue mill.

The other paper mills make a variety of grades of paper, as explained below for each mill in Section 8. Other materials are added to the pulp fiber to improve printability, water resistance or other properties. The finished papers may contain up to about 20% non-fibrous additives, but for most grades concerned it is much less.

In processing the paper, clean water is added to the system for cleaning showers, seal water and other purposes. This results in an excess of water leaving from the system, carrying fibers and small quantities of additives. Some effluent is also generated from washing equipment and cooling systems.

In principle, a mill, such as the Interlake mill, that manufactures paper from pulp that is purchased in dry form, and does not manufacture any pulp, can be expected to discharge a lower volume of effluent, with less contamination prior to treatment, than a pulp mill. However, some pulp mills have implemented very effective pollution prevention and recycle technology, so they discharge less effluent than the higher discharge paper mills. Extreme examples are the BCTMP mills at Meadow Lake, Saskatchewan, and at Chetwynd, British Columbia, which recycle all effluent discharged and therefore can be described as "zero-discharge" mills with respect to effluent. These mills operate with minimal quantities of water, evaporate the effluent flow, burn the organic wastes and biologically treat the evaporator condensates to remove the volatile organic substances. Thus, despite operating a process that conventionally would discharge fairly high quantities of BOD, these mills have no liquid effluent discharge. Other issues for such mills include cost, energy consumption atmospheric discharges and solid waste formation as well as process and product limitations.

7.1.4 Utilities

All pulp and paper mills require a water supply, steam for process and building heat, and electricity. Some mills can use water directly from a river or lake. Many mill sites in Canada were chosen because

the locally available water was sufficiently pure for pulping and/or papermaking without any treatment. Other mills treat incoming water by sedimentation and/or filtration to remove impurities, using the same technology as is common for other industrial and municipal water treatment systems.

Steam is generated in boilers on the mill site (except at the Bowater mill) by burning a number of fuels. Natural gas is normally used where available, and oil where it is not. Pulp mills usually raise a significant quantity of steam from burning hog fuel, which is a mixture of bark and sawmill wastes. Traditionally, the hog fuel used corresponded to the bark removed from logs shipped into the mill for pulp manufacture. However today, when virtually all debarking is off-site, mills may buy quantities of hog fuel that corresponds to more than or less than their wood usage.

As discussed above, some of the steam required in chemical pulp (kraft and sulphite) mills is produced from combustion of spent pulping liquors. The most energy efficient chemical pulp mills produce all their steam and electricity from hog fuel and spent cooking liquors.

Some mills raise the process steam that they require at high pressure and expand it through turbines to generate electricity (known as “co-generation”), while others raise only low pressure steam. Electricity sources for mills can include public supplies or on-site hydro-electric installations.

Mills manufacturing TMP generate large quantities of steam from the energy expended in the refiners. This steam is slightly contaminated with acids and other volatile organics from the wood. Some mills vent it to atmosphere, while others generate clean steam from it using heat exchangers. The condensate from this heat recovery is toxic to fish and has significant BOD, and so becomes an additional effluent stream to be treated.

7.2 *Effluent treatment for relevant pulp and paper processes*⁴⁷²

According to the FPAC, Canadian pulp and paper mills have invested more than \$6 billion on environmental improvements since 1990.⁴⁷³ All the mills of concern in this factual record treat their effluent

472. All information in this section is taken from the McCubbin Report unless otherwise noted.

473. Letter from FPAC to CEC Secretariat (28 June 2004).

before discharge. In some cases, clean cooling water which has not contacted any process materials is discharged without treatment. The Irving Pulp and Paper mill is unusual in that it relies primarily on internal pollution prevention technology to control a major portion of the effluent streams, as discussed previously. Most external effluent treatment processes rely upon, at least to some extent, concentrating the pollutants into a side stream, normally a sludge. Many systems require the addition of chemicals, which may result in additional sludge formation. There is no single process that is generally considered environmentally best, even if cost is ignored.

7.2.1 Primary treatment

Primary treatment involves removal of suspended solids, normally by sedimentation. In current mills, the primary treatment system has no direct impact on the discharge of suspended solids or compliance with the regulatory limits on suspended solids discharge. However, primary treatment, or internal controls to avoid significant discharge of settleable suspended matter, is a prerequisite for effective secondary treatment.

Most mills route only the streams that carry significant quantities of suspended solids through their primary treatment systems. These remove virtually all the solids that can be settled by gravity, leaving some fine material to flow with the effluent to the secondary treatment system. The settled solids are removed as a sludge, and either incinerated or landfilled.

7.2.2 Secondary treatment

The term "secondary treatment" refers to removal of dissolved organic pollutants, primarily to reduce BOD and toxicity of effluent. Most secondary treatment systems are based on biological processes, so the term "biological treatment" is widely used synonymously with secondary treatment.

The most widely used principal secondary treatment processes at pulp and paper mills in Canada and around the world are activated sludge treatment (AST) and aerated stabilization basins (ASB). Various other biological processes are used in the pulp and paper industry around the world, but the only one of these other processes used in any of the ten mills of concern is the Moving Bed Biological Reactor (MBBR) at the Irving Saint John mill.

The AST, ASB and MBBR processes are all biological, wherein some of the organic pollutants are oxidized to water and carbon dioxide, and some are converted to microorganisms. Most of the suspended solids discharged with the treated effluent are microorganisms, so control of the secondary treatment system is critical for compliance with suspended solids discharge limits, as well as for BOD and toxicity control.

7.2.2.1 Activated sludge treatment

Activated sludge treatment (AST) is a widely used biological process which has been applied to primary treated effluent for over 100 years. There is more than 40 years experience with AST in the pulp and paper industry. The principle is to create the conditions for a high concentration of microorganisms to grow on the soluble materials in the effluent. This requires aeration tank(s) with sufficient retention time, control of the pH close to neutral, and a supply of oxygen, phosphorus and nitrogen.

A flowsheet for a typical AST system is presented in Figure 2 below. This example has a single primary clarifier, and two secondary clarifiers. The aeration tank is split into two, so that one side can be shut down for maintenance, while maintaining effluent treatment.

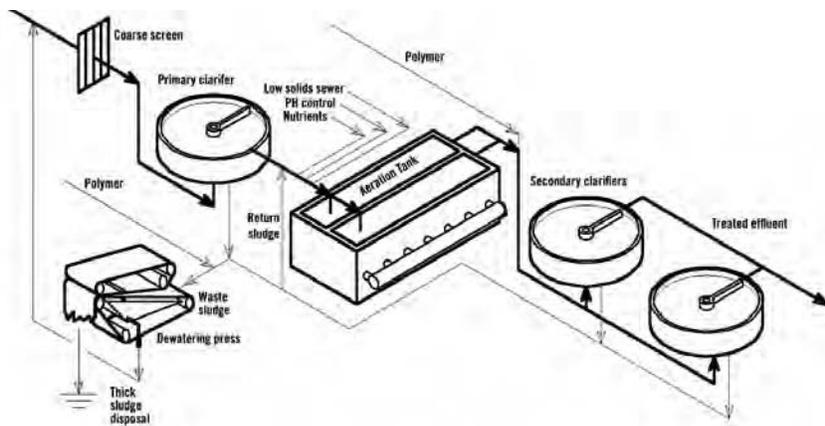


Figure 2. Typical Activated Sludge Treatment System

The capacity of the aeration tank relative to the organic load in the untreated effluent is a key factor in determining whether a system can treat effluent sufficiently to comply with Canadian discharge regulations. The size required in each specific case depends on many detailed design factors, as well as the skill and diligence of the operators, but generally, an AST system with a load over 400 grams of BOD₅ per cubic meter per day will have difficulty in complying reliably and consistently with the toxicity requirements of the *PPER*, although it may comply with the BOD discharge limitations if the incoming load is not excessive.

The oxygen is supplied from the atmosphere by mechanical aerators, which may be surface agitators or may involve injecting air to the bottom of the tank through spargers to distribute the air in fine bubbles. Either type of aeration equipment must also be designed to agitate the effluent to the extent appropriate to optimize biological growth. Unsuitably selected equipment may agitate excessively, or insufficiently.

The microorganisms are later separated from the treated effluent by sedimentation and recycled in the process as a sludge. Excess sludge is concentrated and then incinerated or landfilled. An AST system can achieve lower BOD and TSS (total suspended solids) discharges than an ASB, but generates significant quantities of waste sludge that will require chemical addition to promote dewatering and require disposal in an environmentally satisfactory manner. Biodegradable organics will be largely destroyed or mineralized during treatment and will not be an important component of waste sludge. The non-biodegradable substances and any heavy metals removed from the wastewater are stored in the waste sludge. Equipment, energy and chemical requirements for sludge handling make this process significantly more expensive to build and operate per unit weight of BOD removed than an ASB system.

The Oxygen activated sludge treatment (OAST) process is a variation of the AST process described above and is used in half a dozen Canadian pulp mills and several others in the world. The operating principle is the same as AST. The key difference is that oxygen is supplied in industrially pure form (over 90% pure). To make this practical, the aeration tank is sealed and is equipped with some form of bubble aeration, with mechanical agitation. Oxygen, which escapes from the surface of the liquid, is recycled. Since the partial pressure of the oxygen in the OAST system is much higher than in air systems, it is feasible to maintain a higher dissolved oxygen concentration in the mixed liquor than in a conventional AST. The characteristics of the microbiological growth

are somewhat different from AST, and the treated effluent contains relatively high concentration of carbon dioxide. The AV Cell mill uses the OAST treatment process.

7.2.2.2 Aerated stabilization basins

Aerated stabilization basin (ASB) treatment is a biological process widely applied to primary treated pulp and paper industry effluent over the past 40 years. The principle is based on the growth of low concentrations of microorganisms on the soluble materials in the effluent without the sludge recycle that is characteristic of the above mentioned AST process. When the microorganisms die, the sludge is used as food by other microorganisms, and thus the BOD is converted mostly to carbon dioxide and water. The successful operation of an ASB system involves the control of the non-digestible sludge so that minimal quantities of TSS and BOD are discharged in the final effluent without having to resort to dredging of accumulated sludge.

The process is usually implemented in earthen basins about 5 meters deep, designed to avoid leakage. The surface area required is large, relative to the AST process, but operation is simpler and less expensive, predominantly because, in principle, there is little or no need for sludge handling and disposal.⁴⁷⁴ To treat the same effluent, an ASB has to have about ten times the hydraulic capacity of the aeration tank in an AST system.

7.2.2.3 Moving bed biological reactors

The **moving bed biological reactor (MBBR)** is a variation of the activated sludge process and was introduced to the pulp and paper industry over the past ten years or so. The essential difference from AST is that mobile media (typically plastic cylinders about 50 mm diameter and 50 mm long, with convoluted surfaces) are provided for the microorganisms to grow on. This allows a higher growth density than in the conventional AST, and hence a smaller reaction vessel. Since the microbiological conditions are different from AST, the degree of removal of specific pollutants may be higher or lower, which may be advantageous

474. In its comments on the draft factual record, Canada notes that, in practice, “[t]he quantities to be processed are very large and the production of sludge, though lower than for other types of biological processing, requires proper management at the basin level. Otherwise, TSS effluent standards cannot be met.” Canada’s comments on SEM-02-003 (Pulp & Paper) draft Factual Record (10 May 2006), at 9.

in specific cases. In most MBBR systems, the suspended solids that form are removed from the treated effluent and recycled in a manner similar to the AST process, but this is not practiced in the installation at Saint John because the company considers that it can comply with TSS discharge regulations without the need for a secondary clarifier.

7.2.2.4 Nutrient addition

Pulp and paper industry effluent does not normally contain sufficient phosphorus and nitrogen to meet with the nutrient needs of a healthy microbiological population, so these substances are usually added to the effluent before the aeration vessel in any of the above-mentioned treatment processes.

7.2.2.5 Aeration systems for secondary treatment

The electrical power that is required to drive the aerators is often the largest single cost of operating any of the secondary treatment process discussed above. There is a very wide variety of aerator designs in use, and much debate on which is the most cost effective. The fact that such a variety has survived in the marketplace for over forty years demonstrates that none is clearly superior, although certain designs are more appropriate for certain environments and physical configurations of the aeration vessels. For pulp and paper mill effluent, most of the systems which are successful in complying with the *PPER* consume between 1 and 1.5 kWh/kg BOD in the untreated effluent. Systems with less power are unlikely to be consistently and reliably in compliance with the *PPER*.

7.3 *ISO 14001 and other environmental management certifications*

Several of the mills of concern in this factual record are seeking or have received ISO 14001 certification from the International Organization for Standardization (“ISO”). This section provides general background on ISO 14001 environmental management system certification.

The ISO is an international nongovernmental organization comprised of the national standards institutes of 156 countries.⁴⁷⁵ It develops international standards on a variety of issues affecting numerous industries.⁴⁷⁶ The ISO 14000 series is primarily concerned with environmental

475. International Organization for Standardization, *Overview of the ISO System*, available at <<http://www.iso.org/iso/en/aboutiso/introduction/index.html>>. The Standards Council of Canada is the national member body to the ISO and oversees Canada’s National Standards System.

476. *Ibid.*

management: the steps an organization takes to minimize harmful effects on the environment caused by its activities and to work toward continuous improvement in its environmental performance.⁴⁷⁷ The ISO 14000 series provides a framework through which organizations can develop an ISO-compliant Environmental Management System (“EMS”). ISO 14001, the “cornerstone”⁴⁷⁸ of the 14000 series, sets out the generic elements of a complete and comprehensive EMS. These elements, which apply to any organization in any sector of activity, include the following:

- Establishing and publishing an environmental policy;⁴⁷⁹
- Establishing environmental objectives and targets and implementing plans for meeting the objectives and targets;
- Evaluating environmental aspects and impacts;
- Identifying regulatory requirements and evaluating compliance therewith;
- Identifying and providing necessary training;
- Documenting processes that affect environmental impacts;
- Controlling parameters that affect environmental impacts;
- Evaluating which suppliers’ goods and services affect environmental impacts;
- Preparing for emergency situations;
- Monitoring and measuring critical environmental parameters;
- Initiating corrective actions when problems occur; and

477. International Organization for Standardization, *ISO 9000 and ISO 14000—In Brief*, available at <<http://www.iso.org/iso/en/iso9000-14000/understand/inbrief.html>>.

478. The ISO 14000 Environmental Management Guide, *ISO 14000 Series Environmental Management Systems*, available at <<http://www.iso14000-iso14001-environmental-management.com/iso14000.htm>>.

479. R. Krut and H. Gleckman, *ISO 14001: A Missed Opportunity for Sustainable Global Development* (Earthscan Publications Ltd., 1998), at 11 (stating that the environmental policy is the foundation of an ISO 14001 EMS and is the only document that must be made publicly available). Organizations also need to ensure that their environmental policy is developed by top management, covers all activities, products, and services within the scope of the EMS, complies with relevant environmental laws and regulations, and is distributed to everyone working for or on behalf of the organization. See Lloyd’s Register Quality Assurance, *A New Environment? A detailed brined note on the revision of ISO 14001:1996 to ISO DIS 14001:2003*, January 2004, available at <http://www.lrqa.com/comsite/content/pdf/com/new_ems.pdf>.

- Maintaining environmental records.⁴⁸⁰

In 2004, the ISO published a revised version of the 14001 standard in order to clarify the standard's original intent. While the changes are primarily aimed at making ISO 14001 more "user friendly," some of the changes "are likely to require organizations to review and perhaps amend their [EMS] . . . to ensure conformance with the final version of the new standard."⁴⁸¹

In order to become ISO 14001 certified, a company must arrange for a formal assessment or audit of its EMS by an accredited third party registrar. The certification process typically requires a pre-registration audit, a document review, and a registration audit. During the pre-registration stage, the auditors conduct a site review, assess whether all of the elements of the EMS have been addressed, and submit a report outlining their findings. Next, the auditors review the EMS policies and procedures in order to ensure that all elements of ISO 14001 have been adequately documented. Finally, an on-site registration audit is conducted to confirm that the EMS has been effectively implemented and that any weaknesses discovered during the pre-registration and document review stages have been addressed and remedied. If no major non-conformances are found, the organization is recommended for ISO 14001 certification.⁴⁸²

ISO 14001 certification has been referred to as a "positive step" for pulp and paper mills.⁴⁸³ It has also "been criticized for lack of transparency and for inadequate involvement of environmental organizations and developing countries in the drafting of the standards."⁴⁸⁴ One study of ISO 14001 stated, "it will be impossible to distinguish between a good and a desultory environmental performer based on the grounds of their ISO 14001 certification alone."⁴⁸⁵ In the context of the forestry industry, it

480. All from "The ISO 14000 Implementation Guide: ISO 14000 Frequently Asked Questions," available at <<http://www.homestead.com/iso14001/ISO14000FAQ5.html>>. This list is not exhaustive.

481. Lloyd's Register Quality Assurance, *supra* note 5. For a discussion of the changes embodied in the revised ISO 14001, see *ibid.* and/or ISO 14000.com, *ISO 14001: 2004 Revision*, available at <http://www.iso14000.com/Implementation/Impl_2004Revision.htm>.

482. All from "Accreditation: ISO 9000 and 14000 Registration," Standards Council of Canada, available at <http://www.scc.ca/Asset/iu_files/iso_9_14_reg_e.pdf>.

483. Leslie Webb, *Publish and be Praised? Exploring the Growth and Future Development of Environmental Reporting*, Pulp & Paper International (August 2003), available at <http://www.paperloop.com/db_area/archive/ppi_mag/2003/0308/05.html>.

484. Lars H. Gulbrandsen, "Mark of Sustainability? Challenges for Fishery and Forestry Eco-labeling", *47 Environment* 8, 14 (June 2005).

485. R. Krut and H. Gleckman, *supra* at 11.

has been noted that “industry-dominated forest certification schemes [, which are based on ISO 14001 or similar EMS-based approaches,] tend to focus more on management measures and procedures (process) than performance levels (outcomes).”⁴⁸⁶ These criticisms notwithstanding, the ISO 14001 standard has been adopted by a number of pulp and paper companies, who have referred to it as tangible evidence of their dedication and commitment to the environment and a cornerstone of their compliance effort.⁴⁸⁷ As of August 2003, approximately 400 pulp and paper mills worldwide had their EMS certified under ISO 14001.⁴⁸⁸ In 2000, approximately 25% of pulp, paper and paperboard mills in Canada had ISO 14001 certification.⁴⁸⁹

An EMS, ISO 14001 certified or otherwise, may help a company demonstrate a due diligence defense and a commitment to regulatory compliance.⁴⁹⁰ In *R. v. Stora Forest Industries Ltd.*,⁴⁹¹ a provincial court judge dismissed a case against a pulp and paper mill for a small oil spill after noting that the company had an EMS in place that addressed spill issues. The judge found that the company had put forth a successful due diligence defense, stating that “the supervisor who found the leak . . . knew the equipment, what to do to stop the leak and did so immediately. . . . He had been instructed on what to do in the event of any oil spill and he did that.”⁴⁹² The judge noted that as part of a large-scale environmental awareness program, “Stora, through its management, has given environmental concerns a high profile in its operations and has attempted to convey to its employees the need for them to act with those concerns in mind.”⁴⁹³ As such, having an ISO 14001-certified or other EMS in place can help demonstrate a company’s good faith and active attempts to

486. *Ibid.*

487. See, e.g., Bowater, EMS and Audits, available at <http://www.bowater.com/en/ems_audits.shtml>; Kruger, *Press Release: Corner Brook Pulp and Paper Woodlands Receives ISO 14001 Registration* (July 17, 2001), available at <http://www.kruger.com/english/news/News_010717_A.html>; Alberta-Pacific Forest Indus., Inc., *Press Release*, available at <http://www.alpac.ca/About_Al-Pac/ISO.htm>.

488. Webb, *supra* note 9. In 1998, 25% of Canadian pulp, paper, and paperboard mills were ISO 14000 certified. See Industry Canada, *Corporate Social Responsibility*, available at <<http://strategis.ic.gc.ca/epic/internet/incsr-rse.nsf/en/rs00122e.html>>.

489. Industry Canada, *Corporate Social Responsibility*, available at <<http://strategis.ic.gc.ca/epic/internet/incsr-rse.nsf/en/rs00122e.html>>.

490. See <<http://www.ics.sgsna.com/articles/ISO14001%20News.htm>>. See also, e.g., Nova Scotia Power Inc. *Environmental Report to Employees 1996*, at 10 (“NSPI has concluded that development of ISO 14001 environmental management systems will add due diligence . . .”), available at <<http://www.nspower.ca/OurEnvironment/Report/1996report.pdf>>.

491. [1993] N.S.J. No. 330 (N.S. Prov. Ct.).

492. *Ibid.*

493. *Ibid.*

improve environmental performance.⁴⁹⁴ However, the general standard of care that an EMS may help demonstrate cannot excuse specific instances where a company fails to exercise due diligence.⁴⁹⁵

Representatives of one of the mills of concern in this factual record told the Secretariat that the company sought ISO 14001 certification for the mill for the benefit of the company, not in response to regulatory pressures.⁴⁹⁶ They said the government has minimal impact with respect to the mill's decision to seek ISO 14001 certification, and that customers are primarily concerned with third-party certification with respect to forest operations, as opposed to mill operations.⁴⁹⁷

8. Facts Regarding Enforcement of the *Fisheries Act* and the *PPER* at the Ten Pulp and Paper Mills of Concern

This section presents detailed information on enforcement section of s. 36(3) of the *Fisheries Act* and provisions of the *PPER* related to effluent limits and follow-up testing for each of ten mills that are the subject of this factual record, for the time periods set out in Council Resolution 03-16. For each mill, background information is presented on the mill and its history, followed by information on the mill's production processes, effluent treatment and control, the results of effluent testing conducted under the *PPER*, information on the second cycle of environmental effects monitoring for the mills, enforcement action taken by Environment Canada or a province (as provided for in Council Resolution 03-16), and an update on the mill's status.

The section on the updated status of the mill presents information regarding the mill's environmental performance since 2000. This information places the facts presented in the factual record in a temporal context. It is relevant to a consideration of the effectiveness, in terms of specific deterrence, of any action Canada took in response to effluent test failures or failures to conduct follow-up testing that occurred during the time periods referenced in Council Resolution 03-16. This is consistent with Environment Canada's policy that, in terms of enforcing the *Fisheries Act* and the *PPER*, "effectiveness is compliance . . . in the shortest time possible and with no further occurrence of violations."⁴⁹⁸ Other factors could also be relevant to the mills' performance post-2000, and the fac-

494. R. Krut and H. Gleckman, *supra* at 94-95.

495. See *R. v. Imperial Oil Ltd.* (2000), 148 C.C.C. (3d) 367 (C.A.).

496. Personal communication with ACI representatives (15 November 2004).

497. *Ibid.*

498. Environment Canada Information (3 February 2005).

tual record does not present a comprehensive set of detailed information about all possible factors. The information would also be relevant to determining whether Canada, consistent with its *Fisheries Act Compliance and Enforcement Policy*, considered any effluent test failures or failures to conduct follow-up testing that occurred during the time periods in Council Resolution 03-16 as part of a mill's compliance history in connection with non-compliance that occurred in subsequent years.

Table 8 provides a summary of the enforcement responses that are suggested in Environment Canada draft 1993 enforcement strategy for the PPER, which according to Environment Canada was an attempt to ensure consistency in enforcement. Environment Canada informed the Secretariat that although the considerations reflected in this strategy remain valid, the document is dated and, as a draft strategy, served only as guidance that Environment Canada regions could choose to apply or not, at their discretion.

Table 8. Suggested Enforcement Responses in 1993 Draft Enforcement Strategy

Parameter	Degree of non-compliance	Suggested enforcement response
BOD	7 to 20% over PPER limit	Check results; inspection may be warranted
	20.1 to 29.9% over PPER limit	First occurrence: warning Second occurrence: if duly diligent, warning; if not, injunction, prosecution or both
	30% or more over PPER limit	Injunction, prosecution or both
TSS	5 to 15% over PPER limit	Check results; inspection may be warranted
	15.1 to 24.9% over PPER limit	First occurrence: warning Second occurrence: if duly diligent, warning; if not, injunction, prosecution or both
	25% or more over PPER limit	Injunction, prosecution or both
Trout acute lethality	Three consecutive weekly follow-up tests pass	Warning
	Three consecutive weekly follow-up tests do not pass	1) Ministerial request under Fisheries Act s. 37(1); 2) injunction; 3) prosecution; or 4) injunction and prosecution

The Secretariat was able to obtain the most detailed information for the five mills for which site visits were conducted: the ACI, Bowater, Irving Saint John, AV Cell and Tembec St. Raymond mills. Only one mill, the Interlake mill, declined explicitly to participate in the preparation of the factual record.

Information in this section is from the McCubbin Report, unless otherwise noted.

8.1 ACI – Grand Falls, NL

Information regarding the ACI mill was obtained from Environment Canada, ACI and the Submitters and formed the basis of the portions of the McCubbin Report regarding the mill. ACI agreed to the Secretariat's request to visit the mill, and a site visit was conducted on 15-16 November 2004. Unless otherwise noted, this section describes the ACI mill prior to installation and operation of a new AST system that was in construction during the Secretariat's site visit.

8.1.1 Mill background and history

The mill was built between 1903 and 1909 by English interests, using groundwood and sulphite pulping processes that were standard at the time to manufacture newsprint. The mill site was selected to take advantage of the hydraulic head available at a waterfall and dam on the Exploits River. Initially, grinders were directly driven by waterwheels, but all energy recovery from the river today is by turbines driving electrical generators. Salmon pass upstream around the dam by a fish ladder. Returning young are diverted from the turbines to safe passage in the river by an underwater louver system.

The mill has been modified and expanded numerous times. The most recent major modification to the production systems was around 1990, when sulphite pulping was shut down, and TMP became the only pulping process used on site. Older paper machines were removed, leaving machine Nos. 3 and 7 in operation. A secondary effluent treatment system was installed in 1995, in response to the *Pulp and Paper Effluent Regulations*.

The mill was ISO 14000 certified in 2003 and ISO 9001 certified in 2000.

8.1.2 Production processes

A simplified flow sheet of the mill operations is presented in Figure 3 below (excluding the “North sewer,” which is not shown).

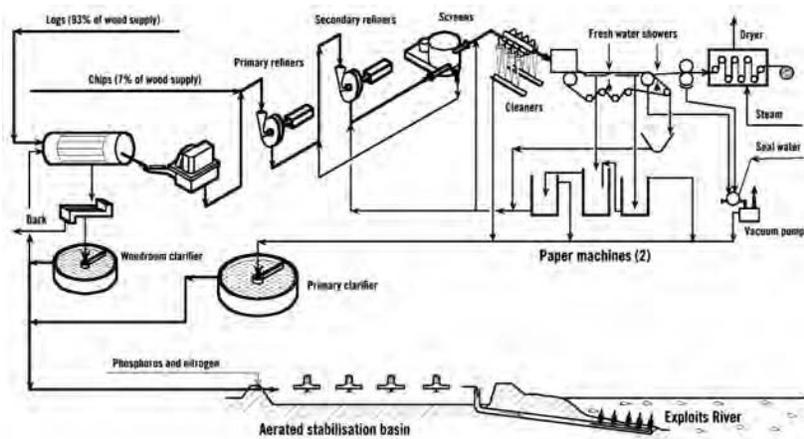


Figure 3. Manufacturing Process and Effluent Treatment at ACI Mill

The wood supply to the mill is 100% roundwood,⁴⁹⁹ of which 90% is black spruce and the rest mostly balsam fir. Ninety-three percent of the wood is debarked on site, using conventional wet drum debarkers, and then chipped. The balance of the wood is purchased in chip form. The woodroom effluent is clarified by settling in the woodroom clarifier, and most of it is recycled to the woodroom, with the excess flowing to the secondary effluent treatment system.

Mill staff informed the Secretariat that the manganese content of the pulp is unusually high, due to high manganese content of the Newfoundland soil. They said the manganese content of the effluent from the debarking system is between 3 and 4 mg/l. They believe that this might contribute to mill effluent toxicity, although (as explained below) manganese has not been identified with certainty as the cause of toxicity.

The chips are converted to pulp in conventional pressurized, two stage TMP refiners. The pulp is screened to remove oversize particles,

499. “Roundwood” refers to wood delivered to the mill in the form of logs, normally with bark still attached. Most mills today receive little or no roundwood, but use mostly sawmill wastes in the form of chips or perhaps debarked slabs.

with conventional recycle of almost all the rejects. The unusable material is landfilled. Grit and other small particles are removed in centrifugal cleaners and discarded.

The pulp is brightened with sodium hydrosulphite. A chelating agent is added to the pulp to convert the manganese to a non-toxic form. This is not conventionally part of newsprint manufacturing but has been standard practice at the Grand Falls mill since October 2003. Dyes for color control are added to the pulp stock before it is supplied to the two paper machines. The quantities of dye used are too small to be of environmental significance, although they require the mill to segregate the white water in the two paper machines to avoid introducing unwanted color to white grades of paper.

There are two paper machines, both of which are equipped with modern double wire formers, and various other upgrades including modernized control systems. (Figure 3 shows single wire formers in the interest of simplicity.)

The reference rate of production for the mill in 2000 was 659.7 t/day.⁵⁰⁰ The current production capacity of paper machine 3 is 500 t/day, and it normally produces white newsprint with a basis weight from 45 to 52 gsm (grams per square meter). The current production capacity of paper machine 7 is approximately 190 t/day, and it normally produces white or colored newsprint, with a basis weight between 45 and 60 gsm. This machine is equipped with a dissolved-air flotation "saveall," to recover fine fiber from the white water, so that color does not affect the other paper machine. Colored paper production runs are relatively short, but grade changes are managed without shutting down or cleaning out the machine and have minimal environmental significance.

The finished paper is cut to width and rewound onto reels to customer specifications, then wrapped and shipped, mostly by truck, to the nearby port of Botwood. Paper trimmed off during rewinding, and reject paper is repulped and used in the conventional manner.

Approximately 65% of the electric energy used is generated in company hydro-electric systems and the balance is purchased.

500. Environment Canada Information (3 June 2004). In some cases, Environment Canada indicated an RPR of 643.6 t/day for 2000, but in January 2001, the mill reported to Environment Canada that the RPR for 2000 was 659.7.

8.1.3 Effluent control

The principal effluent discharge to the Exploits River is from the ASB secondary treatment system. There were also discharges from the "North" sewer" and from "Paper machine #3 sewer" prior to 2004. These sewers contain primarily non-contact cooling waters, but can potentially contain BOD, TSS and toxic substances if there is a white water spill in the mill, or leaks in certain process equipment. In early 2004, the #3 sewer was split between the process sewer and the North sewer, with streams that could potentially be contaminated being routed to the process sewer. There is now no discharge from the former #3 sewer. A review of all toxicity tests performed in 2000 (the only complete year available to CEC) shows that none of the samples from the North sewer were acutely lethal. The flow in the non-process sewers normally exceeds the flow in the process sewer.

All effluent except effluent from the woodroom clarifier is passed through a primary clarifier to remove settleable solids, then combined with the fraction of the overflow from the woodroom clarifier that is not recycled, and fed to the secondary treatment system. Phosphorus and nitrogen are added upstream of the ASB basin to promote biological action in the treatment system.

The secondary treatment system in place in 2000 is described by mill staff as an aerated stabilization basin (ASB), and this terminology is retained here, although its design characteristics are not within the normal range of such systems. Some of the information from Environment Canada refers to the ASB as an "aerated settling basin."

The ASB was constructed by excavation in rock adjacent to the mill. The operating depth is 23 feet, and the total capacity is 141,000 m³, but mill staff estimate that the effective volume is somewhat less, due to accumulation of sludge.

The BOD load entering the basin is normally 22 t/day in winter and 15 t/day in summer. The original design load was 13.7 t/day, but the Secretariat's expert informed the Secretariat that this was underestimated. Mill staff explained that the sewer configuration, with extensive recycle of the woodroom effluent after primary treatment, made measurement of the flow in each component of the effluent stream impracticable at the time the ASB was being designed.

The BOD load to the ASB corresponds to 34 kg/ton product, which according to the Secretariat's expert is higher than normal, probably due

to the presence of the wet debarking system. The effluent flow corresponds to 19 m³/ton product, which according to the Secretariat's expert is below typical values seen in the industry. The organic load on the ASB corresponds to 156 g/m³, which according to the Secretariat's expert is about three times higher than the load normally seen in ASB systems that discharge effluent that is in compliance with the acute lethality requirements of the *PPER*.

Mill staff informed the Secretariat that approximately 10 t/day (dry basis) sludge was removed from the ASB, dewatered and burned, at a cost of approximately two million dollars per year. This represents approximately 50% of the mass of BOD in the effluent prior to treatment, and corresponds approximately to the quantity of sludge that would be produced in an AST system. A conventionally designed ASB will not accumulate a significant amount of sludge.

The installed aeration power in the ASB is 1065 kW, equivalent to approximately 50 watts/kg BOD/day, which is within the generally accepted design range.

Mill staff reported that the ability of the ASB to remove BOD and toxicity is lower in winter than in summer, citing the drop in operating temperature in cold weather as the principal reason. However, the BOD load per unit volume is also higher in winter. In such a system, which is already loaded more heavily than a normal system, one can expect degradation with further overload. Up to 20 tons/hour of steam is added to the effluent in winter to raise the temperature. Review of toxicity test data in Table 6 shows that in 2000, failures were mostly in December, with a number in spring also.

Mill staff indicated the possibility that manganese, combined with low water hardness, may contribute to toxicity, and explained that Paprican had conducted a toxicity identification evaluation (TIE) on the mill's effluent beginning in 2001. A roundtable discussion on the mill's toxicity was conducted in April 2001, with Environment Canada in attendance. The mill also conducted a four-day diagnostic meeting in 2003 to address toxicity concerns. These studies were inconclusive as to the cause of the toxicity. Review of the NPRI database by the Secretariat's expert indicated that the manganese content of the Grand Falls mill effluent is not unusual. The Secretariat's expert concluded that a more likely cause for the mill's past toxicity problem was the inadequate capacity of the ASB treatment system.

The effluent discharge point, shown in Figure 4, is equipped with an automatic sampling system and Parshall flume to measure the flow.



Figure 4. Effluent Discharge at ACI Mill

8.1.4 PPER test results

Both the submission and information from Environment Canada indicate that the mill had nine reported failures of the acute lethality test for trout for the mill's main process effluent in 2000, and no exceedances of the daily or monthly BOD or TSS limits. The results of trout lethality tests on the main process effluent tested after treatment in the ASB for the entire year, along with follow-up tests in early 2001 relating to failed trout tests at the end of 2000, are shown in Table 9. These results show that several trout test failures involved less than 100% mortality of the test trout, and that inconsistent results were obtained at various times for samples taken on the same day. The mill had no failures for the non-process effluent (the North sewer and Paper Machine #3 sewer) in 2000.

Table 9. Lethality Test Results for ACI mill Process Sewer Discharge in 2000

Date sampled	Mortalities	96HrLC50	Notes
15-Jan-00		>100%	Mill sample
24-Feb-00		>100%	Mill sample
28-Mar-00		>100%	Mill sample
27-Apr-00	6/10	92%	Mill sample. 20% mortality at 50% concentration.
3-May-00		89%	Mill sample
3-May-00		>100%	Mill sample – follow-up test
8-May-00		>100%	Mill sample – follow-up test
20-May-00		>100%	Mill sample – follow-up test
26-May-00		>100%	Mill sample – follow-up test
14-Jun-00	2/10	>100%	Environment Canada duplicate sample
14-Jun-00	0/10	>100%	Environment Canada duplicate sample
14-Jun-00		84%	Mill sample
23-Jun-00		>100%	Mill sample
28-Jun-00		75%	Mill sample – follow-up test
6-Jul-00		>100%	Mill sample – follow-up test
10-Jul-00	0/10	>100%	Environment Canada triplicate sample
10-Jul-00	1/10	>100%	Environment Canada triplicate sample
10-Jul-00	1/10	>100%	Environment Canada triplicate sample
10-Jul-00		>100%	Mill sample – follow-up test
20-Jul-00		>100%	Mill sample – follow-up test
17-Aug-00		>100%	Mill sample

Date sampled	Mortalities	96HrLC50	Notes
30-Sep-00		>100%	Mill sample
25-Oct-00		>100%	Mill sample
29-Nov-00	7/10	84%	Mill sample. Issue over power outage at test lab.
4-Dec-00	3/10	>100%	Mill sample – follow-up test
4-Dec-00	6/10	<100%	Mill duplicate sample (unreported) ⁵⁰¹
12-Dec-00	0/10	>100%	Mill sample – follow-up test
18-Dec-00	7/10	84%	Mill sample – follow-up test
22-Dec-00	10/10	63%	Mill sample. 20% mortality at 50% effluent.
23-Dec-00	10/10	59%	Mill sample. 30% mortality at 50% effluent.
23-Dec-00	4/10	>100%	Environment Canada triplicate sample (search warrant)
23-Dec-00	1/10	>100%	Environment Canada triplicate sample (search warrant)
23-Dec-00	1/10	>100%	Environment Canada triplicate sample (search warrant)
28-Dec-00	6/10	91%	Mill sample. ASB Cell # 1 (same day) had LC50 of 71%.
8-Jan-01	7/10		Mill sample – follow-up test
9-Jan-01	8/10		Mill replicate sample (JWEL St. Johns)
9-Jan-01	3/10		Mill replicate sample (JWEL Halifax)
9-Jan-01	2/10		Mill replicate sample (ESG Guelph)
9-Jan-01	10/10		Mill replicate sample (PAPRICAN)

Failed tests are in bold. Source: Environment Canada Information (June 2004).

501. The mill informed the Secretariat during the November 2004 site visit that in 1996, the mill started using two test labs to test duplicate samples for trout toxicity.

The mill continued to experience trout acute lethality test failures on its main process effluent in 2001-03. In 2001, the mill had over 20 trout test failures on the process effluent. Overall, the mill informed the Secretariat that it had 41 trout toxicity test failures on the main process effluent from 1998 through 2003. All of these toxicity test failures occurred in the period from November to June.⁵⁰²

8.1.5 *Environmental Effect Monitoring*

The results of the second cycle EEM study for the ACI mill indicated that an adult fish survey “was not feasible because suitable sentinel species are not available in the Exploits River.”⁵⁰³ Regarding impacts on the benthic vertebrate community, the study stated that “[t]he benthic communities in the reference area were clearly different from those in the exposure area. Benthos were more abundant in the exposure area, and the species composition was very different. The observed differences are consistent with moderate nutrient enrichment and are probably the result of the mill effluent. . . . The observed effects were not indicative of degraded habitat. . . .”⁵⁰⁴ In regard to toxicity, the study stated noted that on the four times at which it was tested during the EEM cycle, treated effluent was not lethal to fathead minnows or *Ceriodaphnia dubia*.⁵⁰⁵ Sub-lethal toxicity of the treated effluent was varied with respect to fathead growth and *Selenastrum* and was evident with respect to *Ceriodaphnia*.⁵⁰⁶ The Environment Canada Environmental Assessment Coordinator for Newfoundland and Labrador concluded that “[b]ased on the results in the EEM report, the benthic invertebrate community survey showed effects between the reference and the exposure site, and that the difference in community structure may be related to mill effects.”⁵⁰⁷ The mill informed the Secretariat that historical sludge beds in the Exploits River related to mill operations are no longer present.⁵⁰⁸

8.1.6 *Canada’s enforcement actions*

Environment Canada issued the mill two warnings related to failures of the test for acutely lethal effluent prior to 2000. These warnings

-
502. All from mill handout provided to Secretariat during 15 November 2004 site visit.
503. Abitibi-Consolidated Cycle 2 EEM Interpretive Report (March 2000), in Environment Canada Information (June 2004).
504. *Ibid.*
505. *Ibid.*
506. *Ibid.*
507. Environment Canada Information (3 June 2004).
508. Personal communication with mill staff (15 November 2004).

were part of the mill's compliance history relevant to enforcement actions taken with respect to the mill's non-compliance in 2000. The first warning was dated 1 August 1998, and related to acutely lethal effluent at the mill in December 1997, which was attributable to the failure of an ammonia detection probe.⁵⁰⁹ On 13 January 2000, Environment Canada issued the ACI mill another formal warning that stated:

I have reasonable grounds to believe that according to Company reported data, the final effluent from the Aerated Stabilization Basin (ASB) was acutely lethal during the period November 22 to December 30, 1999. This was confirmed by legal samples taken by an Environment Canada inspector on December 06, 1999. Based upon interviews conducted by the inspector and examination of Company records, Environment Canada determined that the cause of the effluent toxicity was primarily due to incomplete secondary treatment. The incomplete treatment resulted from the removal sludge at such a rate that it caused a system upset lowering the cell # 1 mixed liquor suspended solids to a point where proper secondary treatment and toxicity removal was not being achieved. The inspection established that the lack of diligent attention to the effect that sludge removal was having on the critical operating parameters, of the ASB, which led to the poor treatment performance and thus contributed to the discharge of an acutely lethal effluent, a deleterious substance, into the Exploits River, waters frequented by fish. . . .

Your failure to recognize the effects that sludge removal was having on adequate secondary treatment to prevent this deposit of a deleterious substance is considered by us to demonstrate lack of due diligence. Further enforcement action beyond this Warning will be undertaken against Abitibi-Consolidated Inc.: Grand Falls Division, and its officials, should a violation of this nature be repeated.⁵¹⁰

Environment Canada considered the cause of the acutely lethal effluent in December 1997 to be different from the cause of the acutely lethal effluent in December 1999.⁵¹¹ Mill staff informed the Secretariat that it is difficult to distinguish the cause of the toxicity failures over time, and that generally there were several different issues that evolved over time.⁵¹²

509. Enforcement Action Briefing Note (undated) and internal Environment Canada memorandum on Responses to questions on Attachment 4 of the pulp and paper compliance report (2 September 1999), in Environment Canada Information (3 June 2004 and 3 February 2005).

510. Environment Canada Information (3 June 2004).

511. Enforcement Action Briefing Note (undated), in Environment Canada Information (3 June 2004).

512. Personal communication with mill staff (16 November 2004).

The mill denied that it had demonstrated a lack of due diligence, claiming in a letter to Environment Canada that acute lethality in November and December 1999 was likely due to an unexpected tear in a baffle curtain in the ASB, and the mill stated it took steps to repair the damaged curtain on 19-22 January 2000.⁵¹³ Despite this explanation, Environment Canada reiterated its view that the mill's sludge removal method demonstrated a lack of due diligence, and stated: "We concur that the tear in the baffle curtain was not foreseeable and was dealt with in a diligent manner. We also agree that this tear may have caused some short circuiting which potentially magnified the problem that occurred."⁵¹⁴

Regarding the mill's compliance history prior to 2000, information available to the Secretariat indicates that the mill had six trout lethality test failures and one TSS exceedance in 1999, and a total of 41 trout lethality failures in the period 1998 to 2003. This compliance history is relevant to factors in the Compliance and Enforcement Policy for selecting an appropriate enforcement response for non-compliance observed at the mill in 2000.

The mill reported additional failures of the trout tests on 27 April 2000 and 3 May 2000 (see Table 9, above). At Environment Canada's request, the mill submitted an action plan, involving (in addition to the required follow-up tests) testing for various parameters that could explain the toxicity and inspection of the new baffle curtain.⁵¹⁵ The mill stated "[t]here is not an obvious indication of the source of mortality."⁵¹⁶ In response to the April and May test failures, an Environment Canada *Fisheries Act* inspector conducted an on-site inspection on 14-15 June 2000. This was an announced inspection, and the only planned on-site inspection that Environment Canada conducted at the mill in 2000.⁵¹⁷ During this on-site inspection, both the Environment Canada inspector and mill staff took samples of the effluent on the same day. As indicated in Table 7, the mill sample did not pass the acute lethality test, but Environment Canada took duplicate samples and both passed the acute lethality test. The inspector noted that "[t]he company has been experiencing some lab reported failures (both rainbow trout and *daphnia*

513. *Ibid.*

514. *Ibid.*

515. ACI letter (3 May 2000), in Environment Canada Information (3 June 2004).

516. *Ibid.*

517. Environment Canada Information (3 February 2005). However, Environment Canada returned to the mill two more times in 2000, on July 10 and December 23, to obtain legal samples of mill effluent. Environment Canada Information (3 June 2004).

magna) which they cannot or have not explained. Should these failures continue to go unexplained further investigation will need to be pursued.”⁵¹⁸

An Environment Canada inspection report for 28 June 2000 states that “[d]ue to the company’s reported toxicity failure on June 28, 2000, and the fact that the company has been experiencing discrepancies in laboratory results with respect to toxicity, as well as the fact that the June 28, 2000 failure was not known until July 09, 2000, it was decided that an inspection, including legal samples, would be conducted on July 10, 2000.”⁵¹⁹ On 10 July 2000, an Environment Canada *Fisheries Act* inspector returned to the mill at Grand Falls to obtain legal samples of the mill’s effluent. Environment Canada took triplicate samples, and all three passed the acute lethality test. The mill reported no failures of the trout acute lethality test for July, August, September or October 2000.

On 4 December 2000, the mill reported to Environment Canada that the mill’s monthly effluent sample, taken on 29 November 2000, failed the trout acute lethality test. The mill informed Environment Canada that a power outage at the test laboratory may have affected the test results. The Environment Canada case officer discussed the power outage with the laboratory, which estimated a total outage of 25 to 30 minutes, and with an Environment Canada toxicologist, and the laboratory technician and the toxicologist agreed that “a power outage of 25-30 minutes, while testing a sample of pulp mill effluent, should have no significant effect on the test outcome.”⁵²⁰ On 5 December 2000, Environment Canada informed the mill that it considered the test on the November 29 sample to be valid.⁵²¹ In a letter to Environment Canada on 13 December 2000, the mill stated that power outages of approximately 124 minutes and 43 minutes had occurred at the test laboratory during the course of the 4-day test and stated that, because the outages prevented normal aeration during the test, “it is the contention of the mill that the tests for all three outfalls at the Grand Falls site have been invalidated by non-adherence to the testing protocol.”⁵²² The Secretariat did not receive information that resolved the discrepancy regarding the total time of the power outage at the laboratory. However, the Environment Canada toxicologist continued to maintain that the test on the

518. Environment Canada Information (3 June 2004).

519. *Ibid.*

520. Environment Canada Case Officer’s report, in Environment Canada Information (3 June 2004).

521. *Ibid.*

522. Environment Canada Information (3 June 2004).

29 November sample was valid after reviewing the mill's letter noting a longer total time for the power outage.⁵²³

Following the failed toxicity test on the 29 November 2000 sample, the mill began follow-up trout tests, testing samples taken on 4, 12, 18, 22, 23 and 28 December 2000. The reported tests for December 4 and 12 passed, but a duplicate test of the December 4 sample failed, as did the reported tests for December 18, 22, 23 and 28. The Environment Canada case officer wrote:

[On] December 14, 2000, I spoke with [the mill Environmental Superintendent] and asked what the Company was doing to determine what was causing the upset in the ASB and resulting in the toxicity bumps of the final effluent. [He] informed me that he was waiting on some resin and fatty acid (RFA) results. [He] agreed that there was a problem with the ASB being too small to retain the effluent long enough to receive complete secondary treatment. [He] said that he had raised the ASB level, by adding stop logs, and it was now at its maximum level and retention period. [He] said that they had to watch their ASB influent very closely to ensure the loadings didn't exceed what the ASB can handle. I told [him] that he was not obligated to tell me the results of the toxicity test that he had performed on [the duplicate sample from December 4] but that he could if he wanted. The test ended with 60% mortality in 100% effluent failing the acute lethality test.⁵²⁴

This note acknowledges agreement between Environment Canada and the mill that the ASB was too small for complete secondary treatment. Environment Canada staff informed the Secretariat that design concerns can be taken into account in regard to the government's consideration of the viability of a due diligence defense. Environment Canada informed the Secretariat that it has no information on the design of the ASB.⁵²⁵ The Secretariat asked whether Environment Canada ever considered the possibility that the ASB treatment system at the mill was underdesigned, and Environment Canada informed the Secretariat:

The *PPER* requires that all mill effluent meet certain requirements. These are verified through mill reports and on-site inspections by [Environment Canada] fishery inspectors. Issues of design are a matter for decisions by regulatees; design is not regulated under the *PPER* and would not be considered during an inspection.⁵²⁶

523. *Ibid.*

524. *Ibid.*

525. Environment Canada Information (16 May 2005).

526. Environment Canada Information (3 February 2005).

An Environment Canada summary of occurrences at the mill in 2000 states that in response to the toxicity of the mill effluent detected in December 2000,

[t]he mill initiated additional chemical analyses, and engaged Paprican to investigate the incidents to determine the cause and a solution. TIE was initiated and the mill also developed an action plan, which included increasing the retention time in the ASB. A polymer, introduced to the system on 24 November, was identified as a potential source of the toxicity.⁵²⁷ . . . The mill continued with the TIE and Paprican investigations into 2001. The results were inconclusive.⁵²⁸ [Environment Canada] continued to work with ACI-GF and Paprican in an attempt to identify and eliminate the toxicant in a compliance promotion mode.⁵²⁹

The mill continued to experience related trout toxicity test failures in 2001-03, with failures generally occurring during winter months. Based on the TIE and a Paprican report on mill toxicity in 2001, the mill identified lower temperatures in the winter, manganese in the wood fiber and low water hardness as the most likely causes contributing to the toxicity problem. In June 2003, the mill conducted a mill diagnostic study, called a "Blitz," with a four-day meeting of a cross-functional team made up of mill staff, wastewater experts and a toxicity expert. As part of the study, the mill developed an "issue tree" to address all possible causes and used mill data to perform model simulations of the ASB and an on-site pilot study to verify the modeling results. The mill also raised the temperature of the flow entering the ASB. Ultimately, the mill concluded that modifying the ASB system would not be sufficient to address the toxicity issues at the mill, and in March 2004, ACI decided to construct an AST system at the mill.⁵³⁰

In May 2003, prior to the mill diagnostic, Environment Canada conducted a search warrant at the mill to collect additional samples, and the mill was charged with violating *Fisheries Act* s. 36(3) and the *PPER* on 10 November 2003. The charges were for discharging toxic effluent into the Exploits River on 12 February 2002, 22 January 2003 and 31 March 2003. The toxicity problems underlying these charges were related to the toxicity of mill effluent that occurred in 2000 and continued through 2003.⁵³¹ The mill explained that Environment Canada's enforcement

527. The mill discontinued use of the polymer.

528. During the TIE in 2001, manganese in the wood was identified as a possible cause, requiring further study.

529. Environment Canada Information (3 June 2004).

530. All from personal communications and mill handout provided to Secretariat during the site visit of 15 November 2004.

531. Personal communication with mill staff (16 November 2004).

actions in 2003 were a factor in accelerating the schedule for conducting the mill diagnostic and in the company's decision to take action to stop "playing the margin" in terms of the toxicity of the mill's effluent.⁵³²

ACI pleaded guilty to the November 2003 charges and was convicted, and on 29 March 2004 was sentenced as follows:

- a fine under *Fisheries Act* s. 40(2)(b) of \$10,000, payable immediately;
- an additional fine under *Fisheries Act* s. 79.2(i) of \$100,000, payable by 15 April 2004, to be distributed to the Environmental Damages Fund and applied to fish habitat management and conservation projects or initiatives on the Exploits River;
- an order to undertake specified Action Items according to a set schedule, secured with a \$500,000 Irrevocable Letter of Credit.

The court-ordered Action Items were as follows:

- by 1 March 2004, provide a report to Environment Canada and the Newfoundland and Labrador Department of Environment evaluating polymer use on wood room effluent, and commence weekly reporting on various technical data on mid-stream mill effluent;
- by 15 March 2004, provide to Environment Canada and the Newfoundland and Labrador Department of Environment and Operations Plan for the existing effluent treatment system;
- on 1 April 2004, commence monthly progress reports on the specified Action Items;
- by 15 April 2004, conclude negotiation of the Operations Plan;
- by 1 May 2004, complete phase I of Paper Machine # 3 vacuum separation project and provide federal and provincial authorities results of pilot testing for proposed modifications to the ASB treatment system and proposal for an alternative system if the study shows that desired results are not attainable with modifications to the ASB;
- by 31 May 2004, install new sludge press for the effluent treatment system;
- by 30 June 2004, provide federal and provincial authorities a report on the achievement of continuous sludge removal targets;
- by 31 October 2004, complete all required changes to Paper Machine # 3 vacuum separators;

532. *Ibid.*

- by 30 November 2004, if the pilot study on modification of the ASB system showed that desired targets for effluent treatment are attainable, complete all upgrades to the effluent treatment system and a revised Operations Plan for the upgraded effluent treatment system;
- by 31 December 2004, complete negotiation and approval of Operations Plan for the upgraded effluent treatment system.⁵³³

8.1.7 Update

The Secretariat visited the mill with its technical expert on 15-16 November 2004. At that time, the new AST secondary treatment system was under construction, at a capital cost of approximately \$18 million. This system was required according to the compliance schedule attached to the 29 March 2004 court order upon ACI's plea of guilty to charges that it violated the *PPER* and the *Fisheries Act* in 2002 and 2003.

The new AST installation is designed to use the classic activated sludge process, where effluent is aerated and bio-solids formed are settled in secondary clarifiers and recycled, to maintain a significantly higher biomass concentration than is found in the ASB it replaces. In the AST system, excess sludge is dewatered and incinerated. This process is widely used in the paper industry worldwide to treat effluent similar to that discharged from the ACI-Grand Falls mill. In Canada, it is generally successful in complying with the *PPER*, providing that the design capacity is adequate.

One of the three partially constructed aeration tanks is shown in Figure 5. The concrete and aeration systems for all three tanks were almost complete in November 2004, when the photograph in Figure 5 was taken. Mechanical and electrical equipment was mostly installed, with instrumentation installation in progress at the time of the visit. Figure 6 shows an overview of the AST project earlier in 2004.

533. *R. v. Abitibi-Consolidated Co. of Canada*, Order (29 March 2004), in Environment Canada Information (3 February 2005).



Figure 5. Aeration Basins for AST System at ACI Mill

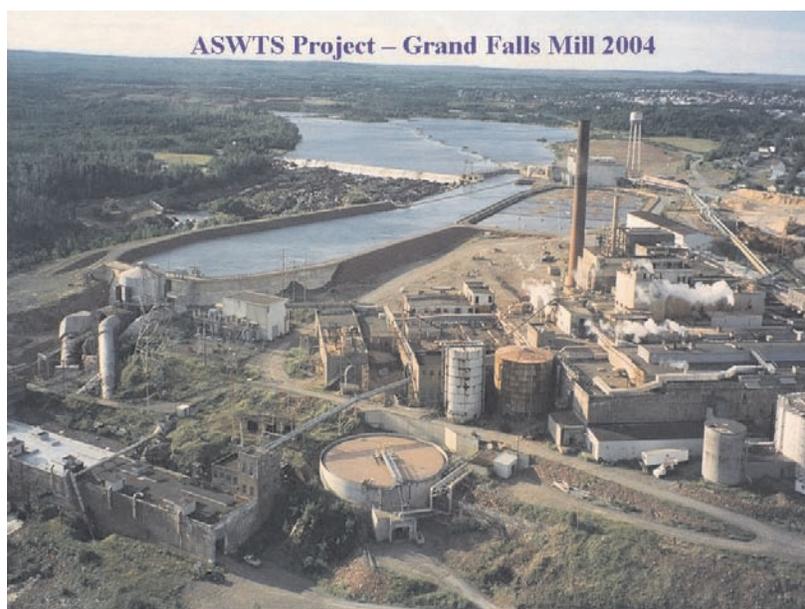


Figure 6. AST System Project, ACI Mill in 2004 (photo courtesy of ACI)

8.2 *Bowater – Liverpool, NS*

Information regarding the Bowater mill was obtained from Environment Canada and the submitters. In addition, the Secretariat received information from the mill in connection with the factual record, and the Secretariat visited the mill with its technical expert on 4 February 2005. Figure 7 shows the Bowater mill.



Figure 7. Overview of Bowater Mill (photo courtesy of Bowater)

8.2.1 *Mill background and history*

Bowater was originally a British company that developed paper mills in the United States and Canada through a mixture of acquisitions and new construction. The North American operation was obtained by a United States company in 1984, and has operated independently since then, with its head office in Greenville, South Carolina, and a subsidiary head office in Montreal for some functions relating to Canadian mills. Today, Bowater has six mills in Canada, five in the United States, and one in South Korea.

The Liverpool mill was built in 1929 to manufacture newsprint. It has been modernized and refurbished over the successive years such that very little of the original mill remains. A TMP production line was installed in 1989 to replace groundwood and sulphite pulp. The former steam plant located within the mill was shut down before 1995. Until 1999, the wood supply was a mix of logs and sawmill chips. Since then, 100 percent of wood supply has been from off-site chips. The equipment for processing logs has been removed, so the mill staff does not expect to debark wood in the foreseeable future.

In contrast to most pulp and paper mills, the Bowater installation does not operate boilers, but purchases steam from a third party, Brooklyn Power Corp, in a facility located adjacent to the mill. There are no boilers or other combustion systems on Bowater's site. Waste biomass from Bowater's paper mill and sawmill operations is burned by Brooklyn Power Corp who sells the power generated to the Nova Scotia grid, and sells steam to mill. Clean condensate from the use of the steam is returned by the mill to Brooklyn Power. The Province of Nova Scotia and Environment Canada consider Brooklyn Power as separate from Bowater in all respects, including effluent and air emission permits and control.

The Liverpool mill was working toward certification under ISO 14001 when the Secretariat visited the mill in February 2005. The mill has an environment committee and follows an environmental management system modeled after ISO 14001. As of February 2005, Bowater had three Canadian mills that were ISO 14001 certified.⁵³⁴

8.2.2 *Production processes*

The production systems are relatively simple at the Bowater mill. The manufacturing and effluent treatment process is shown in Figure 8. Wood is purchased in the form of chips, which are all used to produce a single grade of pulp by the conventional TMP process. All of the pulp is used to manufacture newsprint on two standard, twin-wire paper machines. The reference production rate is 784 t/day, with the annual average production approximately 700 t/day.

534. All from personal communication with mill staff (4 February 2005).

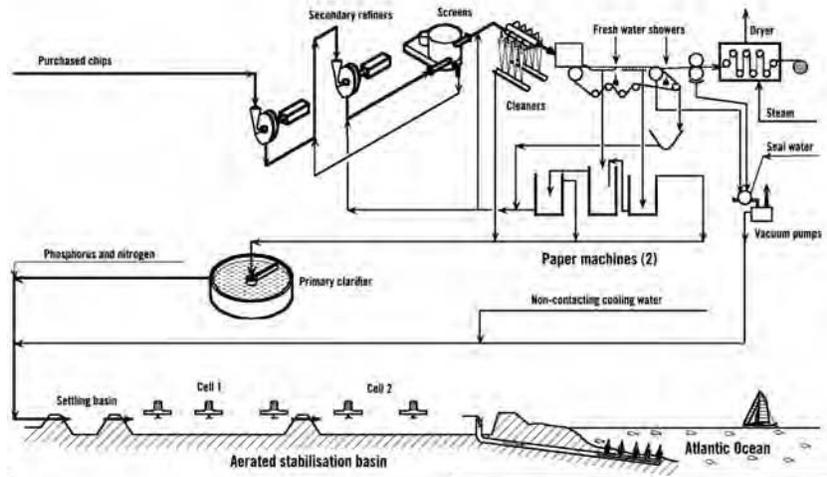


Figure 8. Manufacturing Process and Effluent Treatment at Bowater Mill

After refining, the pulp is screened to remove oversize fibers and fiber-bundles, which are mostly recycled. The pulp is cleaned to remove grit, bark specks and other small debris, and then fed to the paper machines.

In this type of mill, approximately 90 to 95% of the purchased wood is ultimately sold as paper. A few percent of the wood is lost as fiber and screen rejects to the effluent, and is recovered from the primary clarifier and burned. The balance is dissolved organic material in the effluent, and is the cause of most of the BOD and lethality in it. Since the mill process is designed always to reject these unusable organic substances to the effluent, there is very little possibility of any spilled material or other unplanned discharge increasing the effluent discharge substantially (as there is in a kraft mill, for example). Even if a large whitewater chest or stock tank is dumped due to an accident, it would represent only a very minor change in effluent characteristics because the suspended solids would be removed in the primary treatment system, and the absolute quantity of dissolved pollutants in even a large tank is tiny relative to the physical size of the effluent treatment system.

8.2.3 *Effluent control*

All effluent is treated in a primary clarifier, except non-contact cooling water and vacuum pump seal water. The latter carries little suspended solids because the vacuum pumps are equipped with white water separators.

The primary treated effluent, along with the non-contact cooling water and the vacuum pump seal water, is pumped 5 kilometers to a two-stage ASB. Immediately upstream of the ASB is a small settling basin, which is used intermittently as a cooling basin, with spray coolers operated during summer months when it is desirable to reduce the temperature in the ASB. During cold weather, the settling basin is bypassed, to avoid cooling the effluent.

The untreated effluent flow is typically 32,000 m³/day. The BOD load is normally 22,000 kg/day in summer and about 15,000 kg/day in winter. The total capacity of the two cells in the ASB is 356,000 m³, equivalent to an organic load of 53 g/m³/day in winter, and less in summer, which is typical of normal design practice. The two ASB cells are operated in series. There is a quiescent zone with retention of 1 to 2 days at the downstream end of the second basin of the ASB.

The effluent treatment system began operation in December 1995. The ASB was equipped with four jet aerators at the time of initial construction in 1995, with a total capacity of 900 HP. Eight surface aerators, with a total capacity of 600 HP, were added in 1997. A further 200 HP aeration capacity was added in August 2000, and 300 HP more in 2004. When the treatment system was installed in 1995, some woodroom effluent was also being treated, so the untreated BOD was certainly higher. Prior to 1997, the aeration power, equivalent to 0.5 to 0.7 kWh/kg BOD/day, was well below the normally accepted levels for a surface-aerated system, but the increases in 1997 and in 2000 largely corrected this. Termination of on-site debarking in 1999 resulted in an increase in applied aeration power relative to the BOD load, which brought the system into the normal range of applied aeration power. At the current BOD load, the applied aeration power is 1.5 kWh/kg BOD₅/day, which is within the range of normal design practice.

In late 2000, a permanent system was installed to dredge solids from the bottom of the quiescent zone at the discharge end of the ASB and return it to the sludge dewatering system at the mill. The capital cost

of the system was \$2.5 million. Only 2 to 4 dry t/day of sludge is returned, which is very small relative to the normal sludge return rate in an activated sludge system. Further, the primary sludge is dewatered and burned, so the only fraction that is actually returned to the effluent stream is the few percent of fine material that will leak through the sludge dewatering press to the filtrate. This action did not eliminate subsequent failures of the acute lethality test, but no further exceedances of the TSS discharge limits occurred.

In 2004, a system for adding phosphorus and nitrogen independently was installed at the ASB. This is consistent with the developing knowledge of control of nutrients in paper mill ASB systems. A sufficient nutrient concentration is required for efficient degradation of the oxygen-demanding and toxic substances in the effluent. However, excess nutrients can cause some undesirable effluent characteristics, so it is preferable to be able to modify the feed of each nutrient independently, and conveniently. Previously, a blend of chemicals containing phosphorus and nitrogen had been added in the mill. This approach required that the mill purchase, store and handle a modified chemical blend whenever it was desired to change the ratio of phosphorous to nitrogen supplied to the ASB.

Sludge accumulation in cell 2 has been an issue. Mill staff have rearranged aeration equipment to maintain a biodegrading sludge layer on the bottom of the ASB (i.e., to make it operate in textbook fashion).

Mill staff is concerned about effluent temperature in the ASB. Cell 1 cools to about 15 °C, and cell 2 to about 5 °C in colder weather. However, there is no correlation between effluent temperature, or the time of year, and failures of the acute lethality test.

Figure 9 shows the Bowater mill ASB system.



Figure 9. Bowater ASB System (photo courtesy of Bowater)

8.2.4 PPER test results

The mill has at times been operated to discharge treated process effluent through one outfall, and untreated, non-contact cooling water through another, but during some periods, and at all times since January 2004, the cooling water has been recycled within the process.

Routine sampling and analysis of the treated process effluent discharge, and of the non-contact cooling water discharge, was carried out in 2000. During 2000, the mill's process effluent had 13 failures of the trout acute lethality test (10 for the process effluent and 3 for the non-process cooling water) and 3 exceedances of the daily TSS limit. Failures, and relevant follow-up tests, for the process effluent are summarized in Table 10 below. In all cases, the mill conducted the required weekly acute lethality testing after failures, until three consecutive samples were non-lethal. The mill reported no exceedances of the daily or monthly BOD limits.

Table 10. PPER Test Results for Bowater Process Effluent in 2000

Date	Trout lethality	TSS
January 25		Exceed daily allowance by 26%
March 8	Pass (Sample and analysis by Environment Canada staff)	
April 4		Exceed daily allowance by 3.5%
April 14		Exceed daily allowance by 35%
June 20	Pass (Sample and analysis by Environment Canada staff)	
August 1	Fail	
August 8	Fail LC50 = 78%	
August 15	Fail	
August 22	Fail LC50 = 71%	
August 29	Fail LC50 = 71%	
September 5	Fail 100% mortality after 48 hours	
September 12	Fail 100% mortality after 48 hours, LC50 = 71%	
September 19	Fail 100% mortality after 48 hours, LC50 = 50%	
September 26	Fail 100% mortality after 48 hours, LC50 = 40%	
October 3	Fail 90% mortality after 96 hours	
October 10	Pass	
October 17	Pass	
October 24	Pass	

Source: Environment Canada Information (June 2004)

Only tests by Environment Canada, and mill tests showing failures or required follow-up tests are shown.

Test results are from company self-monitoring, unless noted otherwise.

Mill staff attributed the TSS exceedance on 25 January 2000 to heavy rains and high winds disturbing the ASB. Mill staff attributed the TSS exceedances in April to heavy rains, pond dredging operations and formation of filamentous microbes in the ASB. The company applied sodium hypochlorite in an attempt to inhibit the growth of filamentous organisms. In late 2000, the company installed a permanent system to remove settled solids from the ASB quiescent zone.

In addition to the three TSS exceedances in 2000, the mill exceeded the TSS limit twice each year in 1997 and 1998 and once in 1999 and three times in 2000. Mill process effluent was within TSS limits throughout 1996. Bowater considered the unforeseen development of filamentous organisms in the ASB cells to be the cause of the TSS discharges that exceeded the regulatory discharge limit. The mill took corrective action to address TSS problems by dredging the quiescent zone in 1997; installing an in-line turbidity meter to provide immediate warning of high TSS discharges and adopting a written procedure for operation of the ASB in abnormal weather conditions in 1998; adding hypochlorite to kill filamentous bacteria at various times; bypassing the settling basin to prevent septicity in 1999; and finally installing a \$2.5 million continuous dredging system to avoid accumulation and reduce the chance of excessive discharge in 2000.

The Secretariat does not have complete information regarding the mill's compliance with the TSS effluent limits since 2000. Information provided to the Secretariat by the Sierra Legal Defence Fund indicates that the mill was in complete compliance with BOD and TSS limits from January 2003 to April 2004.

The mill's problems with toxicity of the process effluent began prior to 2000 and continued afterward. Table 11 shows the number of failures of the acute lethality test from 1996 through 2004, along with a summary of the actions the mill took to respond to test failures. According to mill staff, all monthly samples passed the lethality test in 2004. Mill staff told the Secretariat that the toxicity during the period from 1996 through 2003 was either due to different causes, or due to the same unknown cause, because no common cause was identified despite considerable efforts to identify the cause.⁵³⁵ Many acute lethality test failures in this time period indicated LC50 greater than 70 percent. In 2000, the lowest LC50 observed was 40 percent.

535. Personal communication with mill staff and information provided by mill staff (4 February 2005).

Table 11. Acute Lethality Test Failures for Bowater Process Effluent 1996 to 2004

Year	No. failures / monthly tests	No. failures / weekly follow-up tests	Mill actions
1996	4 of 12	6 of 12	Improved nutrient and biosolids management. Tested polymers in primary clarifier to reduce BOD load on ASB. Non-contact cooling water diverted to by-pass ASB. Evaluated aeration modifications.
1997	6 of 12	6 of 12	Toxicity attributed to resin and fatty acids (RFA). Added 600 HP surface aeration. Since then, RFA removal has been improved.
1998	0 of 12		No failures.
1999	2 of 12	2 of 8	No clear reason found. No action.
2000	3 of 12	7 of 10	No clear reasons. Toxicity attributed to unknown organic substances which were removed by carbon column in laboratory. Added 4 aerators, 325 HP. Reintroduced non-contact cooling water to ASB to reduce temperature.
2001	0 of 12		
2002	3 of 12	4 of 13	
2003	6 of 12	11 of 19	
2004	0 of 12		

Source: Bowater (4 February 2005) and Sierra Legal Defence Fund (2005).

Mill staff indicated that low water hardness in the area is a factor that may have contributed to toxicity problems at the mill. Mill feed water is very soft (about 2 ppm hardness) and is sometimes toxic to lab fish, which are acclimated to hardness around 200 ppm. According to mill staff, one or two fish died when tested in mill supply lake water. The effluent hardness before 2002 was typically about 15 mg/L. Mill staff said they searched for a toxicity test lab which used soft water, but found none with levels comparable to the natural water at Liverpool.

Since 2002, calcium hydroxide has been used to raise the pH of the untreated mill effluent to a suitable level for the ASB. Previously, sodium hydroxide was used. The use of the calcium salt increases effluent hardness to around 50 mg/L, and is believed by mill staff to be helpful in complying with the acute lethality test. However, there were a number of failures of acute lethality tests in 2003.

Mill staff informed the Secretariat that all acute lethality test failures were reported to and discussed with Environment Canada. Verbal notification was made within an hour of receiving test results, and written notification was made within 24 hours. Samples of effluent that failed the acute lethality tests were routinely analyzed to determine the concentrations of metals, resin and fatty acids and phenols in attempts to determine the causes of the toxicity. No abnormal values or concentrations sufficiently high to cause lethality were found. ASB operational data were also reviewed after each failure of acute lethality tests, but the only abnormality reported was that nitrite concentrations were higher than expected. At various times from 1997 to 2003, Bowater engaged several different consulting firms experienced in pulp and paper industry wastewater treatment to investigate the problem of acute lethality in the effluent, but this did not result in clear resolution of the issue.

With regard to the toxicity observed in 2000, the mill initially suspected that ammonia or nitrite was the cause, but neither were found to be at levels sufficient to cause mortality. After the test failure on August 1, the mill hired consultants to investigate. On August 22, a full-scale TIE was initiated. As a result of the TIE, metals, hardness, ammonia, resin and fatty acids, particulates and pathogens were ruled out as causes, and volatile or oxidizable compounds were identified as possible causes. A Gas Chromatograph-Mass Spectrometry analysis indicated that "something organic" was causing the toxicity. On August 26, the mill added four aerators to Cell 1 of the ASB and put the settling basin back in service. In the first two weeks of September, the quiescent zone was dredged. On September 15, non-contact cooling water was added to the

clarified effluent for temperature control, and on September 29, the mill stopped usage of two chemicals, a biocide and an anti-scalant, although they were being used at the same levels as before the toxicity event began. Notes of a 28 September meeting among mill staff, Environment Canada staff, and Nova Scotia Department of the Environment staff indicate that the effluent was toxic only to trout, and not to *Daphnia magna* or fathead minnows.⁵³⁶ The notes state that Environment Canada enforcement staff “stated that the mill has done a lot of work to date on trying to solve the toxicity issue and urged us to keep working at it.”⁵³⁷ On October 10, the effluent passed the acute lethality test, and no further acute toxicity was observed in the process effluent until some time in 2002. Mill staff said they believed the re-routing of the non-contact cooling water to the ASB as a key factor in solving the toxicity problem.⁵³⁸

The mill informed the Secretariat that there was no clear reason established for the failure of the acute lethality tests at the mill at any period from 1996 through 2003. According to the mill, the acute toxicity problems arose intermittently and were inconsistent from event to event. According to the Secretariat’s expert, the addition of 200 HP aeration capacity in August 2000 could have been expected to improve the performance of the ASB, but not necessarily immediately. In combination with the reduced BOD load resulting from the closure of the on-site debarking facilities, this additional aeration equipment raised the ratio of power to BOD load to a level that is normally sufficient.

The mill also had three failures of the acute lethality test for the mill’s non-contact cooling water in 2000. Failures, and relevant follow-up tests, for the non-contact cooling water discharge are summarized in Table 12 below.

536. Environment Canada Information (3 June 2004).

537. *Ibid.*

538. All from mill handout and personal communication with mill staff (3 February 2005).

Table 12. Lethality Test Results for Bowater Non-contact Cooling Water Discharge in 2000

Date	Trout lethality
4 January	Fail
11 January	Pass
18 January	Pass
25 January	Fail
1 February	Pass
8 February	Pass
15 February	Pass
June 6	Fail
June 13	Pass (Sample and analysis by Environment Canada staff)
June 13	Pass
June 20	Pass

Source: Environment Canada Information (June 2004).

Test results are from company self-monitoring, unless noted otherwise.

The mill reported that trout used to conduct a second test on a remaining portion of the January 25 sample survived.⁵³⁹ After inspecting the cooling system and determining that there were no leaks of toxic substances into it, the mill attributed the lethality of the non-contact cooling water to residual chlorine, which resulted from the use of chlorine to prevent accumulation of biological growth in the mill system. Equipment to dechlorinate the cooling water with sodium sulphite before discharge was installed in late 2000, which reportedly resolved the problem. Between 15 September and 23 December 2000, the non-contact cooling water was discharged to the ASB, and there was no direct discharge of cooling water to the receiving water.

8.2.5 Environmental Effects Monitoring

The second cycle EEM study for the Bowater mill consisted of an invertebrate community survey (ICS) which sampled at near-field, far-field, and far-far-field areas in Liverpool Bay and a reference area in

⁵³⁹. Environment Canada Information (3 June 2004).

Medway Harbour.⁵⁴⁰ The results indicated that invertebrate densities “at all three exposure areas were significantly higher than those in the reference area” but that “[d]espite the impairment of the near-field benthic community noted in the Cycle 2 ICS, conditions have dramatically improved since Cycle 1.”⁵⁴¹ The cycle 2 sublethal toxicity tests “suggest[ed] that fish, invertebrates and aquatic plant species generally would be unaffected by direct exposure to Bowater Mersey’s effluent.”⁵⁴² The EEM study did not include any dioxin or furan analyses of fish tissues because the mill has never used chlorine in its bleaching process and because dioxins and furans are not detectable in its effluent; similarly, because no complaints or questions regarding tainting were documented since the completion of cycle 1 testing, no tainting evaluation was performed during cycle 2.⁵⁴³

8.2.6 *Canada’s enforcement actions*

Information available to the Secretariat from Environment Canada, Bowater and the submission indicates that the mill had 4 trout lethality test failures and one TSS exceedances in 1999, and a total of 26 trout lethality failures and five TSS exceedances in the period 1996 to 1999. This compliance history is relevant to factors in the Compliance and Enforcement Policy for selecting an appropriate enforcement response for non-compliance observed at the mill in 2000.

Information from both the mill and Environment Canada indicate that all incidents of failure of the effluent to comply with *PPER* limits in 2000 were timely reported to Environment Canada by mill staff.

In response to the 25 January 2000 TSS exceedance of 25.8 percent, an engineer on Environment Canada’s program staff stated in an internal e-mail: “The exceedance is a result of hydraulic overload from the heavy rains. I expect the levels to come down. Could be one or more exceedances as the system needs time to settle down. If no improvement seen by the end of the week, further review may be warranted.”⁵⁴⁴ The mill provided Environment Canada updates on this incident on 13 April, 13 September and 14 December 2000, indicating progress on the installation of a positive solids removal project to address the TSS

540. Second Cycle EEM Final Interpretative Report for Bowater Mersey (March 2000), in Environment Canada Information (3 June 2004).

541. *Ibid.*

542. *Ibid.*

543. *Ibid.*

544. Environment Canada Information (3 June 2004).

exceedances at the mill in 2000.⁵⁴⁵ The project was completed by the end of 2000. Environment Canada took no action in regard to this exceedance because “the company continued to work towards identifying root causes and preventing a recurrence.”⁵⁴⁶

Environment Canada’s occurrence report for the 4 April 2000 TSS exceedance contains the notation: “TSS exceedance approximately 3.5 percent, no violation.”⁵⁴⁷ The margin of error associated with the TSS analytical test is 15 percent.

The Secretariat asked Environment Canada to explain in detail its response to the 15 April 2000 TSS exceedance, which was 35 percent over the daily limit. Environment Canada responded:

A review of correspondence indicates that this TSS exceedance occurred on 14 April 2000, as a result of dredging of solids from the treatment system. The dredging gave rise to the bulking together of fibres and their re-suspension in the pond. At that time, there were also high winds present over the open, outdoor treatment system. The mill took immediate action to turn off the aeration in one of the treatment plant cells, and provided an action plan to prevent the recurrence of the event. In response to the reported exceedance, [Environment Canada] program staff contacted the company to determine the nature and cause of the exceedance. The information was then [transmitted] to the Regional Enforcement Division. . . . [Environment Canada] fishery inspectors did conduct an on-site inspection in June 2000, sampled the treatment plant effluent, and found it to be in compliance with the regulations.⁵⁴⁸

Other information from Environment Canada indicates that, with respect to the two TSS exceedances in April 2000, “no enforcement action was taken on advice of programs – the mill was dredging the ASB, and a combination of high winds and filamentous bulking contributed to the problem. It was noted that the mill was taking steps to control the bulking, and that the levels would normalize when dredging was completed.”⁵⁴⁹ Environment Canada explained that the Regional Enforcement Manager discussed the case with the regional programs staff and was advised that the company had demonstrated due diligence.⁵⁵⁰ Environment Canada’s April 2000 Inspection Report for the

545. *Ibid.*

546. *Ibid.*

547. Environment Canada Information (3 June 2004).

548. Environment Canada Information (3 February 2005).

549. Summary of Occurrences – Bowater Mersey Paper Company (2000), in Environment Canada Information (3 June 2004).

550. Environment Canada Information (3 February 2005).

mill indicates that a follow-up inspection was conducted at the end of January 2001 with regard to the TSS exceedances in 2000.⁵⁵¹ The Secretariat requested, but did not receive, information regarding the follow-up inspection, which also covered toxicity problems that occurred from August to October 2000. Environment Canada informed the Secretariat that it considered information regarding the follow-up inspection regarding non-compliance in 2000 to be beyond the scope of the factual record.⁵⁵² However, Canada's response to the submission indicates that Environment Canada collected a sample of the effluent in January 2001, and the sample passed the acute lethality test.⁵⁵³

The 20 June 2000 inspection was a planned inspection, and one of two unannounced on-site inspections that Environment Canada made at the Bowater mill in 2000. The other was to sample the non-contact cooling water on 8 March 2000, following acute lethality test failures on that stream.⁵⁵⁴ Samples of the non-contact cooling water collected by Environment Canada in March and on 20 June 2000, as well as a sample of the process effluent collected on 20 June 2000, passed the acute lethality test.⁵⁵⁵ Environment Canada did not collect any samples of the process effluent in the period from August to October 2000, when the mill had ten consecutive weeks of failed acute lethality tests.⁵⁵⁶

Mill staff told the Secretariat that they had frequent discussions with Environment Canada on investigations of the failures of the acute lethality test that occurred on the process effluent in 2000. Environment Canada officials met with mill staff and provincial environmental staff at the mill on 28 September and 6 December 2000 to discuss the toxicity problem.⁵⁵⁷ Environment Canada's summary of the August to October toxicity problem states: "[Environment Canada] was provided frequent progress reports during the investigation. The mill's final analysis found that the root cause was likely nitrites, due to incomplete nitrification. Eleven experts who studied the problem could not assign a cause to the incomplete nitrification."⁵⁵⁸ The summary also acknowledges that the

551. Environment Canada Information (3 June 2004).

552. Environment Canada Information (3 February 2005).

553. Response at 15.

554. Environment Canada Information (3 June 2004).

555. *Ibid.*

556. Personal communication with mill staff (4 February 2005).

557. Another meeting of staff from the mill, Environment Canada and Nova Scotia Department of the Environment took place on 20 January 2000, to review the mill's compliance since a previous meeting in February 1999. Environment Canada Information (3 June 2004).

558. Summary of Occurrences – Bowater Mersey Paper Company (2000), in Environment Canada Information (3 June 2004).

mill provided Environment Canada with frequent progress regarding all incidences of *PPER* non-compliance observed in 2000. A note on Environment Canada's off-site Inspection Report for the mill for September 2000 states: "[The September Report is] not good with 4 trout failures. . . . They have worked diligently to determine the cause of the failures and although they have not come to any final conclusions, they are no longer toxic based on two samples in October."⁵⁵⁹ An Environment Canada's internal e-mail dated 3 October 2000 indicates that at an internal Environment Canada weekly enforcement meeting on 2 October 2000, enforcement staff "mentioned the string of toxicity failures at Bowater Mersey, Liverpool, and their attempts to [identify] the cause. They have brought in several 'experts' to examine all aspects of the system. The parameters of concern are all fine, apparently. This work is ongoing by the company, and they are keeping [Environment Canada] informed."⁵⁶⁰ Environment Canada attributed the solution of the toxicity problem in part to increased aeration in the first ASB cell.⁵⁶¹ Environment Canada took no enforcement action with regard to the acute toxicity failures that occurred at the mill in 2000.

Mill staff provided the Secretariat the mill's perspective on the mill's interaction with Environment Canada regarding *PPER* non-compliance at the mill in 2000. According to the mill, Environment Canada

- participated in technical discussions, in which Environment Canada staff told mill staff that they could not think of any additional measures the mill should be taking;
- recognized the elusive, intermittent nature of different acute lethality events at the mill;
- continued to support "science-based investigation and resolution";
- supported Bowater in its efforts to investigate and resolve individual issues as they arose;
- supported individual action items taken in response to individual episodes, while making clear that the mill was nonetheless still responsible for compliance; and

559. Environment Canada Information (3 June 2004). Monthly off-site inspection reports are typically prepared by the end of the following month.

560. Environment Canada Information (3 June 2004).

561. Off-site inspection report for Bowater (August 2000), in Environment Canada Information (3 June 2004).

- recognized that “despite the lack of clear identification, physical and operational improvements have been made.”⁵⁶²

Mill staff also explained to the Secretariat their view that factors listed in the Compliance and Enforcement Policy did not support enforcement action against Bowater for non-compliance in 2000:

- in regard to damage or potential damage to fish habitat, the mill stated that the LC50 on its process effluent was never lower than 40 percent and that EEM has not identified impact on fish in Liverpool Bay;
- the mill stated that its consistent and timely follow-up to each incident indicates that issues regarding the intent of the alleged violator did not support enforcement action;
- regarding the mill’s compliance history and whether there were repeated occurrences, the mill stated its view that different causes were suspected for each intermittent incident and that there had been no previous federal corrective action “because of due diligence in each case”;
- regarding whether the mill attempted to conceal information and was willing to cooperate, mill staff noted that it had an open dialogue with environmental officials and provided immediate notification of problems, and that Environment Canada participated in efforts to address compliance problems.⁵⁶³

8.2.7 Update

Throughout 2003, the mill was consistently in compliance with BOD and TSS standards. BOD discharges were typically below 20 percent of the regulatory limits (SLDF 2005). Mill effluent was also consistently non-toxic to *Daphnia magna* in 2003. According to information that the Sierra Legal Defence Fund provided to the Secretariat, the mill had a total of 15 failures of the trout lethality tests in 2003, all of which occurred from June 3 through the end of 2003. Weekly tests were performed after the failed tests, as required. Mill staff informed the Secretariat that the effluent was fully compliant with the PPER standards throughout 2004, and that they see no reason to expect further failures. Data provided by Sierra Legal Defence Fund confirm complete compliance with the acute lethality test from January to April 2004.

562. Mill handout and personal communication with mill staff (3 February 2005).

563. *Ibid.*

8.3 *Irving Pulp and Paper – Saint John, NB*

Information regarding the Irving Pulp and Paper mill was obtained from Environment Canada and the Submitters, as well as other sources. In addition, the mill provided the Secretariat with extensive information, and the Secretariat visited the mill on 17 November 2004. Figure 10 shows the Irving Pulp and Paper mill from across the Saint John River.



Figure 10. Overview of Irving Pulp and Paper Mill (photo courtesy of Irving)

8.3.1 *Mill background and history*

The Irving Saint John mill was originally built in 1893 to manufacture sulphite pulp, and was purchased by Irving in 1946. Subsequently, a kraft fiberline was added, and later the sulphite mill was shut down and the kraft systems modernized and expanded. For the past approximately 20 years, the mill has produced only bleached market kraft pulp.

The mill site is unusually restricted, with the Saint John River flowing on three sides. The site was originally a rock island, but has been joined to the mainland by a causeway for many years. This mill is one of the few kraft pulping operations in Canada located within a large urban area.

Various studies of potential means of treating the effluent using conventional processes were undertaken between 1970 and 1994. Irving informed the Secretariat that in December 1989, Environment Canada informed the company that new pulp and paper effluent regulations should be released as early as the Spring of 1990. In 1990 and 1991, Irving Pulp and Paper commissioned various studies to prepare for the new regulations, including studies on treatment alternatives, such as pumping the effluent to various sites remote from the mill, due to the lack of space on-site. The studies also examined alternatives to external treatment. Irving informed the Secretariat that by the end of 1994, it had enough information to seek engineering proposals for secondary treatment, with a proposed completion date for a secondary treatment system for the Irving Pulp and Paper mill in Saint John of the end of the third quarter of 1995.⁵⁶⁴

Irving informed the Secretariat that during 1992, it contracted consulting firms to assist in preliminary design and to collect field information on the proposed site for the off-site secondary treatment system. It also initiated an application to rezone the proposed site. Irving explained: "The rationale was to register a project under the Provincial EIA regulation with a complete environmental study to ensure that all concerns would be addressed and the Department would be able to screen the project out of the EIA process. Since no other mill in Canada, at this time had required a full EIA, this approach seemed more than appropriate."⁵⁶⁵ After the *PPER*, 1992, took effect, Irving received a transitional authorization to operate until 31 December 1993 (later extended to 31 December 1995). In the Fall of 1992, Irving Pulp and Paper registered the off-site secondary treatment facility under the New Brunswick EIA process, with the intention to complete construction of an ASB on the site by the end of 1995. There was some objection by residents against the locations chosen, and in December 1992, the New Brunswick Minister of Environment decided to subject Irving's proposal for an off-site effluent treatment plant to the provincial Environmental Impact Assessment (EIA) process.⁵⁶⁶ The rezoning process and EIA process continued through 1993. Irving informed the Secretariat it was not successful in expediting the process, and that changes (such as moving the outfall location) were required to meet the concerns of provincial authorities. Irving said that through out 1992 and 1993, it continued to investigate "pollution prevention processes internal to the mill which could meet the limits imposed by the *PPER*."⁵⁶⁷

564. Letter from Irving Pulp and Paper to Secretariat (3 November 2004).

565. *Ibid.*

566. *Ibid.*

567. *Ibid.*

In 1994, Irving concluded that it would be impossible to construct an effluent treatment plant by the *PPER* deadline of 31 December 1995, because of the delays inherent in the EIA process. Instead, Irving decided at that time to attempt to comply with the *PPER* by modifying the pulp manufacturing process through what it termed an Environmental Improvement Program, instead of installing a conventional effluent treatment system. By May 1994, the EIA and transitional authorization were amended to reflect treating the mill's effluent internally using process changes and pollution prevention technology. Environment Canada accepted this as a valid approach, but declined to enter into any special agreements and emphasized that the decision to take this approach did not excuse Irving from complying with the *PPER*. Irving felt that they could comply with the *PPER* by 1998, by modifying the mill processes. By the end of 1994, Irving said all major equipment purchases had been made, detailed engineering was underway, and construction of the liquor system had started.

At the end of 1996, Irving said that "the proposed Environmental Improvement Program was complete, but BOD and toxicity numbers had not been achieved."⁵⁶⁸ New Brunswick issued the mill operating permits that matched the mill's capability to control BOD and TSS discharges, with more stringent levels imposed over time. Environment Canada attended frequent meetings with Irving and provincial officials, and therefore was fully aware of Irving activities, but never gave any approval to Irving to discharge effluent in excess of the *PPER* limits. During 1996, the mill reduced the number of outfalls from thirteen to three.

Irving explained that in 1997, it initiated an investigation into the use of reverse osmosis technology to address the ongoing *PPER* non-compliance, including construction of a pilot plant. Commissioning of the reverse osmosis unit began in March 1998 and continued through 1999. Irving said that the reverse osmosis system "eventually exceeded the expected ability but still did not make the effluent non toxic nor meet the BOD limits. The installation of a moving bed bio-reactor ultimately proved to be the final solution to IPP's problem."⁵⁶⁹ By October 2000, the MBBR unit was fully installed and operational.

Notwithstanding the Irving Saint John mill's chronic non-compliance with the *PPER* throughout the period 1996 to 2000, in 2001, the

568. *Ibid.*

569. *Ibid.*

CCME presented Irving Pulp and Paper with a pollution prevention award for the year 2000. The CCME stated as follows:

Irving Pulp & Paper explored various options to meet the federal Pulp and Paper Effluent Regulations. All other mills chose secondary treatment systems, which treat the effluent at the end of the pulping process. Irving Pulp & Paper decided to use an innovative approach to prevent the formation of pollutants in its wastewater.

The two major goals of the federal regulations were to reduce biochemical oxygen demand (BOD) and LC50 levels (lethal concentration at 50 percent mortality) in pulp and paper mill effluent. BOD relates to the amount of oxygen required to decompose waste in water. High BOD levels reduce the amount of oxygen available for aquatic organisms. LC50 tests indicate the toxicity of a substance or mixture to aquatic organisms. Over a four-year period (1994-1997), Irving Pulp & Paper installed five innovative technical changes to improve the quality of its wastewater. The company continuously monitored and improved the system to achieve 100 percent non-toxic effluent and reduce BOD levels by 75 percent in October 2000.

One of the technologies that the Irving mill introduced to the pulp and paper industry was reverse osmosis. Reverse osmosis essentially filters pollutants out of the effluent. This technology has not only helped Irving Pulp & Paper achieve its goals for BOD and toxicity levels, it also has been demonstrated to remove endocrine disrupting compounds.

These compounds impair the reproductive systems of fish and amphibians. Irving Pulp & Paper continues to support leading edge research into this phenomenon at the University of New Brunswick.⁵⁷⁰

On 17 May 2000, Irving Pulp and Paper informed its mill employees that it was initiating the process of obtaining ISO 14000 certification.⁵⁷¹ As of October 2005, the company's web site indicates that the mill "is actively progressing with the ISO 14001 (Environmental) certification."⁵⁷²

8.3.2 *Production process*

A simplified flow sheet of manufacturing and effluent control processes is presented in Figure 11.

570. CCME web site, at <http://www.ccme.ca/assets/pdf/2000_poll_prevention.pdf>; see also Irving web site, <<http://www.irvingforest.com/AwardWinning.asp>>.

571. Environment Canada Information (3 June 2004).

572. Irving Pulp and Paper web site, <<http://www.irvingforest.com/IrvingPulpPaper.asp>>.

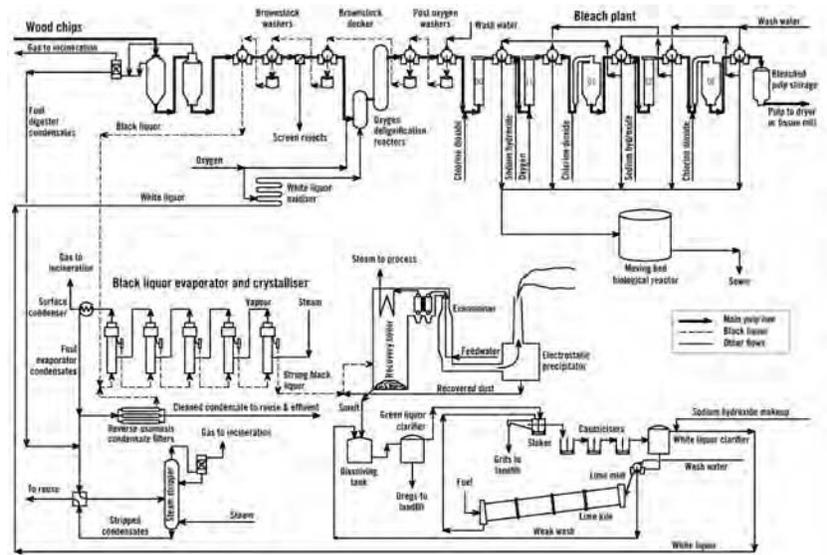


Figure 11. Flowsheet of Irving Pulp and Paper Mill

The mill uses the conventional kraft process to manufacture approximately 900 t/day of bleached pulp, all of which is sold off site, except that about 170 t/day are used in the adjacent tissue mill, which is also owned by Irving. The pulp production process is largely single line.

The following discussion of manufacturing processes focuses on the aspects that are related to minimizing effluent discharges.

A conventional oxygen delignification stage was added to the bleach plant in 1996, and a second stage added in January 1999.

All material separated from the pulp stream in the oxygen delignification process is recycled to the brown stock screens and washers and ultimately destroyed by incineration in the mill's recovery boiler. Delignification in the oxygen stages is 55%, which is higher than normal in the industry, and therefore leads to a lower-than-normal discharge from the ECF stages.

The bleach plant has used a conventional elemental chlorine free (ECF) bleaching process since the early 1990s. All material removed from the pulp in the ECF bleaching process is discharged to the effluent.

Chlorine dioxide manufacture for the ECF plant uses hydrogen peroxide instead of the more common methanol, to reduce by-product formation of organics which would contribute BOD to the effluent.

All steam produced on site is from combustion of black liquor in the recovery boiler or from burning hog fuel⁵⁷³ in a dedicated boiler. Fossil fuels are used only in the lime kiln. The mill generates 28 MW of electricity, and purchases 1 to 2 MW.

8.3.3 Effluent control

The manufacturing process, as described above, uses most of the well known technologies available to minimize formation of effluent in the kraft process, and mentioned in the previous chapter. In addition, there is a comprehensive system of sumps incorporated into the mill's sewer system to recover accidental losses of black liquor organics.

The principal effluent streams from the mill are kraft condensates, bleach plant filtrates, the tissue mill discharge, and cooling water.

In February 1996, a number of upgrades to the black liquor and condensate systems were commissioned, to reduce BOD and toxicity of the mill effluent. These included:

- Additional sixth effect evaporator;
- New surface condenser;
- High solids crystallizer;
- Condensate separation;
- Condensate stripping; and
- Burning of stripper off gasses.

About 30 percent of the kraft condensates are steam stripped,⁵⁷⁴ which, according to the Secretariat's expert, is typical of many low-effluent mills. Most of the remaining condensates are treated in a reverse

573. "Hog fuel" refers to an indeterminate mixture of wood wastes from debarking wood and sawmill operations.

574. Steam stripping separates most of the organic pollutants from a kraft condensate stream, for disposal by incineration. The process requires relatively high amounts of energy, so it is normally applied only to the most contaminated fraction of the condensates. The quantity Irving is stripping is typical of industry practice.

osmosis system. The system separates approximately 5,000 m³/day of condensate into a concentrate, containing most of the pollutants in 2 percent of the feed flow, and a clean stream. The concentrate is recovered and burned in the mill's recovery boiler. Some of the cleaned condensates are reused, while some form part of the effluent stream.



Figure 12. Irving Pulp and Paper Mill – Reverse Osmosis Plant
(photo courtesy of Irving)

In 1996 the brown stock washing and screening area was upgraded including:

- New knotters;
- New brown stock wash presses; and
- Spill recovery sump.

The bleach plant effluent is treated biologically in a Moving Bed Biological Reactor (MBBR), as shown in Figure 11, and discussed below. Figures 13 and 14 show the MBBR and the substrate used to promote treatment. This reduces the BOD of the effluent, but adds some suspended solids.



Figure 13. Irving Pulp and Paper Mill – MBBR (photo courtesy of Irving)

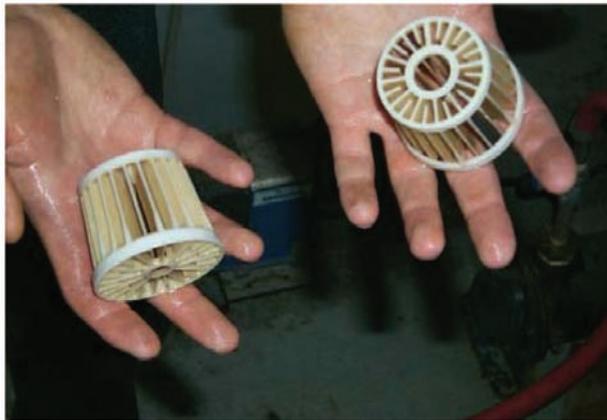


Figure 14. Irving Pulp and Paper Mill – MBBR Substrate (photo courtesy of Irving)

The tissue mill effluent was discharged to the Saint John city sewer, then to the river without treatment, until 1997, but since then it has been discharged with the pulp mill effluent.

The chemical oxygen demand (COD) of the mill effluent is 29 kg/t product, which is similar to the values normal in the biologically treated effluent from a bleached kraft mill. This demonstrates that the combination of manufacturing processes and treatment of selected effluent streams is successful in reducing discharges of organic substances, and that the spill control system is operating at least reasonably well.

Irving informed the Secretariat that the capital cost of the in-plant effluent control system has been approximately \$300 million, and that it has reduced mill operating costs by about 10 percent. Irving estimated that the capital cost of an ASB effluent treatment system would have been approximately \$75 million. Therefore, Irving Pulp and Paper states that it did not receive any monetary benefit from the delay in meeting *PPER* limits.

8.3.4 *PPER test results*

The information gathered for the factual record included somewhat inconsistent information regarding *PPER* test results for the Irving Saint John effluent over the period 1996-2000. Data from Environment Canada is presented in Table 13, and data provided by the company is shown in Table 14. The information included in the submission and its appendices was incomplete and is not shown here. Despite the differences in data reported by the different sources, all show a trend toward increasing compliance over this time period. The Secretariat is not able to explain the differences among the data sets on the numbers of exceedances and trout lethality test failures.

As shown in all three of these tables, following the end of the transitional period for the *PPER* on 31 December 1995, the mill effluent was frequently not in compliance with the applicable effluent limits. The number of non-compliance incidents generally dropped over time. The mill's reverse osmosis treatment system for kraft condensates commenced operation during 1998.

Table 13. Exceedances and Acute Lethality Test Failures at Irving Pulp and Paper Mill 1996-2000 (Environment Canada data)

Year	Trout lethality	Daily BOD	Monthly BOD	Daily TSS	Monthly TSS	Total
1996	155	312	12	0	0	479
1997	51	64	12	0	0	127
1998	24	44	12	0	0	80
1999	2	0	10	0	0	13
2000	6	9	9	1	0	25

Source: Response to submission and Environment Canada Information (3 June 2004).

Table 14. Exceedances and Acute Lethality Test Failures at Irving Pulp and Paper Mill 1996-2003 (company data)

Year	Trout lethality	Daily BOD	Monthly BOD	Daily TSS	Monthly TSS	Total
1996	155	—	12	—	4	—
1997	52	73	12	2	0	139
1998	25	179	12	2	0	218
1999	1	0	9	0	0	10
2000	6	8	9	1	0	24
2001	2	0	0	0	0	2
2002	3	0	0	0	0	3
2003	3	1	1	2	0	7

Source: Internal reports provided by Irving Pulp and Paper, February 2005.

Table 15 shows the BOD and TSS exceedances and trout acute lethality test failures for 2000 at the Irving Saint John mill.

Table 15. Summary of BOD and TSS Exceedances and Trout Test Failures at Irving Pulp and Paper Mill in 2000

Date	TSS % over limit	BOD % over limit	Trout acute lethality LC50
1 February			71%
8 February			71%
7 March		0.8	
21 March	19.7%		
7 April			71%
19 April			35.4%
13 June			76%
12 July		5.4	
13 July		9.4	
14 July		3.5	
15 July		11.2	
17 July		3.7	
28 August		6.3	
29 August		14.6	
29 October		2.4	
15 December			fail

8.3.5 Environmental Effects Monitoring

The results of second cycle EEM study for the Irving Saint John mill indicated a diverse and abundant benthic community that displayed “changes in composition with increasing discharge from the discharge.”⁵⁷⁵ Similarly, “multiple regression results did not suggest a mill related effect in the [benthic invertebrate] community.”⁵⁷⁶ Statistical analysis of the data collected did, however, indicate a non-mill-related

575. Irving Pulp and Paper, Ltd., Cycle 2 EEM Interpretive Report (March 2000), in Canada Information (June 2004).

576. *Ibid.*

effect on the benthic invertebrates stemming from “raw sewage loading in close proximity to the discharge, and a natural gradient in salinity with distance from the discharge.”⁵⁷⁷ With respect to toxicity, the study noted that sublethal toxicity has improved since the first cycle EEM study, with the test results showing “variability, probably related to the test method and not to measured effluent quality parameters.”⁵⁷⁸

8.3.6 Canada’s enforcement actions

Environment Canada visited the mill with New Brunswick environmental staff on 9 January and 29 February 1996, for a project status update. As a result of these meetings, federal and provincial officials “determined that the IPP project initiatives went beyond the requirements of the PPER (water reduction, reverse osmosis treatment of select mill streams and oxygen delignification).”⁵⁷⁹ However, in January 1996, Environment Canada opened an investigation into the mill’s PPER compliance “after it was evident that compliance was not going to be achieved until the project was completed.”⁵⁸⁰

Environment Canada conducted an inspection of the mill and collected samples on 29 April 1996. The samples indicated that the mill’s effluent was acutely lethal and that the BOD was in excess of the allowable limit. In addition, Environment Canada found that some of the mill outfalls were not being monitored in accordance with the regulations.

On 2 May 1996, the mill collected 3 samples for trout bioassay, two of which failed the trout acute lethality test. As a result of these tests, Environment Canada issued Irving Pulp and Paper a warning letter on 23 July 1996. The warning letter stated that Environment Canada had reasonable grounds to believe the mill and the mill manager were in violation of ss. 6(1)(a), 6(4), 7(1) and 14 of the PPER and ss. 36(3) and 40(2) of the *Fisheries Act* as a result of monthly effluent monitoring reports indicating 26 acutely lethal effluent failures and six monthly BOD exceedances in every month from January to June 1996. The BOD exceedances were from 125 to 304 percent over the allowed limit and the LC50 for the acute lethality tests ranged from 3.1 to 76.5 percent. The warning said that “[a]ny future inspection of your facility that identifies a violation may result in prosecution.”⁵⁸¹

577. *Ibid.*

578. *Ibid.*

579. Environment Canada Information (3 June 2004).

580. *Ibid.*

581. Environment Canada warning letter to Irving Pulp and Paper (23 July 1996), in Environment Canada Information (3 June 2004).

Environment Canada conducted a follow-up inspection on 27-28 November 1996 and noted that the mill had reduced the number of out-falls to four, with plans to eliminate one of those by the end of the year. Environment Canada noted improvements in the mill's monitoring program, including new equipment, a laboratory trailer and new staff. Environment Canada did not take samples because of an unscheduled shutdown, and on 20 December 1996, Environment Canada returned and took a sample from the main chemical sewer. The sample failed the trout acute lethality test. The Secretariat has no information indicating that Environment Canada took any enforcement action as a result of that failed sample.⁵⁸²

Environment Canada met with New Brunswick officials and mill staff on 11 April 1997 to discuss the mill's progress, and the mill presented a plan to be put into effect in 1997 to achieve BOD reductions and, according to a Paprican assessment, also eliminate toxicity. An Environment Canada summary of the meeting notes that results of pilot plant testing of the reverse osmosis system were very encouraging and states: "this is sort of a multi-million dollar 'gamble' for the mill but they are willing to take it in hopes of being much closer to compliance."⁵⁸³ The summary also notes that mill's projects for reducing BOD "were designed and dependent upon the mill getting the increased BOD allowance of 8800 kg/d by considering them as a 'mill complex' with the tissue mill."⁵⁸⁴ On 12 June 1997, Environment Canada informed the mill that it did appear that the pulp and paper plant and the tissue plant were separate facilities and not a mill complex as defined in the *PPER*, but in 1999, Environment Canada granted the mill's application to treat the two facilities as a mill complex, on the grounds that the company was able to make sufficient plant modifications to obtain mill complex status and increase its BOD allowance.⁵⁸⁵ This involved considering a change in the pH of the main Irving Pulp and Paper effluent after combining it with the tissue plant effluent as a form of treatment.⁵⁸⁶ With the mill considered as a mill complex, 20 percent of the mill's main effluent now comes from the tissue mill.⁵⁸⁷

582. All from Environment Canada Information (3 June 2004).

583. Environment Canada internal memorandum (6 May 1997), in Environment Canada Information (3 June 2004).

584. *Ibid.*

585. Environment Canada Information (3 June 2004).

586. Environment Canada Information (3 June 2004) and meeting of Secretariat with Environment Canada staff (3 February 2005).

587. Meeting of Secretariat with Irving Pulp and Paper staff (17 November 2004).

On 3 March 1998, Environment Canada conducted an on-site inspection of the mill and collected a sample from the main chemical sewer. The sample failed the trout acute lethality test, and on 2 April 1998, Environment Canada charged the mill with a violation of s. 36(3) of the *Fisheries Act*. Environment Canada conducted a follow-up inspection on 10 July 1998 and collected a sample that passed the trout acute lethality test. These charges were dropped on 7 October 1998. An Environment Canada chronology regarding Irving Pulp and Paper for 1996 to 1999 states:

As a result of the charges, the mill appeared to have intensified their efforts and investments to come into compliance. By June 1998 the mill test data indicated the effluent was non-acutely lethal, and an inspection by EC in July 1998 found the same result. Environment Canada believed that Irving Pulp and Paper committed an offense under the *Fisheries Act* during early 1998, that the company failed to exercise all due diligence to avoid that offense, and that their actions subsequently to the laying of the charges did not constitute the exercise of due diligence relative to the offense for which they were charged. There were mitigating factors in the decision to withdraw the charge. The mill missed the January 1996 deadline for compliance because of unavoidable delays in implementing new, [innovative] pollution reduction technologies in the plant. The concept behind the pollution reduction technologies was to avoid generating the toxic waste in the production process rather than treating the waste after the fact, an avenue in which EC actively and openly encouraged them. The process changes necessary to bring the plant into compliance with the PPER cost Irving Pulp and Paper in excess of \$200 million, in contrast with the effluent treatment technologies utilized by most other Canadian mills which cost in the order of \$30 million. In light of the mitigating factors, and that the desired effect had been achieved, the charges were withdrawn.⁵⁸⁸

In addition to these factors, the mill's sample for 3 March 1998 passed the trout acute lethality test, with none of the ten fish dying during the four-day test.⁵⁸⁹ The Department of Justice was made aware of this discrepancy. An internal Environment Canada memorandum written by the supervisor of Environment Canada's regional toxicology laboratory states: "This situation would lead to confusion should these apparently contradictory results ever be presented in a court of law. This would cast doubt on the probability of success of any possible enforcement action based on acute lethality, and I think it is necessary to clarify if there is indeed a problem."⁵⁹⁰ The laboratory supervisor proposed a

588. Environment Canada Information (3 June 2004).

589. Environment Canada internal memorandum (30 September 1999), in Environment Canada Information (3 June 2004).

590. *Ibid.*

round of tests to investigate the discrepancies. Environment Canada said that aside from this investigatory testing, they did not look into Irving Pulp and Paper's chain-of-custody, lab results or other aspects of the Irving Pulp and Paper sample to see if there was a problem in the mill's methodology.⁵⁹¹ However, Environment Canada said this kind of discrepancy is not common.⁵⁹²

On 23 March 1998, the mill released green liquor to the Saint John River, and following an investigation, on 26 August 1998 Environment Canada again charged the mill with violating s. 36(3) of the *Fisheries Act*. On 24 November 1999, Irving Pulp and Paper plead guilty to this charge and was fined \$50,000.⁵⁹³ Environment Canada's media advisory for the guilty plea and fine stated:

It was determined that approximately 15,000 gallons of [green liquor, a processing by-product,] overflowed into the mill's main chemical sewer and then into the Saint John River. The alarms for warning staff of a potential spill failed to sound, as one was deactivated and the other was not working due to a blown fuse. The fine collected from Irving Pulp and Paper Ltd. will be invested directly into environmental programs and initiatives. By order of the court \$40,000 will help fund a water quality and endocrine disrupter research project on the Saint John River. . . . The remaining \$10,000 will go to Environment Canada's Environmental Damages Fund to be used here in the Atlantic Region for environmental restoration and pollution prevention activities.⁵⁹⁴

According to both Environment Canada and Irving Pulp and Paper, the charge for the green liquor spill was unrelated to the mill's ongoing toxicity and BOD compliance problems from 1996 to the end of 2000 while its process changes, reverse osmosis system and MBBR were being installed. In addition, Environment Canada noted that this prosecution did not involve the taking of a legal sample, but instead relied heavily on using an expert to testify that the green liquor is a deleterious substance.⁵⁹⁵

Environment Canada noted after the reverse osmosis system became operational in March 1998, by May 1998, the mill's effluent toxicity was "drastically reduced."⁵⁹⁶

591. Meeting of Secretariat with Environment Canada staff (3 February 2005).

592. Environment Canada Information (3 February 2005).

593. Environment Canada Information (3 June 2004).

594. *Ibid.*

595. Meeting of Secretariat with Environment Canada staff (3 February 2005).

596. *Ibid.*

In 1999, in response to exceedances of the monthly BOD limit at the mill for all months except May and November, Environment Canada took no action in view of the mill's ongoing efforts to improve mill processes and the mill's plan to install a MBBR to achieve additional BOD reduction. Environment Canada noted that the BOD exceedances ranged from 0.04 to 23 percent over the allowed limit, with "only five greater than 10 percent over the allowed limit."⁵⁹⁷

The mill also reported that a 21 July 1999 sample of one the mill's outfalls (the so-called Hog and Press outfall) failed the trout acute lethality test. Information from Environment Canada indicates that "[a]dditional analysis did not determine the cause, and subsequent samples passed."⁵⁹⁸ Environment Canada informed the Secretariat:

Failure by a mill to determine the cause of a trout test failure means that corrective action to prevent future failures may be difficult to establish. The reason for a failure is important, but not essential to the investigation. It may, however, indicate to what extent the mill has exercised "all due diligence" as set out in s. 78.6 of the *Fisheries Act*.⁵⁹⁹

On 25 August 1999, Environment Canada collected samples from the mill's three outfalls. The sample for the main chemical sewer failed the trout acute lethality test and the other two passed. The mill collected a sample of the main chemical sewer effluent at the same time, and the mill's sample passed the trout acute lethality test. The mill disputed the failure of Environment Canada's sample. On 13 October 1999, Environment Canada collected triplicate samples of the mill's main effluent and had the samples tested at three different laboratories. All of the samples passed the trout acute lethality test. Environment Canada took no further action with regard to the failed trout test on the 25 August sample.⁶⁰⁰

During 2000, the mill experienced several failures of the *Daphnia magna* test that Irving Pulp and Paper and Environment Canada agree were attributable to chlorination of the feed water. On 13 June 2000, Environment Canada collected samples from the Irving Saint John mill, and they passed the trout acute lethality test. A sample that the mill collected on the same date failed the trout acute lethality test with an LC50 of 76 percent.

597. *Ibid.*

598. *Ibid.*

599. Environment Canada Information (3 February 2005).

600. Environment Canada Information (3 June 2004).

Information from Environment Canada indicates that Environment Canada kept close track of the mill's actions to reduce BOD during 2000. The one daily exceedance of BOD or TSS in 2000 that was outside the error limits that Environment Canada recognizes for measuring BOD and TSS was a TSS exceedance of 19.7 percent on 21 March 2000. The Occurrence Report for this exceedance states: "The mill was beginning [a] shutdown and had increased loading to the sewers. Subsequent test[s] were in compliance."⁶⁰¹ The mill's effluent exceeded the monthly BOD limit in all months except April, November and December 2000, with exceedances ranging from 15.8 to 36 percent over the monthly limit of 8708 kg per day on average. Six of the monthly exceedances were more than 20 percent over the monthly allowance.

An internal Environment Canada e-mail of 4 December 2000, from Environment Canada regional program staff states:

Based on data presented by IPP at our meeting on December 1, 2000, IPP is now in full compliance with the discharge limits in the *PPER*. Their BOD discharge in November was 8200 kg/d versus a limit of 8708. They expect to lower the discharge levels further as the MBB establishes its bug population and other projects come on stream. Unless the monthly report shows something drastically different, I would suggest that the ongoing investigation of IPP, which I initiated in January 1996, can be terminated.⁶⁰²

The response e-mail from the enforcement staff dated 5 December 2000 states: "This is very good news. I am terminating the investigation, but am prepared to open up a new one if monthly reports indicate actionable violations."⁶⁰³ There was one further instance of non-compliance with the *PPER* in 2000 after that e-mail, a trout test failure on the Hog and Press outfall on 15 December 2000, which the company attributed to bark contamination of the sample.⁶⁰⁴

No enforcement action was taken for non-compliance observed at the Irving Saint John mill in 2000.

601. *Ibid.*

602. *Ibid.*

603. *Ibid.*

604. Occurrence Report for 15 December 2000, in Environment Canada Information (3 June 2004).

During the period 1997–2000, Environment Canada conducted a total of three unannounced on-site inspections of the Irving Saint John mill.⁶⁰⁵

Irving Pulp and Paper staff told the Secretariat that the ongoing investigation from 1996 through 2000 had the effect of forcing the company to complete and implement its process changes and treatment systems as rapidly as possible in order to demonstrate due diligence. Mill staff said the *PPER* compliance issues at the mill had the attention of the company's top officials. They said that the warning in 1996 did not have much impact because the company "was already 100 percent committed" to addressing non-compliance at the mill as quickly as possible.⁶⁰⁶

8.3.7 Update

As noted above, the extent of the Irving Saint John mill's non-compliance with effluent limits in the *PPER* has decreased since 2000. The data in Table 14 shows trout test failures and exceedances of the mill's daily and monthly BOD and TSS limits for 2001, 2002 and 2003. As of November 2004, according to information that Irving Pulp and Paper provided to the Secretariat, the mill effluent complied with all effluent limitations in the *PPER* in 2004.

8.4 AV Cell – Atholville, NB

Information regarding the AV Cell mill was obtained from Environment Canada and the Submitters, as well as other sources. In addition, the mill provided the Secretariat with extensive information, and the Secretariat visited the mill on 19 November 2004. Figure 15 shows an overview of the AV Cell mill.

605. Environment Canada Information (3 February 2005).

606. Meeting of Secretariat with Irving Pulp and Paper staff (17 November 2000).



Figure 15. Overview of AV Cell Mill

8.4.1 Mill background and history

Construction of the mill began in 1929, and the mill was commissioned in 1932, by Fraser Co. to manufacture calcium-based bleached sulphite pulp. In 1954, the mill was converted to use an ammonia-based sulphite process, still manufacturing paper grade pulp. It was upgraded to use the conventional magnesium-based sulphite process in 1983, with recovery of sulfur dioxide and magnesium. Production capacity was 350 t/day paper-grade pulp at the time.

The mill shut down in 1991 and was idle until 1995, when Repap Inc. bought it with the intent of converting it to the patented Al Cell alcohol-based pulping system. Repap ran the mill using the magnesium-based sulphite process for approximately one year. An oxygen activated sludge secondary treatment system designed to process the expected effluent from the proposed alcohol-based pulp mill was installed at this time.

In 1998, Tembec purchased the mill in partnership with the Aditya Birla Group, of Mumbai, India to form AV Cell Inc. Under the new own-

ership, the mill was modified to manufacture dissolving grade pulp, still using the magnesium-based sulphite process. Birla purchases almost 100 percent of the product for shipping to their textile fiber operations in Thailand, Indonesia and India. Approximately 90 percent of the pulp is converted to staple rayon fiber used for clothing, and the balance is used to manufacture feminine hygiene products.

Mill officials told the Secretariat that they have virtually no North American competition because all of the product is exported to Asia. They also said that the unique nature of the process, and the need to protect trade secrets, limits the extent to which the mill can “learn from the competition” as opposed to learning from their own experience. An example was how mill staff had to learn on their own the effect on effluent treatment of a shift from softwood to hardwood that has occurred at the mill since 1998, as further explained below.

AV Cell applied to the Province of New Brunswick and Environment Canada in 1998 for an effluent discharge permit to operate a softwood dissolving pulp mill with increased authorized limits for TSS and BOD than apply to most mills. The mill explains as follows its reasons for seeking an authorization under sections 14-19 of the *PPER*:

The reason for requesting an authorization for extra TSS & BOD allocation was that by converting its paper-grade pulp mill to a dissolving-grade sulphite pulp mill, AV CELL INC. expected to discharge effluent which had quantities greater than allocated in section 14 of the *PPER* due to the inherent nature of its pulping process. However this application was rejected by Environment Canada under the basis that AV Cell’s treatment plant should be able to operate within section 14 limits, and if exceedances were to arise AV Cell was expected to use proper due diligence to resolve the problem. After numerous correspondence, meeting and request, Environment Canada allocated AV Cell with allocation better suited for dissolving pulp manufacturing.⁶⁰⁷

As AV Cell noted, after analyzing AV Cell’s operations in comparison with effluent limits of the four other dissolving pulp mills in North America, Environment Canada increased the allowable discharge of BOD and TSS to the values shown below in Table 16. The original requirement that the mill comply with the *PPER* toxicity limit was retained unchanged. The mill sought an additional increase in its authorized limits for TSS and BOD, but Environment Canada did not grant an additional increase.

607. AV Cell memo to Tembec (18 February 2005).

Table 16. Effluent Limits for AV Cell Mill

	BOD max day	BOD max month (daily avg.)	TSS max day	TSS max month (daily avg.)
Prior to 31 May 2000	4588	2735	6882	4129
Since 31 May 2000	5500	3300	10000	7000

Mill effluent is required to pass the acute lethality test for trout at all times.

The mill has been ISO 14001 certified since May 2002. Mill staff told the Secretariat that they believe that this has had a positive effect on mill operations. Mill staff said that all Tembec mills are ISO 14001 certified, except for some recently acquired operations such as the St. Raymond that were working towards certification when mill staff met with the Secretariat in November 2004. Tembec also has an in-house program called "Impact Zero." Tembec's corporate web site states:

The main goal of Impact Zero® is to reduce to a minimum the impact of manufacturing activities on the environment, by the year 2008. The means of achieving this goal must be defined in a technical and economic context.

Impact Zero® includes the development of environmental objectives, targets and action plans that are based on specific performance criteria.

Impact Zero® also includes the implementation and maintenance of an environmental management system (EMS), in conformance with the ISO 14001 International Standard. The EMS is essential for the achievement of the environmental objectives.

With Impact Zero®, Tembec aims to become a world leader in environmental protection and sustainable development.⁶⁰⁸

Among other things, the Impact Zero program calls for water effluent concentrations of targeted parameters to be within the limits of applicable laws and regulations by 2008.⁶⁰⁹

608. See <http://www.tembec.com/DynamicPortal?key=web&lng=en-US&crit=environment_programs_impact&page=tpl_env>.

609. *Ibid.*

8.4.2 Production processes

The reference production rate (RPR) is 394 t/day. Tembec lists an annual production for the mill of 110,000 tonnes.⁶¹⁰

All wood is purchased in the form of chips. In the late 1990s the mill operated with primarily softwood fiber. In 2000 approximately 25 percent of wood used was hardwood, and by the time of the CEC visit to the mill in 2004, the hardwood/softwood mix was approximately 50/50, with a long-term trend towards a larger fraction of hardwoods. According to the mill, the ratio of hardwood to softwood pulped is driven principally by availability of wood in the region and is beyond the control of the company.

Pulping hardwoods normally results in the release of higher quantities of oxygen-demanding matter than when pulping softwoods, primarily in the form of acetic acid in the evaporator condensates. These substances are readily biodegradable, so that an increase in the hardwood fraction in the mill feedstock will not necessarily cause an increase in discharge of BOD, or failures of the acute lethality tests, provided that the biological treatment system is adequately dimensioned to treat the higher organic load.

AV Cell does not operate any debarking facilities. A small amount of wood is debarked in the vicinity by a contractor using a dry process. Bark is either sold or burned in the mill's biomass boiler, along with the waste sludge from the effluent treatment system and mill screen rejects. Leachate from outdoor bark storage is treated with the mill process effluent.

The chips are cooked in batch digesters to produce unbleached pulp, which is washed in drum washers, and the recovered spent liquor (known as "red liquor") is concentrated by evaporation. The concentrated red liquor is burned in a standard recovery boiler, and the magnesium oxide dust is recovered in an electrostatic precipitator followed by a scrubber to recover the sulphur dioxide. This system also regenerates cooking acid for the digesters.

Pulp is screened mechanically, and rejects burned. Some of the associated red liquor is lost to the wastewater treatment plant.

610. Tembec corporate web site, at <http://tembec.ca/DynamicPortal?key=web&lng=fr-CA&page=tpl_env&crit=factory_layout&ID_FACTORY=56>.

The screened pulp is bleached in four conventional stages, as follows:

- Caustic extraction;
- Chlorine Dioxide;
- Hydrogen Peroxide assisted extraction; and
- Sodium Hypochlorite.

The bleached pulp is dried to 90 percent nominal dryness and baled for shipping.

8.4.3 Effluent control

All of the mill effluent is treated in a primary clarifier (Figure 16) followed by secondary treatment. The recovered sludge is dewatered and burned in the mill's biomass boiler.



Figure 16. Clarifiers and Oxygen Reactor, AV Cell Mill

The secondary treatment system uses a pure oxygen activated sludge treatment (OAST) process. The aeration tanks capacity is 20,000 m³, and the untreated BOD load is typically 37 t/day. 65 to 75 t/day oxygen are supplied.

Mill staff told the Secretariat that there were unusual difficulties involved in learning to operate the system to minimize toxicity. According to the Secretariat's expert, a number of Canadian mills had such difficulties in the early days of application of the OAST processes in the 1990s.

One problem that the mill encountered was that the relatively high carbon dioxide content of the effluent caused failures in the standard test for acute lethality. According to the mill, the reason is that the effluent pH is approximately 6 at the start of the test, but rises to 8.5 during the 4 days of the test, due to the stripping of some of the carbon dioxide which is a characteristic of the oxygen activated sludge process. The increase in pH raises the concentration of un-ionized ammonia, which is toxic to fish at low concentrations. Stripping dissolved gases is inherent in the acute lethality test, since air is bubbled through the test vessel, to avoid the fish dying from lack of oxygen. AV Cell addressed this problem by installing a simple air stripper in the treated effluent, which removes about 50 percent of the dissolved carbon dioxide.

The mill informed the Secretariat:

In 1999 and 2000, AV Cell met [on] several occasions with Environment Canada and New Brunswick Department of the Environment to address operational problems encountered during the start-up and learning phase at AV Cell. Meetings were always positive and concrete actions were taken by AV Cell to try to achieve 100 percent compliance. AV Cell followed a concrete internal action plan to achieve this compliance. . . . This plan was reviewed and updated with the governmental authorities during the meetings held with them and any pertinent information regarding this plan was communicated to them on the monthly reports. Positive results were achieved by following this action plan and compliance improved dramatically in the following years.⁶¹¹

8.4.4 PPER test results

The dates in 2000 for which the mill reported failures of the acute lethality test for trout is shown in Table 17 below. The submission also shows 9 violations of the acute lethality standard in 2000. Canada's response to the submission, along information Environment Canada provided to the Secretariat during development of the factual record, indicates that the mill provided written notification of ten failures of the acute lethality tests in 2000, nine on the same dates as shown in Table 17, with an additional failure on November 29. The information that Envi-

611. Letter from AV Cell to Secretariat (22 June 2004).

ronment Canada provided to the Secretariat includes the mill's notification for all of these failures except the failure noted for November 29. A 14 December 2000 e-mail from the mill to Environment Canada advises that the mill passed the trout acute lethality test for 5 December 2000, and that this was the "second consecutive pass after the Nov 21, 00 failure."⁶¹² Accordingly, the Secretariat only has information confirming nine acute lethality test failures at the mill in 2000. Environment Canada noted that for all trout test failures in 2000, "the mill initiated an increased (weekly) sampling regime as per the regulations."⁶¹³

The mill had eight failures of the *Daphnia magna* test from January through October 2000. The Secretariat was provided the mill's monthly effluent reports for January through October 2000, and the mill's and Environment Canada's summary reports indicate no additional *Daphnia magna* test failures in November or December 2000. The information available to the Secretariat indicates that, for all *Daphnia magna* test failures, the mill promptly took a trout test sample and initiated the required thrice-weekly *Daphnia magna* testing until three consecutive tests passed, as required under the PPER.⁶¹⁴

Table 17. Acute Lethality Trout Test Failures at AV Cell Mill in 2000

Date	LC50 (%)
January 25	71
August 1	84
August 29	46
September 5	91
October 17	61
October 24	87
October 31	66
November 7	89
November 21	94

Source: Tembec 2005 and Environment Canada Information (3 June 2004)

612. Environment Canada Information (3 June 2004).

613. Summary of Occurrences – AV Cell Inc. (2000), in Environment Canada Information (3 June 2004).

614. All from AV Cell monthly reports, in Environment Canada Information (3 June 2004).

A memo dated 18 February 2005 from AV Cell to Tembec provides details on AV Cell's measures to determine causes of acute lethality in the mill effluent in 2000 indicated by the nine test failures noted in Table 17. The mill attributed the August 15 failure to a resin and fatty acids breakthrough, and the mill took action to improve oxidation of resins. Ultimately, the mill assembled a Toxicity Troubleshooting Team to attempt to identify the cause of toxicity in 2000, as well as for 14 acute toxicity incidents during AV Cell's ownership of the mill prior to 2000. The August and September 2000 events were ultimately attributed to the addition of a pitch-dispersing agent. For the events in October and November 2000, the mill's troubleshooting report states:

AV CELL invested major time and effort to identify the possible causes of the trout toxicity events that occurred in Oct and Nov 2000. The findings do not pin point the exact cause without a doubt but... they do conclude that all evidence gathered to date point to an upset in the [wastewater treatment plant] resulting [in] a breakthrough of a toxic constituent which is normally removed. A toxicity action plan needs to be prepared to eliminate all possible causes, which are significant, for shock to microbiology. Another important finding from the work is that overloading of the [wastewater treatment plant] or mill production were not found to be the cause for these toxicity events and as such it is difficult to justify an expansion on the [wastewater treatment plant] capacity to address this issue. This work documents the findings of the [toxicity troubleshooting team] as well as AV CELL's due diligence in the matter.⁶¹⁵

The mill informed the Secretariat that it raised questions regarding the reliability of the acute lethality tests that failed in October and November 2000, noting that if toxicity was due to carbon dioxide in mill effluent that eventually dissipates, it was not clear that the mill's effluent was deleterious.⁶¹⁶ Mill staff said that although the mill sometimes obtains inconsistent toxicity results from split samples of its effluent, split samples taken in October and November did not produce inconsistent results.⁶¹⁷

Table 18 summarizes the TSS and BOD exceedances at the AV Cell mill in 2000. The information in the submission and data obtained from the mill indicate 15 exceedances of the daily limit on discharge of TSS in 2000. An Environment Canada summary of occurrences at AV Cell in 2000 indicates 16 TSS exceedances, but upon review of the detailed information available from Environment Canada and all other sources, the Secretariat can only confirm 15 exceedances. All exceedances of the daily TSS limit occurred before 31 May 2000 when the discharge limit was

615. Tembec internal memo (18 February 2005).

616. Meeting of Secretariat with mill staff (19 November 2004).

617. *Ibid.*

raised from 6,881 kg/day to 10,000 kg/day. The TSS discharge of 12,276 kg/day on 9 April 2000 was the only discharge of TSS greater 10,000 kg/day. The 9 April 2000 discharge exceeded the daily limit applicable on that date by 78.4 percent and the post-May limit by 22.8 percent. The mill said that the April 2000 TSS exceedances corresponded to when Restigouche River ice started to run, so incoming fresh water was "dirty."⁶¹⁸ The mill reported 2 exceedances of the daily BOD limit in 2000, once prior to the increased authorization, on March 15, and once after, on July 4. The March 15 discharge of 4732 kg was below the increased authorization of 5500 kg/day. Environment Canada's summary of occurrences for AV Cell in 2000 indicates two exceedances of the BOD limit in March 2000, but upon a review of all available information, the Secretariat can confirm only the March 15 exceedance.

Table 18. Daily TSS and BOD Exceedances at the AV Cell Mill in 2000

Date	BOD	TSS	TSS daily limit	BOD daily limit
January 8		Exceed daily limit 20.5%	6,881 kg	4,588 kg
March 5		Exceed daily limit 29.6%		
March 15	Exceed daily limit 3.1%	Exceed daily limit 39.0%		
March 23		Exceed daily limit 8.0%		
April 2		Exceed daily limit 40.5%		
April 3		Exceed daily limit 40.5%		
April 4		Exceed daily limit 38.2%		
April 5		Exceed daily limit 19.7%		
April 6		Exceed daily limit 8.0%		
April 7		Exceed daily limit 5.0%		
April 8		Exceed daily limit 8.7%		
April 9		Exceed daily limit 78.4%		
April 10		Exceed daily limit 14.1%		
May 17		Exceed daily limit 8.1%		
May 30		Exceed daily limit 2.2%		
July 4	Exceed daily limit 23%		10,000 kg	5,500 kg

Source: Environment Canada Information (3 June 2004) and Tembec (2005)
The data are from company self-monitoring, as reported to Environment Canada.

Monthly average discharges of TSS for January till May 2000 were all in excess of the monthly average discharge limit of 4,129 kg/day.

618. AV Cell Monthly Effluent Report (April 2000), in Environment Canada Information (3 June 2004).

After this limit was raised to 7,000 kg/day, effective 31 May 2000, the mill was in compliance for the remainder of the year. Monthly average discharge of BOD matter exceeded the monthly limit in February, March and July 2000. The July exceedance followed the increase in the mill's authorization and was 12 kg, or 0.4 percent, over the daily average required on a monthly basis of 3 300 kg/day.

8.4.5 *Environmental Effects Monitoring*

The results of the second cycle EEM study for the AV Cell mill were akin to those recorded in the first cycle with respect to the benthic invertebrate community. The study showed that the benthic community has "low diversity locally owing to the location of the mill in the transitional zone between fresh water and salt water."⁶¹⁹ The study also concluded that "[a]lthough significant differences between individual sampling areas were recorded, there was no convincing pattern to suggest effects due to the mill effluent."⁶²⁰ Likewise, for the fish survey there was "no evidence of statistically significant and meaningful adverse effects of the mill effluent on fish."⁶²¹ The sublethal toxicity tests also "indicated generally good effluent quality."⁶²² In sum, the tests conducted at the AV Cell mill "show that the mill effluent has no demonstrated adverse effects on benthic invertebrates or fish in the Restigouche estuary. Some potential sublethal effects on invertebrates or aquatic plants may extend up to 1.25 km from the mill, in the shore-attached plume."⁶²³

8.4.6 *Canada's enforcement actions*

On August 20, 1999, Environment Canada sent the AV Cell mill a written warning letter stating that Environment Canada had reasonable grounds to believe that the mill was in contravention of ss. 6(1)(a), 6(4) and 14 of the *PPER* and s. 36(3) and 40(2) of the *Fisheries Act*. The warning was for exceedances of the monthly limit for TSS in February, March, April and June 1999 and for 8 failures of the acute lethality test in March, April, May and June 1999. The warning letter states: "It is concluded . . . that the company exceeded the regulated monthly discharge limit for total suspended solids and discharged an effluent acutely lethal to fish, during [the period February to June 1999]. Further, it is noted that the

619. AV Cell Inc., Second Cycle Aquatic EEM (April 2000), in Environment Canada Information (3 June 2004).

620. *Ibid.*

621. *Ibid.*

622. *Ibid.*

623. *Ibid.*

mill exceeded its authorized daily limit for total suspended solids during the months of February, March, April, May and June.”⁶²⁴ The warning letter concludes: “Any future inspection of your facility that identifies a violation may result in further enforcement action, including prosecution. This warning, the alleged violations and the circumstances to which it refers will form part of the compliance histories of AV Cell Inc., and its responsible officials, and will be taken into account in the event of any future violations.”⁶²⁵

Information available to the Secretariat from Environment Canada, AV Cell and the submission indicates that the mill had 8 trout lethality test failures, 42 TSS exceedances and 9 BOD exceedances in 1999, and a total of 14 trout lethality failures and 42 or more TSS and 9 or more BOD exceedances in the period 1998-99. This compliance history is relevant to factors in the Compliance and Enforcement Policy for selecting an appropriate enforcement response for non-compliance observed at the mill in 2000.

Environment Canada was considering the mill’s request for an increase in authorized TSS and BOD limits throughout the period January through May 2000. Regarding the 8 January TSS exceedance, an Environment Canada summary of occurrence states:

AV Cell initiated an investigation and determined that the exceedance was caused by the temporary shutting off of aerators in the bioreactor to allow for an inspection of impeller blades on one of [the] anoxic mixers which was making a troubling noise. The situation was corrected and the TSS levels were back under normal levels.⁶²⁶

The summary of occurrences notes that the TSS exceedance of 5 March 2000, was caused by the temporary increased hydraulic load to the treatment system to repair a failing seal, resulting in a spill of effluent from the clarifier and that operation was back to normal within twelve hours after the repair was made. The summary notes that the spill was contained due to a quick response by mill staff. Regarding the other TSS and BOD exceedances in March, April and May 2000, the summary of occurrences states:

The company had undergone a conversion to a dissolving grade mill to allow the production of Rayon. Since this process results in higher TSS and

624. Environment Canada Warning Letter to AV Cell (20 August 1999), in Environment Canada Information (3 February 2005).

625. *Ibid.*

626. Environment Canada Information (3 June 2004).

BOD loads, the mill applied to Environment Canada for an increase in their allowable limits. Environment Canada provided written authorization to the [mill] on May 26, 2000 increasing their allowable TSS and BOD levels. . . . With one exception, no further exceedances were reported during the year.⁶²⁷

The only exceedance of the mill's new daily BOD and TSS limits after May 2000 was a BOD exceedance 20.3 percent over the new limit on 4 July 2000; the mill also exceeded its new monthly BOD allowance in July 2000 by 0.4 percent. The summary of occurrences states: "The mill attributed the exceedance to high levels of foam in the pure oxygen reactor which was in turn verified by the equipment manufacturer. As a result the mill increased defoamer dosages and the foam reduced which corrected the situation and satisfied Environment Canada in terms of due diligence."⁶²⁸ The mill also informed Environment Canada on 4 July 2000 that it was commencing on that day an increase to 33 percent hardwood; the mill outlined measures it was taking to monitor effects of the gradual switch to 50 percent hardwood, in particular the anticipated increase in BOD.⁶²⁹

Environment Canada enforcement staff took a sample of mill effluent on 30 March 2000. This on-site inspection was a follow-up to a warning sent to the mill in August 1999. The sample was tested in triplicate, and one sample had two mortalities, another had one mortality and the third had no mortality after 96 hours. Therefore, none of the samples was acutely lethal to trout.⁶³⁰ This was the only on-site inspection in which Environment Canada took samples of mill effluent in 2000.

An Environment Canada internal e-mail exchange among program staff monitoring AV Cell's compliance indicates that a *Daphnia magna* test that the mill sent for analysis on 22 June 2000 was not handled in accordance with the requirements of the PPER. The mill sent a second sample on 27 June 2000. An Environment Canada program staff engineer stated, "Technically, it is a violation and should be recorded as such [and] enforcement should be notified but I do not feel action is required at this time. Maybe a promotion letter should be sent."⁶³¹ The mill explained that the June 22 sample was held in the courier service's ware-

627. *Ibid.*

628. *Ibid.*

629. Letter from AV Cell to Environment Canada (4 July 2000), in Environment Canada Information (3 June 2004).

630. Environment Canada Information (3 June 2004).

631. Internal Environment Canada e-mail (2 August 2000), in Environment Canada Information (3 June 2004).

house for four days because the courier did not operate on the St-Jean Baptiste holiday in Quebec.⁶³² The Environment Canada staff person handling the matter considered this explanation to be reasonable and the Secretariat has no information that any further action was taken regarding this matter.⁶³³

The Environment Canada summary of occurrences states the following with respect to the nine trout acute lethality test failures at the mill in 2000:

In these incidences, the mill initiated an increased (weekly) sampling regime as per the regulations and, following the Sept 5 occurrence, established a troubleshooting team to further investigate probable causes. An action plan [] outlining the need for and role of the troubleshooting team was forwarded to Environment Canada on Sept 19, 2000. On October 30, 2000 the New Brunswick Department of Environment notified Environment Canada that it had collected legal samples and would be proceeding with a prosecution.⁶³⁴

An Environment Canada internal e-mail of 18 September 2000 from a staff environmental engineer to enforcement staff notes that the New Brunswick Department of Environment was planning an inspection in the next two or three weeks and that “[w]e may want to send an EC inspector to AV Cell in November.”⁶³⁵ Environment Canada did not conduct an on-site inspection in 2000 related to the eight trout acute lethality test failures that occurred from August through November 2000.

The Province of New Brunswick prosecuted the AV Cell mill for discharge of toxic effluent on 24 October 2000. On 30 October 2000, New Brunswick informed Environment Canada that it would not consider the mill’s August 2000 request for an additional increase in TSS and BOD limits “as long as AV Cell continues to discharge acutely lethal effluent,” and Environment Canada agreed.⁶³⁶ In December 2001, during investigation of the charge, New Brunswick sought information from Environment Canada on fine levels and on the extent to which pulp and papers

632. AV Cell e-mail to Environment Canada (4 August 2000), in Environment Canada Information (3 June 2004).

633. Internal Environment Canada e-mail (8 August 2000), in Environment Canada Information (3 June 2004).

634. Environment Canada Information (3 June 2004).

635. *Ibid.*

636. E-mail from New Brunswick Department of Environment and Local Government to Environment Canada (30 October 2000) and internal Environment Canada e-mail (26 April 2001), in Environment Canada Information (3 June 2004).

were failing toxicity tests across Canada; Environment Canada responded in January 2001 that in 1994, a mill in Newfoundland was fined \$750,000 for a toxicity violation.⁶³⁷ On 8 January 2002, the New Brunswick Department of Environment informed Environment Canada that AV Cell pleaded guilty to the charges and received a \$30,000 financial penalty, of which \$10,000 was a fine and the other \$20,000 was in the form of a donation to the Atholville Children's Millenium Park.⁶³⁸ A New Brunswick environmental enforcement official noted that in the following year or so, New Brunswick wanted to inspect the mill periodically (every 3-4 months) and collect legal samples and test for toxicity "to make sure this place was not just lucky in passing ALL of their toxicity test [in 2001]."⁶³⁹ An internal Environment Canada e-mail dated 11 June 2002 indicates that Environment Canada did not proceed with charges against AV Cell because New Brunswick did.⁶⁴⁰

8.4.7 Update

There have been no major changes in the mill systems or operation since 2000, although there have been improvements in effluent control and production methods.

Information provided by AV Cell indicates that after 2000, the mill had no exceedances of the TSS daily limit through the end of 2004 and had two exceedances of the BOD daily limit in 2001, with no further BOD exceedances through the end of 2004.⁶⁴¹ The mill also indicated that it had one trout test failure in 2001, none in 2002 and one in 2003. According to data provided by the Sierra Legal Defence Fund for all of 2003 and January through April 2004, the mill was in compliance with the BOD

637. E-mail from New Brunswick Department of Environment and Labor to Environment Canada (21 December 2000), in Environment Canada Information (3 June 2004); and e-mail from Environment Canada to New Brunswick Department of Environment and Labor (4 January 2001). The Secretariat sought additional information regarding Environment Canada's response to New Brunswick's request for information on fines that could serve as precedents for the toxicity incident of 24 October 2000, that the province was prosecuting. The Secretariat sought this information in regard to how similar situations were treated, a factor under the Compliance and Enforcement Policy, because Environment Canada indicated it had not taken enforcement action regarding AV Cell's non-compliance in 2000 in light of New Brunswick's prosecution. Environment Canada responded that it believed the information the Secretariat requested was outside the scope of the factual record.

638. E-mail from New Brunswick Department of Environment and Labor to Environment Canada (8 January 2002), in Environment Canada Information (3 June 2004).

639. *Ibid.*

640. Environment Canada Information (3 June 2004).

641. Letter from Tembec to Secretariat (22 February 2005).

and TSS discharge limits throughout that period. The Secretariat does not have complete information regarding the mill's toxicity tests after 2000. Information that Environment Canada provided indicates that the mill had no trout acute lethality failures in 2001.⁶⁴² According to information from Sierra Legal Defence Fund, weekly lethality tests for *Daphnia*, and monthly tests for trout, were performed in accordance with the regulations in the period January 2003 through April 2004. All passed, except for one failure of the trout lethality test on 15 April 2003. The three weekly trout tests performed thereafter passed. The mill informed the Secretariat that there was another failed trout lethality test in May 2004.⁶⁴³

8.5 *Tembec St. Raymond – St. Raymond, QC*

Information regarding the Tembec St. Raymond mill was obtained from Environment Canada and the Submitters, as well as other sources. In addition, the mill provided the Secretariat with extensive information, and the Secretariat visited the mill on 30 November 2004.

8.5.1 *Mill background and history*

The mill was built in 1888. St. Raymond Paper Company was the owner for most of the life of the mill. There were several owners between 1985 and 1997. Tembec acquired a 47% interest in Malette Quebec Inc. in 1997. From that time on, the mill was controlled by a joint committee of Tembec and Rexfor (a Crown corporation). Tembec acquired Rexfor's interest in February 2000, taking control of the operations.

Prior to 2003, the mill produced alkaline peroxide mechanical pulp (APMP) for newsprint and coated paper. It produced coated paper from 1980 to 2003, with a small quantity in 2004. The company informed the Secretariat during a 2004 site visit that coated paper production has definitively ceased.

Mill staff said that all Tembec mills are ISO 14001-certified, except for some recently acquired operations such as the St. Raymond mill that were working towards certification when mill staff met with the Secretariat in November 2004. According to the company, Tembec implemented a training program and improved environmental control and management after taking control of the mill. An external consultant was

642. E-mail from New Brunswick Department of Environment and Labor to Environment Canada (8 January 2002), in Environment Canada Information (3 June 2004).

643. Meeting of Secretariat with mill staff (19 November 2004).

hired to assist with this program. Tembec implemented its Impact Zero environmental policy in 2003 (described in section 8.4.1 above). The mill wrote to the Secretariat:

We wish to stress our belief that what really matters in the way that the governmental authorities enforce the laws and regulations is that environmental performance continues to improve. This has been the case at Tembec St. Raymond. Indeed, the mill's environmental performance has improved dramatically since 2000, such that it has achieved the ultimate objective set by the authorities while producing essential social and economic benefits for the stakeholders.⁶⁴⁴

In 2004, the mill continued to produce APMP at 80% ISO. The final product was specialized newsprint for high-gloss applications. A primary and secondary treatment system for all wastewater was installed in 1990-92. Tembec reports annual production of 68,000 metric tonnes for the mill.⁶⁴⁵ In 2000, the mill's RPR was 219.⁶⁴⁶

8.5.2 *Production processes*

All wood is received in the form of chips: 50% softwood, 50% aspen. APMP is the only pulp produced. The process is similar to thermomechanical pulping, but refining takes place under atmospheric pressure. The main chemicals used (hydrogen peroxide and caustic soda) are added upstream and downstream of the refiners. Sodium silicate and chelants are used to stabilize the hydrogen peroxide and metals in the conventional way.

The pulp is treated in a bleaching tower after refining, cleaned by pressure screening and conventional centrifugal cleaning, and stored in a tank that feeds the paper machines. Screening waste is returned to the process, while cleaning waste is discharged into the sewer and the wastewater treatment system.

A small fraction of bleached kraft pulp, purchased from other mills, is used from time to time to strengthen the paper produced, but normally paper output corresponds to pulp output.

There were two paper machines operating in 2004.

644. Letter from Tembec to Secretariat (25 June 2004).

645. Tembec corporate web site, at <http://www.tembec.com/DynamicPortal?key=web&lng=en-US&page=tpl_press&crit=press_layout&ID_NEWS=1806>.

646. Environment Canada Information (June 2004).

A dissolved air flotation clarifier (Krofta brand) is used to recover fibres from the white water.

Steam for process and building heat is generated by a natural gas boiler. No bark is treated or burned on the site.

8.5.3 *Effluent control*

Primary and secondary treatment systems have been in operation since 1992. The primary clarifier, 25 m in diameter, treats all the mill's wastewater. The secondary treatment system uses the conventional activated sludge process. There are two circular aeration basins, each with 2.8000 m³ capacity, using a submersible aeration system, followed by a secondary clarifier with a diameter of 32 m. The treated water discharge point is equipped with a Parshall flume and an automatic sampler. The primary and secondary sludges are mixed, dehydrated, and spread.⁶⁴⁷

The mill wrote the following to the Secretariat:

In 2000 and 2001, the St. Raymond mill invested \$285,000 in water treatment in order to improve its environmental compliance. This investment covered employee training delivered by an external consultant, implementation of standardized lab test procedures, automated control of nutrient addition based on COD and influent flow, automation of air flow to the biological reactor based on residual oxygen, and addition of a polymer line to the secondary clarifier to prevent exceedance of TSS and BOD₅ in the event of an emergency. These actions greatly improved Tembec St. Raymond's environmental performance.⁶⁴⁸

8.5.4 *PPER test results*

The normal effluent flow is approximately 12,000 m³/day. A summary of wastewater discharges from the mill is presented in Table 19. Data are only presented for the days when BOD or TSS allowances were exceeded or a trout lethality test was performed.

647. In its comments on the draft factual record, Canada states that "[i]n the years in question, the sludges from this mill were composted or used on agricultural land." Canada's comments on SEM-02-003 (Pulp & Paper) draft Factual Record (10 May 2006), at 10.

648. Letter from Tembec to Secretariat (25 June 2004).

Table 19. Daily TSS and BOD Exceedances and Lethality Test Results at Tembec St. Raymond Mill in 2000

Date	TSS kg/day	BOD kg/day	Trout LC50
3-January-00			71%
13-January-00	10,061		100%
17-January-00	7,147	12,057	
18-January-00	8,683		
20-January-00			100%
27-January-00			100%
4-February-00	6,725		
6-February-00	10,173		
7-February-00	4,368	6,314	90%
15-February-00			100%
19-February-00	13,777	3,438	
21-February-00	11,227	2,813	
22-February-00	17,291	4,993	100%
23-February-00	7,674		
27-February-00	14,659	3,737	
28-February-00	13,628	4,651	
29-February-00	4,652		100%
3-March-00	6,780		
5-March-00	15,465	4,602	
6-March-00	11,883	3,025	
9-March-00	8,032		
6-November-00			70%
8-November-00	6,208		
15-November-00			59%
22-November-00			100%
29-November-00			100%
3-December-00			100%
Allowance	4,106	2,738	100%
Margin of error (analytical)	15%	20%	

(Table continues on overleaf)

Date	TSS kg/day	BOD kg/day	Trout LC50
Allowance plus analytical margin	4,721	3,286	
Margin of error (debit)	10%	10%	
Allowance plus total margin	5,194	3,614	
PPER exceedances	18	9	4
Exceedance, PPER + analytical margin	16	7	—
Exceedance, PPER + total margin	16	6	—

Data from Environment Canada files.

Mill effluent exceeded the TSS and BOD allowances on several occasions.⁶⁴⁹ Most exceeded the margin of error of the analytical procedures. In February 2000, there were several exceedances of the TSS standard, resulting in a monthly exceedance.

The large differences between the normal discharges and the exceedances show that when the mill had good control of the water treatment system, discharges were very small, while when control over TSS was lost, TSS and BOD exceedances were large. In October 2004, the mill's managers explained that the phosphorus feed line was blocked, causing a TSS exceedance.

There were also 4 trout lethality exceedances in 2000, with LC50 values of 59%, 70%, 71% and 90%. After each exceedance, the company performed the three weekly follow-up tests prescribed by the the PPER (indicating acceptable levels). There was no correlation between the lethality exceedances and the TSS and BOD discharge levels. The Environment Canada file indicates no *Daphnia magna* test failures in 2000.

8.5.5 Environmental Effects Monitoring

The report of the second cycle of EEM that the Tembec St. Raymond mill sent to Environment Canada states:

When the second-cycle fieldwork was performed (between 28 August and 9 September 1999), the mill was operating normally and the effluent

649. A summary that Tembec sent to the Secretariat indicates 19 exceedances of the daily TSS limit in 2000, but the Secretariat could only confirm 18 exceedances. Otherwise, Tembec's summary is consistent with Table 19. Letter from Tembec to Secretariat (25 June 2004).

quality met the *PPER* discharge standards Increased liver weight was observed in male and female mullet. These results are consistent with those generally observed in fish exposed to pulp and paper mill effluent. No decline in reproductive effort was observed in either sex of the two sentinel species. The increased growth does not appear to be linked to the mill's effect on the environment, but possibly to the larger littoral area available for colonization by invertebrates in the exposure area. The increased liver weights observed in mullet in this area could be the expression of higher growth or could result from exposure to contaminants. However, the latter hypothesis should probably be rejected since the sublethal toxicity testing showed that the effluent's toxicity to minnows was low. . . and that the potentially affected area in the receiving environment was limited to only 4.2 m downstream of the outfall

The results of the first five series of sublethal toxicity tests show that the effluent possessed high sublethal toxicity to algae . . . and *Ceriodaphnia* . . . but not to fish . . . The results indicate a potential effect on algal growth in the receiving environment up to a maximum distance of 23.5 m downstream of the outfall. This distance is 28.1 m for the potential effect on *Ceriodaphnia* reproduction and 4.2 m for the potential effect on fish growth.⁶⁵⁰

8.5.6 Canada's enforcement actions

The mill submits monthly discharge reports to Québec, which relays them to Environment Canada. According to the mill, Québec officers visit the mill about twice a year. The mill told the Secretariat that whenever it receives a notice of infraction from Québec, the company responds, explaining the reasons and the corrective action taken. According to the mill, Québec issues a notice of infraction for each *PPER* exceedance, regardless of magnitude.

Mill managers told the Secretariat that an Environment Canada inspector visits the mill approximately once a year, independently of Québec.⁶⁵¹ However, the Secretariat has no information indicating that Environment Canada visited the mill to verify *PPER* compliance in 2000.

Information available to the Secretariat from Environment Canada and Tembec indicates that the mill had 1 trout lethality test failure in

650. Letter from Tembec to Secretariat (25 June 2004); Environment Canada Information (3 June 2004).

651. Meeting of Secretariat with mill staff (30 November 2004). According to mill staff, the mill has come under heightened scrutiny by Environment Canada since the filing of the submission with the CEC. However, according to Tembec staff, it has sometimes occurred that Environment Canada notified the mill of a visit only to cancel it due to a lack of time.

1999, and a total of 3 trout lethality failures as well as 12 TSS exceedances and 26 BOD exceedances in the period 1996-99. This compliance history is relevant to elements of the Compliance and Enforcement Policy when it comes to selecting an appropriate enforcement response to the non-compliance observed at the mill in 2000.

Environment Canada issued warnings to the mill on 10 February 2000 and 29 March 2000. The warning of 10 February 2000, addressed to the mill's manager and environmental engineer, stated as follows: "Verification of your file for December 1999 [performed on February 4 by Environment Canada] gives me reasonable grounds to believe that on December 6 you violated the conditions governing the deposit of deleterious substances contemplated in the regulation by discharging an acutely lethal effluent." The warning stated that Environment Canada had reasonable grounds to believe that the mill and the persons mentioned had violated section 36(3) of the *Fisheries Act* and sections 4 and 6(1)(b) of the *PPER*.

The warning of 29 March 2000, addressed to the same individuals, stated as follows: "Verification of your file for January 2000 [performed on 27 March 2000 by Environment Canada] gives me reasonable grounds to believe that you violated the conditions governing the deposit of deleterious substances contemplated in the regulations by discharging an effluent with quantities of suspended matter in excess of the authorized maximum quantity on 13, 17, and 18 January 2000; by discharging matter creating a BOD₅ in excess of the authorized maximum quantity on 17 January 2000, and by discharging acutely lethal effluent on 3 January 2000." The warning stated that Environment Canada had reasonable grounds to believe that the mill and the persons mentioned had violated section 36(3) of the *Fisheries Act* and sections 4, 6(1)(a), and 6(1)(b) of the *PPER*.

On 7 July 2000, Environment Canada inspectors received an application for investigation under the *PPER* concerning the alleged violations at the Tembec St. Raymond mill in February 2000. Subsequent violations were later added to the file. In a report concerning this application, the investigator wrote:

We have reviewed the application for investigation and observed that:

1. The decision to refer this file to the Investigations Section for possible prosecution is not documented by explanations establishing reasonable grounds. The file was referred for investigation following two separate warnings issued to the mill for alleged violations concerning acutely lethal effluent results observed during administrative verifications of monthly reports entered by the mill in the INDMON-MEF database.

The basis for the issuance of the two (2) warnings and the application for investigation is limited to observations of exceedances during administrative verification of the INDMON-MEF database. The matter of the scientific validity of these results has been raised by our prosecutors in similar cases involving this industry. In their opinion, administrative verification of results submitted to INDMON-MEF does not by itself constitute reasonable grounds to believe that a violation has occurred. In evidentiary terms, the data raise doubts No information in the INDMON-MEF monthly report guarantees that the federal analytical method prescribed by the regulation was followed by the lab that the mill retained to conduct the tests. If the mill did not follow the method prescribed by regulation or an equivalent standardized method, there could be significant consequences for the probative value of the evidence, especially since it is the only evidence we have.

For this reason, we undertook to conduct a more in-depth analysis of the exceedances detected in INDMON-MEF in order to demonstrate the validity of the certificates of analysis and the fact that the methods prescribed by the federal regulation were followed. A request for additional information was made to the mill in order to obtain a copy of the certificates of analyst and the analytical methods that it used. The documents obtained were submitted to the representatives of our St. Lawrence Centre laboratory for preliminary evaluation of the results The data presented, with the exception of one sample, meet the requirements of the reference method prescribed by the federal regulation [for determination of acute lethality, but] it is impossible to establish the accuracy and precision with which the analytical method [for determination of TSS and BOD₅] was followed

2. The decision to refer the file to the Investigations Section was not based on the criteria defined in the *Fisheries Act* Enforcement Policy which are often the basis upon which our prosecutors can build a criminal case. An analysis of the file does not yield any evidence that the alleged violation was deliberate, that the alleged violator knowingly provided false or misleading information to law enforcement personnel, that the alleged violator obstructed the enforcement personnel in carrying out their duties, that the alleged violator concealed or attempted to conceal or destroy information or evidence after the alleged violation occurred, or that the alleged violator did not take all reasonable measures to comply with a direction, order, or the like.

3. The analysis of the file points to a problem with the effluent over the period from December 1999 to March 2000. Environment Canada performed no inspection of this mill, whether a routine inspection, a legal survey, or a meeting with the mill representatives concerning the alleged violations [in December 1999 and January 2000], before or after sending the warnings. No one from the Inspections Section or the Programs Section visited the site to investigate the problem or the efforts in terms of resources and investment that the mill had expended to correct the toxic-

ity, even though the problem had been known about since 1999. This is contrary to the Enforcement Policy, which states that compliance shall be encouraged through communication with the parties concerned. The only telephone conversation in the file is one initiated by the mill representative, who contacted the inspector assigned to the file on 4 April 2000 concerning changes to the wording of the warning and the calculation of allowances following the second warning. The mill submitted a written document explaining the reasons for the discharge of acutely lethal effluent for each of the two (2) warnings received from Environment Canada. In addition, the mill submitted and undertook corrective measures each time. In February 2000, the mill wrote to the Environmental Protection Branch to report a recurring problem with the treatment system. It also described the steps taken in an attempt to resolve the problem. Among other steps, environmental consultants were retained and various suppliers involved in order to rectify the situation without delay. A detailed plan to improve water treatment dated May 2000 was provided to the Ministry in June 2000 as agreed in previous correspondence. The timeline for the corrective plan covered the period from July 2000 to February 2001. Environment Canada performed no analysis of the actions taken or the proposed plan, nor did any follow-up with the mill. Since April 2000, the mill's monthly effluent reports have been compliant with federal regulations, showing that, quite possibly, the corrective plan was effective.⁶⁵²

An Environment Canada document on the outcomes of investigations into alleged *PPER* violations states, in regard to this application for investigation:

This file was closed [on 28 November 2002] due to an absence of proof beyond a reasonable doubt and reasonable (factual) grounds to justify a search warrant, since there was no inspection or information (explanation) from the mill in the file. The evidence was based on monitoring data taken from Indmon-MEF, which could be successfully challenged in court since no certificate of analyst was produced by the [St. Lawrence Centre lab]. The proof could not be established beyond a reasonable doubt. The investigator closed the file without any other enforcement measures in view of the time elapsed since the alleged violation.⁶⁵³

The Secretariat received no information from Environment Canada indicating that the Quebec authorities took enforcement action, other than notices of infraction, that Environment Canada took into account in determining the appropriate level of enforcement to take in connection with the mill's non-compliance with the *PPER* in 2000⁶⁵⁴.

652. Environment Canada internal memo (undated), in Environment Canada Information (23 November 2005).

653. Environment Canada Information (23 November 2005).

654. The Canada-Quebec Management Committee annual report for 2000 that Environment Canada provided to the Secretariat on 1 June 2006 indicates that during 2000,

8.5.7 *Update*

The end of coated paper production in 2003 apparently gave rise to a considerable reduction in BOD and TSS load on the wastewater treatment system, which would normally imply a reduced discharge. According to the QME website and Tembec data, the mill's discharges complied with the Québec and Canadian regulations in 2001 and 2002. In 2003, according to QME, the mill's effluent discharges were still in compliance with the pulp and paper mill effluent regulations, while Tembec data indicates one exceedance of the daily BOD limit and one exceedance of the daily TSS limit, both following modifications to the pulp production process.⁶⁵⁵

On 17 May 2005, Tembec announced the closing of the St. Raymond mill as of 28 May 2005.⁶⁵⁶

8.6 *Uniforêt – Port Cartier, QC*

Information regarding the Uniforêt mill was obtained from Environment Canada and the Submitters, as well as other sources.

8.6.1 *Mill background and history*

A dissolving-grade pulp mill using an ammonium-based sulphite process was built by Rayonier on the Port Cartier site in the early 1970s. It closed after a few years due to a number of technical, labor and wood supply issues. After the mill was idle for an extended period, in September 1994, Uniforêt Inc. purchased the mill from the Municipality of Port Cartier and converted it to produce Bleached Chemi-Thermo-mechanical Pulp (BCTMP). The converted mill commenced operations in January 1995 and was operational throughout 2000, but it closed in February 2001 and was not in operation in 2002 or 2003.

In 2004, Katahdin Pulp Québec Inc. resumed operation of the mill under an 11-year lease from Arbec Forest Products Inc., the new corporate name of Uniforêt Inc., manufacturing TMP. As mentioned previously, the TMP process generates much lower quantities of BOD and suspended solids than the BCTMP process.

the province issued the mill five notices of infraction (March 7, March 29, May 2, June 1 and July 25) and that the mill prepared an action plan on June 28. The report indicates that the mill provided justification of non-conformity on four occasions in 2000 (March 14, April 3, June 5 and August 14), but the report does not explain what justification was provided.

655. Letter from Tembec to Secretariat (25 June 2004).

656. Tembec corporate web site, at <http://www.tembec.com/DynamicPortal?key=web&lng=en-US&page=tpl_press&crit=press_layout&ID_NEWS=1806>.

The authorized discharges for 2000 are shown in Table 20.

Table 20. Authorized Discharges by Uniforêt Mill in 2000

Parameter	Value	Units
Reference production rate	689	t/day
BOD max/day	8,613	kg/day
BOD max/month	5,168	kg/day
TSS max/day	12,919	kg/day
TSS max/month	7,751	kg/day

8.6.2 Production processes

In the process used in 2000 at the mill, wood chips were treated with sodium sulphite and broken down into pulp using the standard CTMP process. The pulp was bleached using hydrogen peroxide, cleaned by screens and centrifugal cleaners and dried for sale.

8.6.3 Effluent control

The mill was equipped in 2000 with a primary clarifier and an activated sludge secondary treatment system.

8.6.4 PPER test results

The mill discharges that were out of compliance with the PPER in 2000 are shown in Table 21. All data available are shown for any day when there was an exceedance, or a passing test result was required to demonstrate compliance with follow-up testing requirements.

Table 21. Daily TSS and BOD Exceedances and Lethality Test Results at Uniforêt Mill in 2000

Summary of daily exceedances	TSS kg/d	BOD kg/d	Trout Lethality	Daphnia
Daily PPER limit	12,919	8,613	LC50 > 100%	LC50 > 100%
Margin of error (analytical)	15%	20%	—	—

Table 21. (cont.)

Summary of daily exceedances	TSS kg/d	BOD kg/d	Trout Lethality	<i>Daphnia</i>
Daily PPER limit + margin (analytical)	14,857	10,336	2	7
Margin of error (flow)	10%	10%	—	—
Daily PPER limit + total margin	16,343	11,369	—	—
Exceedances – PPER	21	1	2	7
Exceedances – PPER + margin (analytical)	17	1	—	—
Exceedances – PPER + total margin	13	1	—	—
Monthly exceedances	1	0	—	—
Date	TSS kg/d	BOD kg/d	Trout Lethality (LC50)	<i>Daphnia</i> (LC50)
16-Feb-00 (cooling water)			64%	100%
16-Feb-00			100%	100%
23-Feb-00 (cooling water)			Omitted	
28-Feb-00	24,501			
1-Mar-00 (cooling water)			Omitted	
7-Mar-00 (cooling water)			100% (late)	
21-Mar-00 (cooling water)			100%	

Table 21. (cont.)

Date	TSS kg/d	BOD kg/d	Trout Lethality (LC50)	<i>Daphnia</i> (LC50)
2-Apr-00	13,829			
7-Jul-00	17,543			
8-Jul-00	25,613			
9-Jul-00	15,928			
11-Jul-00			85%	100%
18-Jul-00	13,720		Omitted	100%
19-Jul-00	31,640			
21-Jul-00	17,293			
22-Jul-00	17,997			
25-Jul-00				100%
27-Jul-00			100%	
1-Aug-00			100%	6%
2-Aug-00	18,924			
8-Aug-00			100%	6% (2 of 3 thrice-weekly follow-up tests omitted)
14-Aug-00	23,656			0.1%
15-Aug-00	14,292		Omitted	0.1%
17-Aug-00				0.1%
18-Aug-00	15,419		Omitted	
19-Aug-00	20,380			
21-Aug-00			Omitted	100%
22-Aug-00			Omitted	100%
23-Aug-00				100%
24-Aug-00	27,320		Omitted	100%
25-Aug-00				100%

Table 21. (cont.)

Date	TSS kg/d	BOD kg/d	Trout Lethality (LC50)	<i>Daphnia</i> (LC50)
28-Aug-00	15,192			100%
29-Aug-00				100%
31-Aug-00			Omitted	
1-Sep-00	20,147			
2-Sep-00	54,882	14,452		
3-Sep-00	21,324			
5-Sep-00				0.1%
7-Sep-00	15,875			
11-Sep-00			100%	100%
12-Sep-00				100%
13-Sep-00				100%
10-Oct-00	13,078			
7-Nov-00 (cooling water)			100%	79%
14-Nov-00 (cooling water)				100%
20-Nov-00 (cooling water)				100% (late)
21-Nov-00 (cooling water)			100% (late)	100%
23-Nov-00 (cooling water)				100%

Source: Environment Canada Information (3 June 2004).

All data are for the mill's process effluent, unless noted. As noted previously, failure of a *Daphnia* test does not indicate non-compliance *per se*, but requires follow-up testing.

The submission indicates 20 exceedances of the daily TSS limit. Based on a review of detailed information provided by Environment Canada, Table 21 indicates 21 TSS exceedances, 17 of which exceeded the limit by 15 percent and 13 of which exceeded the total margin attribut-

able to error limits associated with the analytical method and flow.⁶⁵⁷ Environment Canada's data indicates one exceedance of the monthly limit for TSS. The submission and information provided by Environment Canada both indicate one exceedance of the daily BOD discharge limit, and two failures of the trout acute lethality test, one of which was on the mill's process effluent and the other on the cooling water.⁶⁵⁸

Table 21 shows failed trout or *Daphnia magna* tests, along with dates on which follow-up tests were taken or omitted, until three consecutive tests passed. On some occasions, weekly trout lethality follow-up tests following failure of a trout test and trout tests "without delay" following failure of a *Daphnia* test were late or omitted during 2000. After failure of a trout test taken on 11 July 2000, weekly testing did not begin until July 27, which is late even allowing time for the test to be sent for analysis and for the four-day test to be conducted. The next three trout weekly tests then passed. After failures of *Daphnia* tests for sample taken on August 8, 14, 15 and 17 and September 5, the next trout test sample was not taken until September 11. After the failed *Daphnia* test for the September 5 sample, the thrice weekly *Daphnia* testing began on September 11.

Allowing time for the September 5 sample to be sent for analysis and the tests run, the samples taken on September 11 are not later than is typical. On November 7, there was a failure of the *Daphnia* test on the mill's cooling water, although the trout lethality test passed. The next trout was not taken until November 21, and the *Daphnia* tests required thrice weekly after a failure were not taken until November 20, 21 and 23.

The submission alleges 7 failures of the *Daphnia* test, which is accurate based on the review of the Secretariat's expert. The submission alleges 9 failures to meet the requirements for follow-up testing for the Uniforêt mill. According to the Secretariat's review of detailed daily effluent reports for the mill that Environment Canada provided, 9 follow-up trout lethality tests were omitted and 2 were late, and 2 fol-

657. The Quebec Ministry of Environment reports 37 exceedances of the Quebec daily TSS limit and 5 exceedances of the daily BOD limit for the Uniforêt mill in 2000. The Quebec limits are more stringent than the federal limits. MENV, *Bilan annuel de conformité environnementale/Secteur des pâtes et papiers*, 2000, at <http://www.menv.gouv.qc.ca/milie_ind/bilans/pates_00/chapitre_3.htm>.

658. The Quebec Ministry of Environment also reports 2 failure of the trout acute lethality test for the mill in 2000. MENV, *Bilan annuel de conformité environnementale/Secteur des pâtes et papiers*, 2000, at <http://www.menv.gouv.qc.ca/milie_ind/bilans/pates_00/chapitre_3.htm>.

low-up *Daphnia* tests were omitted, and one was late, for a total of 14 failures to conduct follow-up tests as required, as shown in Table 21.

8.6.5 *Environmental Effects Monitoring*

Environmental effects monitoring for the Uniforêt mill was on a different schedule than most other mills. The 2002 EEM study report that was produced for mill and submitted to that Environment Canada states: "None of the supporting environmental variables related to water or sediment quality was significantly correlated with distance from the outfall. Therefore, the effluent had no significant effect on water or sediment quality."⁶⁵⁹ Environment Canada states that the EEM results for the Uniforêt mill showed no change to the community of benthic invertebrate organisms.⁶⁶⁰

8.6.6 *Canada's enforcement actions*

Information available to the Secretariat from Environment Canada and the submission indicates that the mill had 2 TSS exceedances and 2 BOD exceedances in 1999, and a total of 12 trout lethality failures and 17 TSS exceedances and 18 BOD exceedances in the period 1996-99. This compliance history is relevant to factors in the Compliance and Enforcement Policy for selecting an appropriate enforcement response for non-compliance observed at the mill in 2000.

The Secretariat has no information indicating that Environment Canada conducted an on-site inspection of the Uniforêt mill to verify compliance with the PPER at any time in 2000. Environment Canada conducted administrative reviews of monthly reports that the mill sent to the Quebec Ministry of the Environment, which forwarded them to Environment Canada.

On 29 July 2000, Environment Canada issued a warning to the mill stating that, based on a review of the mill's records conducted on 21 July 2000, an Environment Canada fishery inspector had reasonable grounds to believe that the mill discharged acutely lethal effluent on 16 February 2000, combined acutely lethal effluent with a treated effluent on 16 February 2000, and exceeded the daily TSS limit on 28 February 2000.⁶⁶¹

On 15 March 2001, Environment Canada issued the mill another warning, stating that, based on a review of the mill's records conducted

659. Environment Canada Information (3 June 2004).

660. *Ibid.*

661. *Ibid.*

on 12 March 2001, an Environment Canada fishery inspector had reasonable grounds to believe that the mill effluent 1) exceeded the mill's daily TSS limit on the following 16 days in 2000: July 7, 8, 9, 19, 21 and 22; August 2, 14, 18, 19, 24 and 28; and September 1, 2, 3 and 7; 2) exceeded the mill's daily BOD limit on 2 September 2000; and 3) was acutely lethal on 11 July 2000.⁶⁶²

Both warnings stated that the warnings and the circumstances to which they refer will form part of Environment Canada's records for the mill and its responsible officials and will be taken into account in future responses to alleged violations and for internal purposes such as setting the frequency of inspections. The warnings state that further steps will be considered by Environment Canada if the mill does not take necessary action.

On 26 July 2000, Environment Canada sent a letter notifying the mill that its monthly report for March 2000 was incomplete and that the reports for the following months were missing. The letter noted that the Quebec Ministry of the Environment had informed Environment Canada that the mill was in litigation with its analytical laboratory and reminded the mill that despite the litigation, the mill was obligated to meet the requirements of the *PPER*, including the requirement in section 9(2) to send monthly effluent reports within 30 days of the end of the month. Environment Canada asked that the missing and incomplete reports be submitted by 15 August 2000. The laboratory informed the Quebec Ministry of Environment on 2 May 2000 that analysis of mill samples showed no non-compliance in the period 1 March to 16 April 2000.⁶⁶³ The Secretariat has no additional information regarding this matter.

The Secretariat received no information from Environment Canada indicating that the Quebec authorities took enforcement action, other than notices of infraction, that Environment Canada took into account in determining the appropriate level of enforcement to take in connection with the mill's non-compliance with the *PPER* in 2000⁶⁶⁴.

662. *Ibid.*

663. Environment Canada Information (3 June 2004 and 23 November 2005).

664. The Canada-Quebec Management Committee annual report for 2000 that Environment Canada provided to the Secretariat on 1 June 2006 indicates that during 2000, provincial officials had three telephone conversations with the mill (March 8, and two on September 15) during which the mill provided justification of non-conformity, but the report does not explain what justification was provided. The report also indicates that provincial officials conducted an on-site inspection and met with the mill on 26 September 2000 and sent the mill a letter regarding TSS and BOD non-conformity on 30 October 2000.

8.6.7 Update

According to information on the Quebec Ministry of Environment web site, in 2001, prior to ceasing operations in February, the Uniforêt mill exceeded Quebec effluent limits for TSS 8 times and for BOD once, for a total of 9 exceedances. Since the limitations for these parameters set by Quebec are more stringent than those in the *PPER*, this information indicates that the mill discharges exceeded Canada's limitations on no more than 9 occasions in 2001. The mill discharge did not fail any trout lethality tests in 2001. As noted above, the mill stopped operating in February 2001 and remained shut down throughout 2002 and 2003.⁶⁶⁵

The mill was in operation for only part of 2004. It was modified to manufacture Thermomechanical Pulp (TMP) commencing in mid 2004. All the pulp is shipped to an associated mill in Maine. Current production is approximately 400 t/day, and the company intends to increase this to the nominal system capacity of 500 t/day as technical issues are resolved.

One result of conversion from BCTMP to TMP is that the untreated effluent load on the treatment system is substantially lower than in the past. Mill staff reported verbally in May 2005 that the discharges of TSS and BOD are always well below half the levels allowed by the *PPER*, and that all lethality tests had passed, except for one immediately after a mill shutdown and startup.

8.7 Fjordcell – Jonquière, QC

Information regarding the Fjordcell mill was obtained from Environment Canada and the Submitters, as well as other sources.

8.7.1 Mill background and history

The Fjordcell mill existed for many years as part of the Abitibi Paper Co. operations, but was not in operation from 1997 to 1999 after being shut down in 1997 for economic reasons. It was purchased in 1998 by a joint venture of two paper companies, and was taken over by Cascades Inc. in 1999. With a normal production rate of 82,000 t/year, it is very small relative to most bleached kraft mills. The company's web site states:

We at Cascades are constantly working to improve environmental friendliness and sustainable development by implementing a variety of specific programs to reduce water consumption and effluent discharge in our

665. All from <http://www.menv.gouv.qc.ca/milieu_ind/bilans/pates_01/f-i.htm>.

mills, decrease the amount of waste going to landfill sites, reduce energy consumption and greenhouse gas emissions, progressively implement ISO 14001 environmental management systems and, of course, provide continuing training for employees and managers.⁶⁶⁶

8.7.2 *Production processes*

The mill processes black spruce wood chips in a conventional Kraft pulping process followed by ECF bleaching to produce softwood pulp. Some of the pulp is sold to an adjacent mill also owned by Cascades Inc. for production of board, and the balance is sold on the open market.

8.7.3 *Effluent control*

Effluent is treated in a primary clarifier, followed by an activated sludge system, and then discharged. The average flow is 76 m³/t, based on the reference production rate of 220 t/day. Normal production is around 170 t/day so that the normal effluent flow is approximately 100 m³/t.

8.7.4 *PPER test results*

The mill's effluent in 2000 was non-compliant with respect to acute toxicity, as well as TSS and BOD discharge limits, on a number of occasions, as shown in Table 22 and Table 23.

The submission stated that there were 27 exceedances of the BOD standard and 25 for TSS in 2000. Records provided by Environment Canada and summarized in Table 22 indicate that the BOD discharge limit was exceeded on 27 days, and also that the monthly limitation was exceeded in January and May, for a total of 29 BOD exceedances. The same records show that the TSS limit was exceeded on 22 days, and that the monthly limitation was exceeded in October, November and December, for a total of 25 TSS exceedances. Several of the BOD and TSS exceedances for 2000 were within the margins of error of the analytical tests. As shown in Table 22, of the 22 exceedances of the mill's daily TSS limit, 9 exceeded the limit by more than the 15 percent margin for error associated with the TSS analytical method, and 7 exceeded the limit by more than the total margins associated with the analytical method and flow measurement. Of the 27 exceedances of the mill's daily BOD limit, 17 exceeded the limit by more than the 20 percent margin for error associated with the BOD analytical method, and 14 exceeded the limit by more than the total margins associated with the analytical method and flow measurement.

666. See <http://www.cascades.com/cas/en/4_0/4_0.jsp>.

Table 22. Exceedances of Daily TSS and BOD Limits at Fjordcell Mill in 2000

Limits and exceedances	TSS kg/d	BOD kg/d
Daily PPER limit	4,125	2,750
Margin of error (analytical)	15%	20%
Daily PPER limit + margin (analytical)	4,744	3,300
Margin or error (flow)	10%	10%
Daily PPER limit + total margin	5,218	3,630
Exceedances – PPER	22	26
Exceedances – PPER + margin (analytical)	10	17
Exceedances – PPER + total margin	8	14
Monthly limit exceedances	3	2
Date	TSS kg/d	BOD kg/d
16-Jan-00	6,994	
17-Jan-00	4,149	
23-Jan-00		2,830
24-Jan-00		5,515
25-Jan-00		2,978
28-Jan-00	4,258	7,766
29-Jan-00		6,264
30-Jan-00		6,408
31-Jan-00		3,831
1-Feb-00		5,564
2-Feb-00		3,606

Table 22. (cont.)

Date	TSS kg/d	BOD kg/d
8-Feb-00		3,447
9-Feb-00		4,239
7-Mar-00		4,441
1-May-00		4,925
10-May-00		3,192
14-May-00		4,067
15-May-00		3,073
19-May-00	4,216	3,689
20-May-00		4,029
22-May-00		2,960
23-May-00		3,229
24-May-00		3,123
27-May-00		2,883
28-May-00		3,425
29-May-00		4,096
30-May-00		3,229
12-Sep-00		6,144
18-Sep-00	4,142	
19-Sep-00	4,748	
27-Sep-00	4,985	
1-Oct-00	4,135	
23-Oct-00	4,188	
24-Oct-00	6,004	
26-Oct-00	4,507	
27-Oct-00	5,818	
28-Oct-00	5,831	
29-Oct-00	4,407	

Table 22. (cont.)

Date	TSS kg/d	BOD kg/d
5-Nov-00	5,424	
6-Nov-00	5,945	
11-Nov-00	9,565	
22-Nov-00	4,436	
12-Dec-00	4,690	
15-Dec-00	4,395	
16-Dec-00	4,228	
25-Dec-00	5,459	

Source: extracted from data provided by Environment Canada.

The submission stated that there were seven failures of the trout acute lethality test, and 28 of the *Daphnia* test in 2000. Table 23 below summarizes the data provided by Environment Canada. It shows that there were 10 failures of the trout lethality test and 28 failures of the *Daphnia* tests. Data provided by Environment Canada also indicated incidents where the requirements for follow-up lethality testing were not met, with some overlap between those based on trout lethality test failures and those based on failures of the *Daphnia* tests. The submission alleges 24 follow-up failures. Taking into account the time delay involved in sending samples for testing and performing the lethality tests, the Secretariat concludes that there were at least nine occasions on which follow-up tests were late or omitted. A summary document for the Fjordcell mill for 2000 provided by Environment Canada indicates seven failures to meet follow-up testing requirements.

Table 23. Lethality Test Failures and Follow-up Tests for Fjordcell Mill Process Effluent in 2000

Date	Trout LC50	<i>Daphnia magna</i> LC50	Notes
25-Jan		65%	15 days to next trout test (late)
29-Jan		32%	11 days to next trout test (late)

Table 23. (cont.)

Date	Trout LC50	<i>Daphnia magna</i> LC50	Notes
7-Feb		79%	
8-Feb		63%	
9-Feb	35%	35%	
11-Feb	100%		
14-Feb	100%	100%	
15-Feb		100%	
16-Feb		100%	
31-Mar		44%	
4-Apr		81%	
6-Apr	90%	73%	
11-Apr		100%	
13-Apr	100%		
14-Apr		100%	
15-Apr		100%	
18-Apr		100%	
22-Apr	77%		
25-Apr		67%	8 days to next trout test (late)
1-May		73%	
2-May		18%	
3-May	71%	71%	
9-May		56%	
11-May	71%	89%	Only 2 of 3 <i>Daphnia</i> tests done for the week
16-May		71%	
19-May		38%	
20-May	35%	39%	

Table 23. (cont.)

Date	Trout LC50	<i>Daphnia magna</i> LC50	Notes
21-May		38%	
22-May	64%	64%	
23-May		100%	
25-May		71%	
27-May		26%	
29-May		19%	
30-May		30%	
1-Jun	32%	68%	9 days from previous trout test (late)
5-Jun		52%	
6-Jun		100%	
7-Jun		71%	
10-Jun	100%	58%	9 days from previous trout test (late)
13-Jun		89%	
15-Jun	100%	100%	
16-Jun		100%	
18-Jun		100%	
19-Jun		100%	
20-Jun		100%	
22-Jun	94%	100%	
27-Jun		100%	
4-Jul	100%	100%	Two weekly follow-up trout tests omitted or late
11-Jul		100%	
18-Jul		100%	
21-Jul		100%	

Table 23. (cont.)

Date	Trout LC50	<i>Daphnia magna</i> LC50	Notes
22-Jul	100%		
25-Jul		100%	
27-Jul	100%	100%	
1-Aug	100%	100%	
7-Dec	70%		
19-Dec	100%	100%	12 days from previous trout test failure (late)
21-Dec	100%		
28-Dec	100%		
Total	10	29	

Source: extracted from data provided by Environment Canada.

8.7.5 Environmental Effects Monitoring

Environmental effects monitoring for the Fjordcell did not follow the schedule for most other mills, because of the periods the mill was not in operation prior to 1999.⁶⁶⁷ The 2002 report of EEM for the Fjordcell mill that was submitted to Environment Canada, based on sampling conducted in August and September 2001, states:

The physicochemical observations and measures taken at the benthos sampling stations reveal that the water in the near-field exposure area was whitish and turbid and showed a higher total nitrogen concentration than the reference area. In addition, there were pulp-like residues in the sediments of the near-field exposure area. The benthic invertebrate community of this area was significantly different from that of the "near-field" reference exposure area and this is due to the presence of Fjordcell-Paperboard effluent. The benthic community of the far-field exposure area was not significantly different from that of the "far-field" reference area. Therefore, the effluent has a marked effect on the benthos of the downstream portion of Rivière aux Sables but no effect in the Little Saguenay, at a distance of approximately 600 m downstream of the outfall . . . The Fjordcell effluent exhibited lethal toxicity to *Ceriodaphnia* on one occasion and to fathead minnow on two occasions. At the sublethal level, the efflu-

⁶⁶⁷. Environment Canada Information (3 June 2004).

ent is toxic to the three organisms tested According to the bioassay results, the area of potential toxic effects on fish extends no further than 12 m from the outfall. This is consistent with the absence of measured effects on fish captured *in situ*. As regards invertebrates, according to the bioassay results with *Ceriodaphnia*, the area of potential toxic effects extends to 19 or 25 m downstream of the outfall. However, the *in situ* benthos study showed that the effluent caused an organic enrichment of the environment leading to an increase in benthos density at least as far as 140 m downstream of the outfall, i.e., to the downstream side of the near-field exposure area.⁶⁶⁸

8.7.6 Canada's enforcement actions

The Secretariat has no information indicating that Environment Canada conducted an on-site inspection of the Fjordcell mill to verify compliance with the PPER at any time in 2000. Environment Canada conducted administrative reviews of monthly reports that the mill sent to the Quebec Ministry of the Environment, which forwarded them to Environment Canada. Canada's response to the submission states that in August 2001, the mill provided a corrective plan at the request of the Quebec Ministry of Environment.⁶⁶⁹ Environment Canada did not provide this plan or any information regarding it in response to the Secretariat's information requests.⁶⁷⁰ The Secretariat received no information from Environment Canada indicating that the Quebec authorities took

668. *Ibid.*

669. Response at 24. In its comments on the draft factual record, Canada states: "The mill provided a corrective plan in March 2001 and not August 2001. This action plan was provided to the provincial government following a notice of infraction issued in February 2001 concerning exceedances in the year 2000." Canada's comments on SEM-02-003 (Pulp & Paper) draft Factual Record (10 May 2006), at 12. Environment Canada did not provide this notice of infraction in response to the Secretariat's information requests for the factual record. The Canada-Quebec Management Committee annual report for 2000 that Environment Canada provided to the Secretariat on 1 June 2006 indicates that in 2001, the province issued the mill one notice of infraction for all of the TSS and BOD exceedances that occurred in 2000, and that the mill undertook corrective action, but the report does not describe the corrective action that was taken. The report indicates that the mill provided justification of non-conformity on four occasions in 2000 (January 17, March 17, November 30 and December 31), but the report does not explain what justification was provided.

670. In a 1999 review of the Federal-Quebec administrative agreement for pulp and paper regulations, the Commissioner for Environment and Sustainable Development (CESD) noted:

5.56 According to information obtained from Environment Canada, during [1995-97], the province communicated, met with, or sent warning letters to most . . . non-compliant mills and prosecuted one mill. Where none of these interventions were made by the province (four mills in 1995, three mills in 1996, and seven mills in 1997) the province either considered the violations to be isolated incidents or it negotiated a corrective plan with the non-compliant mill.

enforcement action, other than the notices of infraction and corrective plan mentioned in Canada's response, that Environment Canada took into account in determining the appropriate level of enforcement to take in connection with the mill's non-compliance with the *PPER* in 2000.

On 28 January 2000, Environment Canada issued a warning to the mill, the mill manager and the mill environment director, stating that, based on a review conducted on 27 January 2000 of the mill's records for September to November 1999,⁶⁷¹ an Environment Canada fishery inspector had reasonable grounds to believe that the mill effluent exceeded the daily TSS limit on 13 November 1999 and exceeded the daily BOD limit on 11 and 13 November 1999, in violation of *Fisheries Act* s. 36(3) and ss. 4 and 6(1)(a) of the *PPER*.⁶⁷²

On 28 February 2000, Environment Canada issued the mill another warning, stating that, based on a review conducted on 24 February 2000 of the mill's records for December 1999, an Environment Canada fishery inspector had reasonable grounds to believe that the mill effluent exceeded the mill's daily TSS limit on 3 and 4 December 1999 and exceeded the daily BOD limit on 1, 3 and 22 December 1999, in violation of *Fisheries Act* s. 36(3) and ss. 4 and 6(1)(a) of the *PPER*.⁶⁷³

Both warnings stated that the warnings and the circumstances to which they refer will form part of the compliance history of the mill and its responsible officials and will be taken into account in the event of future violations. The 28 February 2000 warning alleges a lack of due diligence in the observance of environmental regulatory requirements. Neither warning led to an on-site inspection with respect to the non-compliance in 2000 indicated in Tables 22 and 23, above. In its comments on the draft factual record, Canada states: "In September 2000, the Fjordcell file was sent to Environment Canada's Investigations Section

5.57 Corrective plans negotiated by the province with a mill identify the course of action the mill would follow to comply with provincial regulations. Both levels of government have sent a letter to the mills indicating that these corrective plans are in no way binding on the federal government and do not exempt the Quebec mills from complying with federal regulations.

5.58 Environment Canada considers a corrective plan to be a satisfactory mechanism for the province to address issues of non-compliance. Environment Canada was unable to provide us with any corrective plans. We observed that a corrective plan has not always ensured continued compliance and, in our view, does not preclude a federal enforcement response where appropriate.

1999 Report of the CESD, Chapter 5: *Streamlining Environmental Protection Through Federal-Provincial Agreements: Are They Working*.

671. The warning letter states 27 June 2000, but the correct date is clearly 27 January 2000.

672. Environment Canada Information (3 June 2004).

673. *Ibid.*

concerning alleged violations following two warnings. The subsequent violations were later added to the investigation file.”

Information available to the Secretariat from Environment Canada and the submission indicates that the mill had 8 trout lethality test failures, 6 TSS exceedances and 8 BOD exceedances in 1999. This compliance history is relevant to factors in the Compliance and Enforcement Policy for selecting an appropriate enforcement response for non-compliance observed at the mill in 2000.

An Environment Canada document⁶⁷⁴ on the outcomes of investigations into alleged *PPER* violations states as follows:

[This file was closed on 10 September 2003.] Due to insufficiency of the evidence in this case, the investigator could not justify the issuance of a search warrant. Further to the investigation, a warning letter was sent to the company. The enforcement measure was chosen in accordance with the enforcement policy. The decision to send a warning letter was also justified by the fact that there had been no on-site inspection or any call from an EC representative to find out the reasons for the exceedances. The decision was made in consultation with the prosecutors.⁶⁷⁵

8.7.7 Update

According to information on the Quebec Ministry of Environment web site, in 2001 the Fjordcell mill's effluent exceeded Quebec's daily TSS limit 73 times and the daily BOD₅ limit 13 times, for a total of 86 exceedances of daily TSS and BOD₅ limits. Since Quebec's limits for these parameters are more stringent than those in the *PPER*, this information indicates that the mill discharges exceeded the *PPER* limits for TSS and BOD on no more than 86 occasions. The mill discharge also failed the trout lethality test, which is identical to the federal test, on one occasion in 2001.⁶⁷⁶

Information on the Quebec Ministry of Environment web site indicates that the Fjordcell mill failed to comply with Quebec regulations on TSS discharge on 5 days in 2002, which indicates that the mill's discharge exceed the limit for TSS under the *PPER* on no more than five occasions in 2002. This information also indicates that the Fjordcell mill failed the acute lethality test 4 times in 2002.

Information on the Quebec Ministry of Environment web site indicates that in 2003 the mill operated in compliance with Quebec effluent

674. This is the only document Environment Canada provided to the Secretariat regarding this investigation in response to the Secretariat's information requests for this factual record.

675. Environment Canada Information (23 November 2005).

676. All from <http://www.menv.gouv.qc.ca/milieu_ind/bilans/pates_01/f-i.htm>.

limits at all times, except for two days on which the Quebec daily TSS limit was exceeded. In 2003, average BOD and TSS discharges per ton of product were typically half the national average, and the mill effluent passed all lethality tests for trout in 2003, indicating a well-run activated sludge plant at that time.

On 1 November 2004, Cascades announced an indefinite shutdown of the mill, due primarily to labor issues. In May 2005, the company announced an agreement had been reached with the unions that would result in their recommencing operations. Cascades declined to provide information on the status of the mill in 2005.⁶⁷⁷ In mid-2005 the corporate web site listed products as still being 82,000 t/year softwood bleached kraft pulp, and indicated that the mill operates an activated sludge effluent treatment system.

8.8 *La Compagnie J. Ford – Portneuf, QC*

Information regarding the J. Ford mill was obtained from Environment Canada and the Submitters, as well as other sources.

8.8.1 *Mill background and history*

This mill was owned by La Compagnie J. Ford from the early 1900s. The mill was closed down as a result of bankruptcy in mid-2003, and reopened by Metro Paper Industries (MPI) early in 2004.⁶⁷⁸

The reference production rate was 208 t/day in 2000, but the normal production shown in the records of Environment Canada varied from 60 t/day to 160 t/day. According to the Secretariat's expert, such a discrepancy between the reference rate and the actual rate is common where production is declining from year to year. Where a reduction in production is planned or foreseen, such as permanent shutdown of part of a mill, the reference production rate must be modified under the regulation. However, where low production is expected to be temporary, such as due to market conditions or labour conflicts, modification to the reference production rate can be delayed until the normal course of annual recalculations takes effect.

8.8.2 *Production processes*

In 2000, the mill had a capacity to produce 40 t/day of mechanical pulp, and about 40 t/day of a very wide variety of paper grades, along with up to 150 t/day roofing felt. Products ranged from specialized

^{677.} *Ibid.*

^{678.} All from McCubbin Report.

papers, normally selling at a high price in small volumes, such as coffee filters and base paper for masking tape, along with relatively low value products like roofing felt. The mill was equipped with five paper machines in 2000, which is an unusually high number for such a small production volume. Effluent discharge flow was typically slightly under 4000 m³/day in 2000.

8.8.3 Effluent control

In 2000, the mill operated a primary treatment system, but no secondary treatment system. Information available to the Secretariat on effluent control in 2000 is sparse, as mill ownership and key staff have changed. Current products, production volume and effluent treatment technology have all changed substantially since new management recommenced operations in 2004.

8.8.4 PPER test results

Information provided by Environment Canada indicates that the mill effluent was in compliance with BOD and TSS discharge limitations throughout 2000, but failed 4 acute lethality tests for trout, and 16 lethality tests for *Daphnia magna*.⁶⁷⁹ The submission also mentions 4 failures of the trout test, as does the Quebec Ministry of Environment web site. The submission asserts that the mill failed to conduct follow-up testing as required by the PPER on 27 occasions. All results of trout and *Daphnia* lethality testing reported by Environment Canada are shown in Table 24 below.

Table 24. Lethality Test Failures and Follow-up Tests for J. Ford Mill Process Effluent in 2000

Date	Trout LC50	<i>Daphnia magna</i> LC50	Notes
25-Jan		32%	
2-Feb	100%	100%	
3-Feb		100%	
4-Feb		100%	
16-Feb		71%	
23-Feb	100%	100%	

679. Environment Canada Information (3 June 2004).

Table 24. (cont.)

Date	Trout LC50	<i>Daphnia magna</i> LC50	Notes
24-Feb		100%	
25-Feb		100%	
23-Mar		37%	11 days to next trout test
28-Mar		100%	
3-Apr	100% (late)	100%	
5-Apr		44%	8 days to next trout test
6-Apr		100%	
12-Apr		100%	
13-Apr	100% (late)	89%	13 days to next trout test
14-Apr		100%	
17-Apr		44%	9 days to next trout test
18-Apr		54%	8 days to next trout test
19-Apr		100%	
26-Apr	100% (late)	100%	
27-Apr		100%	
28-Apr		100%	
4-May	100%	50%	11 days to next trout test
9-May		75%	
15-May	100%	32%	
16-May		100%	
17-May		87%	
18-May	66%	71%	
24-May	56%	100%	
25-May		100%	
26-May		100%	
31-May		100%	
1-Jun		100%	

Table 24. (cont.)

Date	Trout LC50	<i>Daphnia magna</i> LC50	Notes
2-Jun	100%	100%	
9-Jun	Omitted		
16-Jun	Omitted		
3-Jul	100%	100%	
6-Sep		77%	8 days to next trout test
12-Sep		100%	
14-Sep	71% (late)	71%	11 days to next trout test
15-Sep		100%	
18-Sep		100%	
19-Sep		100%	
20-Sep		100%	
25-Sep	75% (late)		
26-Sep		100%	
2-Oct	100%	100%	
10-Oct	100%	100%	
17-Oct	100%	100%	
5-Dec		52%	
11-Dec		100%	
12-Dec	100%	100%	
14-Dec		100%	
18-Dec		18%	No follow-up <i>Daphnia magna</i> tests
25-Dec	Omitted		
Total	4	16	

Source: Environment Canada Information (3 June 2004).

The information in Table 24 shows occasions in 2000 on which the mill failed to conduct follow-up test after trout and *Daphnia magna* test failures as required by the *PPER*. As has been noted previously, consideration must be given to the time required to send effluent samples for analysis and run the four-day (trout) or two-day (*Daphnia magna*) lethality tests. For the 16 failed *Daphnia magna* lethality tests, five of the follow-up trout lethality tests that are required without delay once the *Daphnia magna* test failed were more than seven days after the date of the failed *Daphnia magna* test. For the failed *Daphnia magna* test on 18 December 2000, the Secretariat has no information indicating that a follow-up trout test or the thrice-weekly *Daphnia magna* tests were conducted. According to the Secretariat's review of the information obtained, the failures of the trout lethality test on May 18 and 24 were not followed by weekly tests until three consecutive tests passed. Based on the Secretariat's review, this information indicates up to 11 follow-up tests that were either late or omitted. Environment Canada's summary sheet for the J. Ford mill indicates that there were three required trout or *Daphnia magna* tests that were not submitted.⁶⁸⁰

8.8.5 *Environmental Effects Monitoring*

Canada states that, with regard to the the second cycle EEM for the MPI (La Compagnie J. Ford) mill, "[t]he study of benthic community data indicates that there is a close exposed area discharge effect, resulting in a decrease mainly in the density of benthic organismse."⁶⁸¹

8.8.6 *Canada's enforcement actions*

The Secretariat has no information indicating that Environment Canada conducted an on-site inspection of the J. Ford mill to verify compliance with the *PPER* at any time in 2000. Environment Canada conducted administrative reviews of monthly reports that the mill sent to the Quebec Ministry of the Environment, which forwarded them to Environment Canada. Canada's response to the submission indicates that the Quebec Ministry of Environment sent the mill notices of infraction in 2000. Environment Canada did not provide any such notices or information regarding them in response to the Secretariat's information requests. The Secretariat received no information from Environment Canada indicating that the Quebec authorities took enforcement action, under provincial law, other than notices of infraction, that Environment

680. Environment Canada Information (3 June 2004).

681. Canada's comments on SEM-02-003 (Pulp & Paper) draft Factual Record (10 May 2006), at 13.

Canada took into account in determining the appropriate level of enforcement to take in connection with the mill's non-compliance with the *PPER* in 2000⁶⁸².

Environment Canada issued warnings to the J. Ford mill and two of its officials on 2 November 1999 and 19 July 1999 for alleged violations of subsection 36(3) of the *Fisheries Act* and sections 4 and 6(4) of the *PPER*. These warnings stated that, based on a review of the mill's records for the period January to May 1999 and June to September 1999, Environment Canada had reasonable grounds to believe the mill discharged acutely lethal effluent on 21 January and 3 June 1999 and exceeded the mill's daily BOD limit on 30 May 1999. Both warnings state that the warnings and the circumstances to which they refer will form part of the compliance history of the mill and its responsible officials and will be taken into account in the event of future violations. The 2 November 1999 warning alleges a lack of due diligence in the observance of environmental regulatory requirements. The Secretariat has no information indicating that either warning led to an on-site compliance inspection or any other enforcement action with respect to the non-compliance in 2000 indicated in Table 24, above.⁶⁸³

Information available to the Secretariat from Environment Canada and the submission indicates that the mill had 2 trout lethality test failures and 3 BOD exceedances in 1999, and a minimum of 7 trout lethality failures and 6 TSS exceedances and 21 BOD exceedances in the period 1996-99. This compliance history is relevant to factors in the Compliance and Enforcement Policy for selecting an appropriate enforcement response for non-compliance observed at the mill in 2000.

Environment Canada provided the Secretariat with an internal memorandum regarding closure of an Environment Canada investigation regarding *PPER* non-compliance observed at the mill in January, February and March 2001 and February 2002.⁶⁸⁴ The memorandum notes the two warnings sent to the mill in 1999 and states that following those warnings, an employee in Environment Canada's Innovation and Industrial Sector Section visited the mill and reported that he was satis-

682. The Canada-Quebec Management Committee annual report for 2000 that Environment Canada provided to the Secretariat on 1 June 2006 indicates that during 2000, the province issued the mill eight notices of infraction (May 1, June 21, August 1, August 25, September 27, October 24, November 27 and December 21).

683. All from Environment Canada Information (3 June 2004).

684. Environment Canada, Quebec Region, Internal Memorandum from Investigator to Interim Investigations Chief (9 August 2002), in Environment Canada Information (23 November 2005).

fied that significant process changes at the mill would minimize recurrence of the non-compliance observed in 1999. The memorandum notes that, nevertheless, there were several subsequent exceedances of *PPER* requirements. The memorandum does not explicitly mention any of the non-compliance observed at the mill in 2000. Regarding the mill's non-compliance in 2001 and 2002, the memorandum states:

In reviewing the file, it appears that these events occur in the initial months of the year. However, at each occurrence, company officials explained the reason – valve or pipe breakage – and stated and wrote that they had made repairs without delay, typically the same day, apparently indicating diligence on the part of the company, although this remains to be verified. Moreover, no on-site inspection was performed subsequent to these events or as part of a planned inspection program.

Results are required to be transmitted within the 30 days following the end of the month; according to the inspector responsible for enforcing the regulation, there is no way to verify the date of transmission with the Québec Ministry of Environment. The data are reviewed by EC within a period ranging from 1.5 to 3 months. In these cases, the application of law enforcement measures is tardy and will have little impact. The same is true if the file is referred to the Investigations Section.

Moreover, in June 2001, the company contacted the Ministry to report that it was under the protection of the *Bankruptcy Act* and that its operations were under the supervision of a trustee

The company can display diligence in the foregoing cases and show that the exceedances are due to equipment breakage. The delay between the reporting of the exceedances and the time when EC takes cognizance of them weakens the impact of punitive measures. In my view, the data transmission mechanisms should be reviewed By adjusting the delays between data transmission and exceedances, by including planned site inspections in its program, the Ministry would show that it is aware of the difficulties associated with enforcing the law and that it respects the spirit of the *Fisheries Act* Compliance and Enforcement Policy for fish habitat protection and pollution prevention by seeing with its own eyes what the company consists of and what it has done to achieve compliance, and would thus have a record of site interventions.⁶⁸⁵

685. *Ibid.* The Secretariat asked Environment Canada what information was missing that would have been required to enable the investigator to take legal samples, and why the mill's information was insufficient to provide the basis of obtaining a legal sample. In response, Environment Canada provided a summary of this memorandum, which did not provide a response to the Secretariat's questions.

Another Environment Canada document on the outcomes of investigations into alleged *PPER* violations states as follows in regard to the J. Ford mill:

This file was closed due to insufficient evidence. The lack of data made it impossible for the investigator to justify the issuance of a warrant to support his evidence and carry out legal sampling. A May 2003 legal opinion stated that the Ministry could take action against a company solely on the basis of self-monitoring data. This opinion overruled, in some respects, the opinions of regional prosecutors who had preferred that EC have its own data.⁶⁸⁶

8.8.7 Update

According to information posted on the Quebec Ministry of the Environment web site, in 2001 the J. Ford mill's effluent exceeded the Quebec effluent limits for daily TSS 7 times and for daily BOD₅ 18 times, for a total of 25 exceedances of daily TSS and BOD₅ limits. Because the Quebec limits for these parameters are more stringent than those in the *PPER*, this information indicates that mill effluent exceeded the TSS and BOD limits in the *PPER* on no more than 25 occasions in 2001. The Quebec Ministry of the Environment information indicates that the mill's effluent failed the trout lethality test on 5 occasions in 2001.⁶⁸⁷

According to the Quebec Ministry of the Environment, in 2002, the mill effluent was out of conformity with the Quebec regulations for BOD 85 times, and for TSS 4 times, and the mill failed one acute lethality test for trout.

After shutting down in 2003, the mill recommenced production in January 2004 under new management and ownership, using two paper machines, manufacturing approximately 60 t/day of tissue and napkin grades from recycled paper. There is no de-inking on site. The effluent treatment system which was used in 2000 continued to be used, so the input loading is substantially below the levels normal in 2000. The mill was still operating in this mode in early 2005.

There is no pulp manufacture or bleaching on site. The principal raw materials are purchased pulp and recycled fiber, in the approximate ratio of 1:2, depending on products. Wastewater is now treated in a Krofta flotation clarifier, and the recovered sludge is landfilled. There is

686. Environment Canada Information (23 November 2005).

687. All from <http://www.menv.gouv.qc.ca/milieu_ind/bilans/pates_01/f-i.htm>.

no secondary treatment. Mill staff advised the Secretariat's expert in early 2005 that the discharge normally, but not always, complies with the federal *PPER*. The mill advised the Secretariat's expert that it has engaged a consultant who is working towards total compliance by improving pollutant recovery in the mill process, and that the mill intends to install secondary treatment if this is unsuccessful.

8.9 *FF Soucy – Rivière-du-Loup, QC*

Information regarding the FF Soucy mill was obtained from Environment Canada and the Submitters, as well as other sources. As well, the mill provided extensive information regarding its compliance with the *PPER* in 2000.

8.9.1 *Mill background and history*

The mill was originally constructed to manufacture newsprint using the groundwood and sulphite processes that were standard at the time. In the 1970s, it converted to the TMP process, and has continued to manufacture newsprint using 100 percent TMP manufactured on site. The reference production rate and authorized discharges for 2000 are shown in Table 25.

Table 25. Authorized Discharges for Soucy Mill in 2000

Parameter	Units	Value
Reference production rate	t/day	705
BOD max/day	kg/day	8,813
BOD max/month	kg/day	5,288
TSS max/day	kg/day	13,219
TSS max/month	kg/day	7,931

8.9.2 *Production processes*

The production process uses straightforward TMP followed by screening and cleaning of the pulp, then manufacture of newsprint on conventional twin-wire paper machines. There are no significant quantities of chemicals added or used in the process.

8.9.3 Effluent control

The mill implemented extensive water recycle in the late 1980s and early 1990s, so current effluent flow is 23 m³/ton paper, which is about half the Canadian average for a mill of this type. Effluent is treated in a primary clarifier followed by an activated sludge plant, installed in 1995. The discharge data reported to Environment Canada show an average discharge of approximately 2 kg BOD and 0.6 kg TSS per ton product. The BOD discharge is typical of the industry, but the TSS discharge is well below the national average of about 3 kg/t.

8.9.4 PPER test results

The submission states that the mill failed 4 trout tests in 2000. Documents provided to the Secretariat by Environment Canada and FF Soucy indicate that there were no failures of the trout lethality tests in 2000. There were no violations of BOD or TSS limits, and on almost all days, the measured discharges were below 10 percent of those permitted.

Appendix 7 to the submission indicates 15 failures of the *Daphnia* lethality test, and states that this led to violations because the required follow-up tests were not carried out. The submission estimates that this represented 36 procedural violations.

FF Soucy informed the Secretariat that the information on which the conclusion that the mill had procedural failures to conduct follow-up tests for 15 failed *Daphnia magna* tests was inaccurate. Information from Environment Canada and Soucy for 2000 shows only one failure of the *Daphnia magna* test, on 14 March 2000. The mill provided the Secretariat with documentation indicating that the mill completed three follow-up *Daphnia magna* tests as required, reporting three consecutive passed tests on 21-23 March 2000.⁶⁸⁸ The mill further explained that twelve of the apparent failures to conduct follow-up tests resulted from a computer software problem that generated two sets of test results, one with the correct result in which the acute lethality test passed, and the other a blank set of results, which the computer registered as a failed test when it generated the mill's annual report.⁶⁸⁹ The mill said Environment Canada was aware of this computer problem but was not concerned because it had obtained the results showing that the

688. Letter from Soucy to Secretariat (30 June 2004)

689. *Ibid.*

tests had passed.⁶⁹⁰ The mill verified that the *Daphnia magna* tests for the remaining two dates for which the submission indicated failed tests had passed and provided supporting laboratory documentation.⁶⁹¹

In a 14 July 2004 letter to the Secretariat, Environment Canada confirmed that inaccurate data regarding the Soucy mill had been provided to the Sierra Legal Defence Fund as a result of the data entry problems the mill described, and explained that those errors were not reflected in the information provided in Canada's response to the submission. Environment Canada said that as of January 2004, the Management Committee under the Canada-Quebec Administrative Agreement has put in place corrective measures to prevent similar inaccuracies from being reported in the future.

8.9.5 *Canada's enforcement actions*

Environment Canada observed no incidents of non-compliance at the FF Soucy mill in 2000 and therefore took no enforcement action with respect to the mill.

8.9.6 *Update*

In 2005, the mill was operating generally as in 2000, and is routinely in compliance with the *PPER*, according to mill staff.⁶⁹²

8.10 *Interlake – St. Catharines, ON*

Information regarding the Interlake mill was obtained from Environment Canada and the Submitters, as well as other sources. The mill explicitly declined to provide any information for preparation of the factual record.

8.10.1 *Mill background and history*

The plant was originally built as a groundwood mill, but there is no longer any debarking or pulping of wood on the site. It was owned by Kimberly Clark for many years prior to becoming Interlake Paper. The authorized discharges of BOD and suspended solids under the *PPER* are shown in Table 26 below.

690. *Ibid.*

691. *Ibid.*

692. McCubbin Report, at 32.

Table 26. Authorized Discharges for Interlake Mill for 2000

Parameter	Value	Units
Reference production rate	144	t/day
BOD max day	1,800	kg/day
BOD max month	1,080	kg/day
TSS max day	2,700	kg/day
TSS max month	1,620	kg/day

RPR is for 2000.

Permissible discharges may vary slightly for other years.

8.10.2 Production processes

The mill manufactures a variety of specialty tissues, crepe paper and wadding from purchased pulp. There are three paper machines, with a total average production rate of 106 t/day in 2000. The reference production rate was 144 t/day for 2000.

8.10.3 Effluent control

All effluent is treated in a primary clarifier, 32 meters in diameter. At the average mill effluent flow of approximately 9,200 m³/day, the upflow rate is slightly under 0.5 m/h, which is very conservative from the point of view of settling solids effectively. There are two polishing ponds downstream of the clarifier. One of these polishing ponds, also called an aerated detention basin, removes additional solids, and the mill uses the other to collect contaminated effluent in the event of a spill or clarifier upset.⁶⁹³ The treated effluent is discharged to the Old Welland Canal, which flows into Twelve Mile Creek.⁶⁹⁴

One incident of failure to comply with the acute lethality standard occurred on 29 August 2000, due to a leak of a wet-strength resin that remained undetected for a day or so, since it was not readily visible and was washed to the mill sewer by a screen reject stream, which masked its presence.

693. Environment Canada web site, at <<http://www.on.ec.gc.ca/eem/mills/interlst-e.html>>.

694. *Ibid.*

Analysis of information provided by the mill staff to Environment Canada concerning operations in 2000 shows that the effluent discharged by the mill to the effluent clarifier was frequently non-lethal to trout, while effluent leaving the clarifier was often lethal.⁶⁹⁵ According to the Secretariat's expert, this is unusual in the pulp and paper industry, and the cause is unknown. In the acute lethality testing, following failures of the pass/fail lethality test, the 96hrLC50 concentrations varied from 21.3 to 70 percent, indicating an effluent with toxicity atypical for a mill of this type and much greater than previous years.⁶⁹⁶ The mill staff reviewed the chemicals used and performed a number of in-mill toxicity tests to try to determine the source but were unsuccessful.⁶⁹⁷ After October 2000, the problem appears to have resolved itself, again without any explanation.⁶⁹⁸

8.10.4 PPER test results

There were no instances of non-compliance with the *PPER* reported for the mill from the coming into effect of the regulation in 1996 until 2000. The mill operated without any exceedances of BOD or TSS limits in 2000, but there were nine failures of the acute lethality test for trout.⁶⁹⁹ Those nine failures are comprised of three failures in February, one in March, two in August, two in September and one in October. The LC50 for these test failures ranged from 21.3 percent to just below 100 percent. Some of these failures were in the regular monthly tests, and some in the required follow-up testing.⁷⁰⁰ No failures to conduct follow-up tests as required were noted.

Table 27 shows a summary that Environment Canada provided the Secretariat regarding the reporting of acutely lethal deposits at the mill in 2000.⁷⁰¹

695. Environment Canada Information (3 June 2004).

696. *Ibid.*

697. *Ibid.*

698. *Ibid.*

699. *Ibid.*

700. *Ibid.*

701. *Ibid.*

Table 27. Reporting of Deposits of Acutely Lethal Effluent at Interlake Mill in 2000

Date of deposit of acutely lethal effluent	Immediate report?	Written report?	Provincial Spill Action Centre Notified?
9-Feb-00	11-Feb-00	No	No
16-Feb-00	No	No	No
1-Mar-00	3-Mar-00	No	No
7-Mar-00	No	No	No
28-Aug-00	12-Sep-00	18-Dec-00	29-Aug-00
29-Aug-00	13-Sep-00	18-Dec-00	29-Aug-00
30-Aug-00	13-Sep-00	18-Dec-00	29-Aug-00
20-Sep-00	27-Sep-00	No	No
26-Sep-00	27-Sep-00	No	No
27-Sep-00	27-Sep-00 and 2-Oct-00	No	No

Environment Canada also informed the Secretariat that the mill's monthly reports for March 2000, November 2000 and December 2000 were late by 10 days, 4 days and 12 days, respectively.

8.10.5 Environmental Effects Monitoring

The second cycle EEM study for the Interlake mill was conducted jointly with two other mills that discharge into a common environment in southern Ontario (collectively referred to as the Niagara Peninsula Pulp and Paper Mills or NPPPM mills).⁷⁰² The Cycle 2 invertebrate community study concluded that out of the fourteen benthic community measures evaluated, "statistical and 'ecologically' significant differences were detected in only three . . . It is unlikely that these differences were mill related, rather they seemed to be associated with the invasion of exotic taxa . . . into the study area."⁷⁰³ With respect to sublethal toxicity, the study concluded that "[i]n all cases for all test species, concentra-

702. Second Cycle EEM Final Interpretative Report for the Niagara Peninsula Pulp and Paper Mills (February 2000), in Canada Information (June 2004).

703. *Ibid.*

tions at which sublethal effects were observed in the laboratory were in excess of effluent concentrations in the receiving environment as predicted by plume delineation studies conducted in Cycle 1. It is unlikely that sublethal effects in comparable taxa in the receiving environment would have occurred during Cycle 2.”⁷⁰⁴ The EEM study noted that “[b]oth the results of the toxicity testing and the in-field benthic collections suggest that current discharges from NPPPM mills are not affecting the biological community in the receiving environment in an ecologically meaningful manner.”⁷⁰⁵ This EEM study was not required to include any fish survey, analyses of dioxins and furans in fish tissue, or tainting evaluation.⁷⁰⁶

8.10.6 *Canada's enforcement actions*

Information available to the Secretariat from Environment Canada indicates that the mill was 100 percent compliant with acute lethality, TSS and BOD limits in the period 1996-99. This compliance history is relevant to factors in the Compliance and Enforcement Policy for selecting an appropriate enforcement response for non-compliance observed at the mill in 2000.

Information that Environment Canada provided indicates that Environment Canada and the Ontario Ministry of the Environment and Energy undertook separate investigations of the mill with respect to the mill's non-compliance with the *PPER* and with the Ontario *EPA* and Regulation 760/93 made under the Ontario *EPA*.⁷⁰⁷ Environment Canada focused on administrative matters, such as compliance with reporting requirements, and Ontario focused on substantive violations, such as acute lethality test failures. An e-mail from an Environment Canada fishery inspector to the Ontario Ministry of the Environment and Energy dated 19 October 2001 states: “We believe this to be a good split of the workload as our office has a very good system for tracking reporting requirements and flagging violations.”⁷⁰⁸ Environment Canada explained that this was not a standing or permanent arrangement between Environment Canada and the Ontario Ministry of the Environment and Energy, but rather a case-specific arrangement that arose after Environment Canada began its investigation of the Interlake mill and discovered that the Ontario Ministry of the Environment and Energy

704. *Ibid.*

705. *Ibid.*

706. *Ibid.*

707. Environment Canada Information (3 June 2004).

708. *Ibid.*

was investigating acutely lethal deposits by the mill.⁷⁰⁹ As the Ontario MOE was intending to proceed under its own statute and regulations for violations that fell under [both federal and provincial laws and regulations], EC decided that it would pursue only alleged violations of the reporting requirements under the *PPER*, 1992 and the federal *Fisheries Act*. This was a decision to avoid duplication of effort.⁷¹⁰

In February 2002, Environment Canada learned that the Ontario Ministry of the Environment and Energy had laid 21 charges against Interlake Paper and 12 against its Environmental Coordinator, relating to spills and releases that occurred at the mill in August and September 2000. Interlake plead guilty to six of the provincial charges in February 2003 and was fined \$30,000, with a victim surcharge of \$7,500 in addition to the fine.⁷¹¹

On 26 August 2002, Environment Canada charged Interlake and its environmental coordinator with 14 counts under ss. 7(4), 9(2) and 36(2) of the *PPER* and ss. 78 and 38(4) of the *Fisheries Act*. Environment Canada alleged that the mill failed immediately to report pollution events out of the normal course of events on four occasions between 29 August and 11 October 2000 and failed to provide Environment Canada with follow-up reports for discharges of deleterious substances four times between 20 September and 11 October 2000. Environment Canada further alleged that on five occasions between 30 December 2000 and 30 November 2001, the mill failed to provide monitoring results to Environment Canada within 30 days after the tests were taken.⁷¹²

At a court hearing in June 2003, the Justice of the Peace ruled as follows, on the basis of Supreme Court of Canada cases and the Charter:

At issue is the fact that the subject, Interlake Acquisition Corporation Limited, provided reports saying that they had an incident that caused them to fail their LC50 and Pass/Fail tests. The subject provided the information to Environment Canada as prescribed by the Regulation. This information provided to Environment Canada cannot be used in court against the subject. Nor, can any information given to any officer by any employee of the subject company. In this case there was no supporting information that

709. Environment Canada Information (23 November 2005).

710. *Ibid.*

711. Environment Canada Information (3 June 2004 and 23 November 2005).

712. All from Environment Canada News Release, *Interlake Acquisition and Its Operator Charged With Offence Under Pulp and Paper Regulations*, at <<http://www.on.ec.gc.ca/announce.cfm?ID=633&Lang=e>>.

was secured without the subject company having provided it to [an] officer, in accordance with the regulations.⁷¹³

As a result of this hearing, the Crown withdrew twelve of the fourteen charges. The ruling of the Justice of the Peace was not consistent with Environment Canada policy on use of self-reported data, and the government disagreed with the court's interpretation of Supreme Court cases on use of self-reported data. However, the government concluded it was not worth proceeding with twelve of the charges in view of the circumstances, including "a particular challenge of proving that the 'deposit' occurred", the need "to deal with issues raised in the Charter issues" and the length of the case.⁷¹⁴

On 8 August 2003, Interlake Acquisition Corporation Limited plead guilty to a single count, for failing to provide a written report for deposits out of the normal course of business immediately to an inspector or an authority prescribed in the *Fisheries Act*, contrary to s. 36(2) of the *PPER* and s. 38(4) of the *Fisheries Act*. Under *Fisheries Act* s. 40(3), the maximum penalty for an offense under s. 38(4) is, on summary conviction, a fine of \$200,000 for a first offense and a fine of \$200,000 and imprisonment up to six months for a repeat offense. The court ordered Interlake to pay \$15,000 to Environment Canada for improvement of its Regulatory Information Submission System (RISS).

8.10.7 Update

According to information provided by the Sierra Legal Defence Fund, the Interlake mill had no failures of acute lethality tests in the January 2003 to April 2004 period, which is the only post-2000 period for which data were obtained for this factual record.⁷¹⁵

9. Closing Note

Factual records provide information regarding asserted failures to effectively enforce environmental law in North America that may assist submitters, the NAAEC Parties and other interested members of the public in taking any action they deem appropriate in regard to the matters addressed. Pursuant to Council Resolution 03-16, which determined its scope, this factual record provides information regarding

713. Interlake Paper Inc. Investigation Report, in Environment Canada Information (3 June 2004).

714. *Ibid.*

715. Information provided by Sierra Legal Defence Fund (14 February 2005).

Canada's alleged failures to effectively enforce section 36(3) of the *Fisheries Act*, alleged effluent test failures, and failure to conduct follow-up tests as required under the *PPER*, with respect to the following mills and time periods:

- Irving Pulp and Paper Ltd. at Saint John, NB from 1996 to 2000;
- AV Cell Inc. at Atholville, NB for 2000;
- Abitibi-Consolidated at Grand Falls, NL for 2000;
- Bowater Mersey Paper Company Ltd. at Brooklyn, NS for 2000;
- Fjordcell Inc. at Jonquière, QC for 2000;
- Interlake Papers at St. Catharines, ON for 2000;
- Tembec Inc. at St. Raymond, QC for 2000;
- Uniforêt-Pâte Port Cartier Inc. at Port-Cartier, QC for 2000;
- FF Soucy Inc. at Rivière-du-Loup, QC for 2000; and
- La Compagnie J. Ford Ltd. at Portneuf, QC for 2000.

The federal *PPER* prohibit the discharge of acutely lethal effluent, limit the amount of TSS and BOD matter that mills may discharge and require follow-up testing when mill effluent fails tests for lethality to *Daphnia magna* or trout. To enforce these requirements, Environment Canada may review mill-reported data; conduct on-site inspections; and open investigations, which may lead to further enforcement action, such as warnings, prosecutions, injunctions, formal requests for information or Ministerial orders. Violations of the *PPER* and s. 36(3) of the *Fisheries Act* are penal offenses punishable by fines and imprisonment.

In determining an enforcement response, Environment Canada considers the nature of the alleged violation, the effectiveness in promptly achieving compliance and consistency in enforcement. Enforcement personnel consider margins of error and other factors associated with measuring TSS, BOD and acute lethality and the potential of mills to assert a due diligence defense or other defenses or excuses. Difficulty in attributing a cause to non-compliance with effluent limits may indicate that a due diligence defense is potentially viable.

Four of the mills of concern are in the Atlantic Region of Environment Canada. The Atlantic Region has a policy of never basing prosecutions solely on mill-reported data; Environment Canada legal samples or other evidence are required to support charges. The following sum-

marizes Environment Canada's actions with respect to the Atlantic Region mills:

- The ACI mill had 9 nine reported trout test failures in 2000, following two warnings for acutely lethal effluent in 1998 and 1999 and six trout test failures in 1999. An Environment Canada sample of mill effluent in June 2000 passed the trout test, while a mill sample taken the same day failed. Environment Canada samples taken in July 2000 also passed the trout test. Environment Canada and mill staff acknowledged that the treatment system was too small. However, the mill conducted in-depth studies into the cause of the toxicity from 2000 to 2003, with no clear result. In 2003, as a result of ongoing *PPER* non-compliance, Environment Canada charged the mill with discharging acutely lethal effluent on three occasions in 2002 and 2003. ACI pleaded guilty to the charges and on 29 March 2004 was fined \$110,000 and ordered to take actions to address the mill's non-compliance. The mill installed an AST system to replace its ASB system, at a capital cost of approximately \$18 million. The AST system began operation at the end of 2004.
- The Bowater mill's process effluent exceeded the daily TSS limit three times (by 3.5%, 25.8% and 35%) and failed the trout test 10 times in 2000, which followed four trout test failures and one TSS exceedance in 1999. The mill's non-contact cooling water also failed the trout test on a number of occasions in 2000. Environment Canada took samples of mill effluent and non-contact cooling water in March and June 2000, but took no samples during the period from 1 August to 3 October, during which the mill reported ten trout test failures. The mill conducted in-depth studies to determine the cause of toxicity in the process effluent, with no clear results. The mill consistently took action to try to identify and correct *PPER* non-compliance and was in frequent communication with Environment Canada regarding compliance issues. Environment Canada took no enforcement action with regard to the mill's *PPER* non-compliance in 2000.
- The Irving Saint John mill experienced ongoing *PPER* non-compliance in the period 1996 through 2000, although the mill's compliance improved over time. Starting in 1994, the mill undertook a major project, at a capital cost of approximately \$300 million, to achieve *PPER* compliance through process changes, use of reverse osmosis technology and effluent treatment in a MBBR system. The project was undertaken after Irving's original off-site secondary treatment project was subjected to full-scale provincial environmental review and Irving concluded that consequent delays would not allow it to meet a 31

December 1995 deadline for complying with the *PPER*. Environment Canada actively and openly encouraged this project, but informed the mill that it was not relieved of its obligation to comply with the *PPER*. Environment Canada had the mill under investigation for *PPER* non-compliance from January 1996 to December 2000, issuing the mill a warning in 1996 and charging the mill with violating the *PPER* and s. 36(3) of the *Fisheries Act* in April 1998 and August 1998. The April 1998 charges were related to the mill's ongoing *PPER* non-compliance for which the mill's capital project was undertaken, and they were dropped in October 1998 in view of mitigating circumstances and the mill's progress on addressing *PPER* non-compliance. The August 1998 charges were for a green liquor spill not related to the ongoing non-compliance issues, and in November 1999, the mill pleaded guilty and was fined \$50,000.

- The AV Cell mill had 15 or 16 TSS exceedances, 3 BOD exceedances and 9 trout test failures in 2000, following 8 trout test failures, 42 TSS exceedances and 9 BOD exceedances in 1999. In May 2000, Environment Canada granted the mill an increase in its BOD and TSS limits, after which the mill exceeded its daily BOD limit once, but never its TSS limit, during the rest of the year. The mill asserted that in-depth studies into the cause of acute lethality of its effluent that did not determine the cause conclusively indicated that the mill had exercised due diligence. A March 2000 Environment Canada sample passed the trout test. Environment Canada did not take any mill samples during the period from August to November 2000, in which the mill reported eight trout test failures. New Brunswick authorities prosecuted the mill for discharging acutely lethal effluent in October 2000, and in January 2002, AV Cell pleaded guilty to the provincial charges and was fined \$30,000. In view of the provincial action, Environment Canada took no enforcement action regarding acute lethality of the mill effluent in 2000.

Five of the mills of concern are in Quebec. The federal government has an agreement with Quebec regarding enforcement of the *PPER* in Quebec. The agreement calls for mills to provide compliance data needed for federal enforcement to the Quebec environment ministry, which then forwards the data to Environment Canada. During 2000, the Quebec Region of Environment Canada reviewed mill data one to three and half months after it was received by the Quebec environment ministry and had a practice of not basing prosecutions of mills or obtaining warrants to obtain legal samples or other evidence solely on the basis of mill-reported data. The following summarizes Environment Canada's actions with respect to the Quebec Region mills:

- In 2000, effluent at the Tembec St. Raymond mill exceeded TSS limits 18 times and BOD limits 9 times and failed the trout test four times. The mill had one trout test failure in 1999. Environment Canada sent warnings to the mill in February 2000 (for acutely lethal effluent in December 1999) and March 2000 (for acutely lethal effluent on 3 January 2000; BOD exceedance on 17 January 2000; and TSS exceedances on 13, 17 and 18 January 2000). Environment Canada opened an investigation in July 2000, but conducted no on-site inspection and took no effluent samples. The investigation was dropped with no enforcement action in November 2002, after Environment Canada concluded that administrative review of mill-reported data cannot alone provide reasonable grounds for believing an offense has occurred, records of the laboratory that performed the mill's effluent tests could not sufficiently verify the accuracy of the tests and the mill had taken corrective action.
- In 2000, effluent at the Uniforêt mill exceeded the TSS limit 22 times and the BOD limit one time, and failed the trout test twice. Follow-up tests required after failed trout or *Daphnia magna* tests were missed or late 16 times. The mill had a history of non-compliance, including 2 exceedances of the TSS limit and 2 exceedances of the BOD limit in 1999. Environment Canada sent warnings in July 2000 (for acutely lethal effluent on 16 February 2000 and TSS exceedance on 28 February 2000) and March 2001 (for acutely lethal effluent on 11 July 2000; BOD exceedance on 2 September 2000; and TSS exceedances on 16 days in July-September 2000). Environment Canada did not conduct an on-site inspection or take samples of the mill's effluent in 2000 and took no other enforcement action for non-compliance observed in 2000.
- In 2000, effluent at the Fjordcell mill exceeded the TSS limit 25 times and the BOD limit 28 times, and failed the trout test 10 times. Follow-up tests required after failed trout or *Daphnia magna* tests were missed or late at least 7 times. The mill had a history of non-compliance, including 6 exceedances of the TSS limit and 8 exceedances of the BOD limit in 1999. Environment Canada sent warning letters in January 2000 and February 2000 for BOD and TSS exceedances that occurred in late 1999. Environment Canada opened an investigation in 2000 but did not conduct an on-site inspection or take samples of the mill's effluent and did not contact the mill for an explanation of the non-compliance observed. Environment Canada closed the investigation in September 2003 without taking any enforcement action for non-compliance observed in 2000.

-
- In 2000, effluent at the J. Ford mill failed the trout test 4 times. Follow-up tests required after failed trout or *Daphnia magna* tests were missed or late at least 11 times. The mill had a history of non-compliance, including 3 exceedances of the BOD limit and 2 failed trout tests in 1999. Environment Canada sent warnings in July and November 1999, for non-compliance reported from January to September 1999. Environment Canada did not conduct an on-site inspection, take samples of the mill's effluent or open an investigation for non-compliance observed in 2000. A report on an Environment Canada investigation of *PPER* non-compliance observed at the mill in 2001-02 did not note the non-compliance reported for the mill in 2000.
 - The Soucy mill was fully compliant with the *PPER* in 2000. Alleged violations noted in the submission were based on inaccurate information in reports on the mill's compliance, due to an anomaly in a computer program used to produce mill reports.

One mill of concern, the Interlake mill, is in Environment Canada's Ontario Region. In 2000, effluent at the Interlake mill failed the acute lethality test 9 times. The mill also issued late *PPER* reports on several occasions in 2000. Ontario authorities prosecuted the mill for spills and releases that occurred in August and September 2000. The mill pleaded guilty to six provincial charges and was fined \$37,500. Environment Canada charged the mill with 14 reporting offenses that occurred in 2000, and after the Justice of the Peace ruled that certain self-reported information could not be used against the mill, twelve charges were dropped. The mill pleaded guilty to one charge and was fined \$15,000.

APPENDIX 1

**Council Resolution 03-16,
dated 11 December 2003**



11 December 2003

COUNCIL RESOLUTION: 03-16

Instruction to the Secretariat of the Commission for Environmental Cooperation Regarding the Assertion that Canada is failing to effectively enforce sections 34, 36, 40, 78 and 78.1 of the federal *Fisheries Act* and sections 5 and 6 and Schedules I and II of the *Pulp and Paper Effluent Regulations* (PPER) promulgated in 1992 (SEM-02-003).

THE COUNCIL:

SUPPORTIVE of the process provided for in Articles 14 and 15 of the *North American Agreement on Environmental Cooperation* (NAAEC) regarding submissions on enforcement matters and the preparation of factual records;

CONSIDERING the above noted submission, filed on 8 May 2002 by Friends of the Earth, Union Saint-Laurent, Grands Lacs, Conservation Council of New Brunswick, Ecology Action Centre and Environment North, all represented by the Sierra Legal Defense Fund, and the 6 August 2002 response provided by the Government of Canada;

HAVING REVIEWED the 8 October 2003 notification to Council by the Secretariat recommending the development of a factual record with respect to the submission;

NOTING that the submission and Canada's response address twelve (12) mills of particular concern;

RECOGNIZING that Canada, in its response, informed the Secretariat that investigations were ongoing at five (5) of those twelve (12) mills;

HAVING BEEN INFORMED by the Government of Canada that, at this time, of those twelve (12) mills, there are ongoing investigations regarding the Abitibi-Consolidated Inc. mill at Iroquois Falls and at the Tembec Inc. mill at Témiscaming; and

MINDFUL that, in this instance, it would be inappropriate to direct the preparation of a factual record for matters that are subject to ongoing investigations.

HEREBY UNANIMOUSLY DECIDES TO:

INSTRUCT the Secretariat to prepare a factual record in accordance with Article 15 of the NAAEC and the *Guidelines for Submissions on Enforcement Matters* under Articles 14 and 15 of the *North American Agreement on Environmental Cooperation* for the assertions set forth in Submission SEM-02-003 with regard to alleged failures to effectively enforce section 36(3) of the *Fisheries Act* and alleged effluent test failures and failures to conduct follow-up tests as required under the PPER, with respect to the following mills and time periods identified in the submission:

- Irving Pulp and Paper Ltd. at St. John from 1996 to 2000
- AV Cell Inc. at Atholville for 2000
- Abitibi-Consolidated at Grand Falls for 2000
- Bowater Mersey Paper Company Ltd. at Brooklyn for 2000
- Fjordcell Inc. at Jonquière for 2000
- Interlake Papers at St. Catharines for 2000
- Tembec Inc. at St. Raymond for 2000
- Uniforêt-Pâte Port Cartier Inc. at Port-Cartier for 2000
- FF Soucy Inc. at Rivière-du-Loup for 2000
- La Compagnie J. Ford Ltd. at Portneuf for 2000

FURTHER INSTRUCT the Secretariat that the factual record shall describe Canada's consideration of actions taken by the provinces to enforce their legislation, regulations and permit conditions related to pulp and paper mills, specifically the information submitted by the provinces to the federal officials where such provincial enforcement actions were relied upon by those federal officials, with respect to the aforementioned mills; bearing in mind that the submitters do not assert that any of the provinces are failing to effectively enforce provincial environmental law and there is not to be an examination of provincial enforcement of provincial law;

FURTHER INSTRUCT the Secretariat that the factual record shall describe the other facts directly related to Canada's enforcement of section 36(3) of the *Fisheries Act* and of sections 5 and 6 and Schedules I and II of the PPER, with respect to the aforementioned mills;

DIRECT the Secretariat to provide the Parties with its overall work plan for gathering the relevant facts and to provide the Parties with the opportunity to comment on that plan; and

TO DIRECT the Secretariat to consider, in developing the factual record, whether the Party concerned “is failing to effectively enforce its environmental law” since the entry into force of the NAAEC on 1 January 1994. In considering such an alleged failure to effectively enforce, relevant facts that existed prior to 1 January 1994, may be included in the factual record.

APPROVED BY THE COUNCIL.

APPENDIX 2

**Overall Plan to Develop a Factual Record
with regard to Submission SEM-02-003**



Secretariat of the Commission for Environmental Cooperation

Overall Plan to Develop a Factual Record

Submission I.D.: SEM-02-003

Submitter(s): Friends of the Earth
Union Saint-Laurent, Grand Lacs
Conservation Council of New Brunswick
Ecology Action Centre
Environment North

Represented by: Sierra Legal Defence Fund

Party: Canada

Date of this plan: 15 January 2004

Background

On 8 May 2002, the Submitters identified above presented to the Secretariat of the Commission for Environmental Cooperation (CEC) a submission in accordance with Article 14 of the North American Agreement on Environmental Cooperation (NAAEC). The submission, along with supporting materials, asserts that Canada is failing to effectively enforce sections 34, 36, 40, 78 and 78.1 of the federal *Fisheries Act* and sections 5 and 6 and Schedules I and II of the *Pulp and Paper Effluent Regulations* (PPER) promulgated in 1992, against pulp and paper mills in Ontario, Quebec and the Atlantic provinces (i.e., New Brunswick, Nova Scotia and Newfoundland). Section 36(3) of the *Fisheries Act* prohibits the deposit of a deleterious substance in water frequented by fish unless the deposit is authorized by regulation, such as the PPER. The Submitters allege that in the period from 1995 to 2000 there were more than 2,400 documented violations of the PPER at mills in central and eastern Canada, and very few prosecutions. The submission and its appendices provide information on alleged violations at approximately 70 of the 116 mills that the Submitters identify, with twelve mills highlighted as mills of particular concern to the Submitters.

On 11 December 2003, in its Resolution 03-16, the Council decided unanimously to instruct the Secretariat to develop a factual record, in accordance with Article 15 of the NAAEC and the *Guidelines for*

Submissions on Enforcement Matters under Articles 14 and 15 of the NAAEC (Guidelines), for the assertions in Submission SEM-02-003 with regard to alleged failures to effectively enforce section 36(3) of the *Fisheries Act* and alleged effluent test failures as well as failures to conduct follow-up tests as required under the PPER, with respect to the following mills and time periods identified in the submission:

- Irving Pulp and Paper Ltd. at St. John from 1996 to 2000
- AV Cell Inc. at Atholville for 2000
- Abitibi-Consolidated at Grand Falls for 2000
- Bowater Mersey Paper Company Ltd. at Brooklyn for 2000
- Fjordcell Inc. at Jonquière for 2000
- Interlake Papers at St. Catharines for 2000
- Tembec Inc. at St. Raymond for 2000
- Uniforêt-Pâte Port Cartier Inc. at Port-Cartier for 2000
- FF Soucy Inc. at Rivière-du-Loup for 2000
- La Compagnie J. Ford Ltd. at Portneuf for 2000

In light of ongoing investigations, the Council excluded from the factual record two of the twelve mills that the Submitters identified as mills of particular concern: the Abitibi-Consolidated Inc. mill at Iroquois Falls, Ontario, and the Tembec Inc. mill at Témiscaming, Québec.

The Council also instructed the Secretariat that the factual record shall describe Canada's consideration of actions taken by the provinces to enforce their legislation, regulations and permit conditions related to pulp and paper mills, specifically the information submitted by the provinces to federal officials where such provincial enforcement actions were relied upon by those federal officials, with respect to the mills listed in Council Resolution 03-16; bearing in mind that the submitters do not assert that any of the provinces are failing to effectively enforce provincial environmental law and there is not to be an examination of provincial enforcement of provincial law.

The Council also instructed the Secretariat that the factual record shall describe the other facts directly related to Canada's enforcement of section 36(3) of the *Fisheries Act* and of sections 5 and 6 and Schedules I and II of the PPER, with respect to the mills listed in Council Resolution 03-16.

The Council directed the Secretariat to consider, in developing the factual record, whether the Party concerned “is failing to effectively enforce its environmental law” since the entry into force of the NAAEC on 1 January 1994. In considering such an alleged failure to effectively enforce, the factual record may include relevant facts that existed prior to 1 January 1994.

Under Article 15(4) of the NAAEC, in developing a factual record, “the Secretariat shall consider any information furnished by a Party and may consider any relevant technical, scientific or other information: (a) that is publicly available; (b) submitted by interested nongovernmental organizations or persons; (c) submitted by the Joint Public Advisory Committee; or (d) developed by the Secretariat or by independent experts.”

Overall Scope of the Fact Finding

To prepare the factual record, the Secretariat will gather and develop information relevant to:

- (vi) the facts concerning Canada’s actions regarding alleged failures to effectively enforce section 36(3) of the *Fisheries Act* with respect to the mills and time periods identified in Council Resolution 03-16;
- (vii) the facts concerning Canada’s action regarding alleged effluent test failures and failures to conduct follow-up tests as required under the PPER with respect to mills and time periods identified in Council Resolution 03-16;
- (viii) the facts concerning Canada’s consideration of actions taken by the provinces to enforce their legislation, regulations and permit conditions related to pulp and paper mills, as specified in Council Resolution 03-16, with respect to the mills identified in Council Resolution 03-16;
- (ix) other facts directly related to Canada’s enforcement of section 36(3) of the *Fisheries Act* and of sections 5 and 6 and Schedules I and II of the PPER, with respect to the aforementioned mills; and
- (x) whether Canada is failing to effectively enforce section 36(3) of the *Fisheries Act* and sections 5 and 6 and Schedules I and II of the PPER in the context of the mills and time periods listed in Council Resolution 03-16.

Overall Plan

Consistent with Council Resolution 03-16, execution of the overall plan will begin no sooner than 1 February 2004. All other dates are best estimates. The overall plan is as follows:

- Through public notices or direct requests for information, the Secretariat will invite the Submitters; JPAC; community members; the regulated community (including all of the mills listed in Council Resolution 03-16); and local, provincial and federal government officials to submit information relevant to the scope of fact-finding outlined above. The Secretariat will explain the scope of the fact finding, providing sufficient information to enable interested nongovernmental organizations or persons or the JPAC to provide relevant information to the Secretariat (section 15.2 of the *Guidelines*). **[February 2004]**
- The Secretariat will request information relevant to the factual record from federal, provincial and local government authorities of Canada, as appropriate, and shall consider any information furnished by a Party (Articles 15(4) and 21(1)(a) of the NAAEC). **[February 2004]**
- The Secretariat will gather relevant technical, scientific or other information that is publicly available, including from existing databases, public files, information centers, libraries, research centers and academic institutions. **[February through July 2004]**
- The Secretariat, as appropriate, will develop, through independent experts, technical, scientific or other information relevant to the factual record. **[February through July 2004]**
- The Secretariat, as appropriate, will collect relevant technical, scientific or other information for the preparation of the factual record, from interested nongovernmental organizations or persons, the JPAC or independent experts. **[February through July 2004]**
- In accordance with Article 15(4), the Secretariat will prepare the draft factual record based on the information gathered and developed. **[July through November 2004]**
- The Secretariat will submit a draft factual record to Council, and any Party may provide comments on the accuracy of the draft within 45 days thereafter, in accordance with Article 15(5). **[end of November 2004]**

-
- As provided by Article 15(6), the Secretariat will incorporate, as appropriate, any such comments in the final factual record and submit it to Council. **[January 2005]**
 - The Council may, by a two-thirds vote, make the final factual record publicly available, normally within 60 days following its submission, according to Article 15(7).

Additional information

The submission, the Party's response, the Secretariat determinations, the Council Resolution, and a summary of these are available in the Registry on Citizen Submissions in the CEC home page <www.cec.org>, or upon request to the Secretariat at the following address:

Secretariat of the CEC
Submissions on Enforcement Matters Unit (SEM Unit)
393 St-Jacques St. West,
Suite 200
Montreal QC H2Y 1N9
Canada

APPENDIX 3

**Request for Information describing the scope
of the information to be included in the
factual record and giving examples
of relevant information**



Secretariat of the Commission for Environmental Cooperation

REQUEST FOR INFORMATION for Preparation of a Factual Record Submission SEM-02-003 (Pulp and Paper) February 2004

Contents

1. The factual record process
2. The Pulp and Paper submission and Council's instructions
3. Request for information
4. Examples of relevant information
5. Additional background information
6. Where to send information

1. The factual record process

The Commission for Environmental Cooperation (CEC) of North America is an international organization created under the North American Agreement on Environmental Cooperation (NAAEC) by Canada, Mexico and the United States. The CEC operates through three organs: a Council, made up of the highest-level environmental official in each member country; a Joint Public Advisory Committee (JPAC), composed of five citizens from each country; and a Secretariat located in Montreal.

Article 14 of NAAEC allows persons or nongovernmental organizations in North America to inform the Secretariat, in a submission, that any member country (hereinafter, a Party) is failing to effectively enforce its environmental law. This initiates a process of review of the submission, after which the Council may instruct the Secretariat to prepare a factual record in connection with the submission. A factual record seeks to provide detailed information to allow interested persons to assess whether a Party has effectively enforced its environmental law with respect to the matter raised in the submission.

Under Articles 15(4) and 21(1)(a) of NAAEC, in developing a factual record, the Secretariat shall consider any information furnished by a Party and may ask a Party to provide information. The Secretariat also

may consider any relevant technical, scientific or other information that is publicly available; submitted by JPAC or by interested nongovernmental organizations or persons; or developed by the Secretariat or independent experts.

On 11 December 2003, in its Resolution 03-16, the Council decided unanimously to instruct the Secretariat to develop a factual record in connection with submission SEM-02-003 (Pulp and Paper), in accordance with Article 15 of NAAEC and the *Guidelines for Submissions on Enforcement Matters under Articles 14 and 15 of the North American Agreement on Environmental Cooperation* (Guidelines). The Secretariat is now requesting information relevant to matters to be addressed in the factual record. The following sections provide background on the submission and describe the kind of information requested.

2. The Pulp and Paper submission and Council's instructions

On 8 May 2002, several Canadian nongovernmental organizations presented to the Secretariat of the CEC a submission – in accordance with Article 14 of NAAEC – asserting that Canada is failing to effectively enforce sections 34, 36, 40, 78 and 78.1 of the federal *Fisheries Act* and sections 5 and 6 and Schedules I and II of the *Pulp and Paper Effluent Regulations* (PPER) promulgated in 1992, against pulp and paper mills in Ontario, Quebec and the Atlantic provinces (i.e., New Brunswick, Nova Scotia and Newfoundland). Section 36(3) of the *Fisheries Act* prohibits the deposit of a deleterious substance in water frequented by fish unless the deposit is authorized by regulation, such as the PPER.

The PPER define acutely lethal effluent, biochemical oxygen demand (or BOD) matter and total suspended solids (or TSS) as deleterious under the *Fisheries Act*. The PPER authorize levels of BOD and TSS that do exceed specified maximum quantities as long as certain conditions are met, but they strictly prohibit acutely lethal effluent.

The PPER establish a self-reporting system by which mills are required to do certain effluent tests and report the results to environmental authorities. Failure of a test for acute lethality to trout is an automatic non-compliance with the PPER (and hence *Fisheries Act*) and requires accelerated follow-up testing. Failure of an acute-lethality test for *Daphnia magna*, while not an automatic non-compliance, also requires follow-up test procedures. For both kinds of acute-lethality test, failure to conduct follow-up test procedures as required is non-compliance with the PPER and the *Fisheries Act*. Effluent that contains unauthorized levels of BOD or TSS does not comply with the PPER or the *Fisheries Act*.

Violations of s. 36(3) and the PPER are punishable on summary conviction by a fine not exceeding C \$300,000 for a first offense and C \$300,000 plus imprisonment not exceeding six months for subsequent offenses, and for an indictable offense, a fine not exceeding \$1 million for a first offense and a fine not exceeding \$1 million and imprisonment not exceeding three years for subsequent offenses.

The Submitters allege that in the period from 1995 to 2000 there were more than 2,400 documented violations of the PPER at mills in central and eastern Canada, and very few prosecutions. The submission and its appendices provide information on alleged violations at approximately 70 of the 116 mills that the Submitters identify, with twelve mills highlighted as mills of particular concern to the Submitters. In its response, Canada provided information with respect to federal enforcement responses from 1995-2000 in regard to the twelve mills for which the Submitters raised particular concerns.

On 11 December 2003, in its Resolution 03-16, the Council decided unanimously to instruct the Secretariat to develop a factual record, in accordance with Article 15 of NAAEC and the Guidelines, for the assertions in Submission SEM-02-003 with regard to alleged failures to effectively enforce s. 36(3) of the *Fisheries Act* and alleged effluent test failures as well as failures to conduct follow-up tests as required under the PPER, with respect to the following mills and time periods identified in the submission:

- Irving Pulp and Paper Ltd. at St. John, New Brunswick from 1996 to 2000
- AV Cell Inc. at Atholville, New Brunswick for 2000
- Abitibi-Consolidated at Grand Falls, Newfoundland for 2000
- Bowater Mersey Paper Company Ltd. at Brooklyn, Nova Scotia for 2000
- Fjordcell Inc. at Jonquière, Québec for 2000
- Interlake Papers at St. Catharines, Ontario for 2000
- Tembec Inc. at St. Raymond, Quebec for 2000
- Uniforêt-Pâte Port Cartier Inc. at Port-Cartier, Québec for 2000
- FF Soucy Inc. at Rivière-du-Loup, Québec for 2000
- La Compagnie J. Ford Ltd. at Portneuf, Québec for 2000

In light of ongoing investigations, the Council excluded from the factual record two of the twelve mills that the Submitters identified as mills of particular concern: the Abitibi-Consolidated Inc. mill at Iroquois Falls, Ontario, and the Tembec Inc. mill at Témiscaming, Québec.

The Council also instructed the Secretariat that the factual record shall describe Canada's consideration of actions taken by the provinces to enforce their legislation, regulations and permit conditions related to pulp and paper mills, specifically the information submitted by the provinces to federal officials where such provincial enforcement actions were relied upon by those federal officials, with respect to the mills listed in Council Resolution 03-16; bearing in mind that the submitters do not assert that any of the provinces are failing to effectively enforce provincial environmental law and there is not to be an examination of provincial enforcement of provincial law.

The Council also instructed the Secretariat that the factual record shall describe the other facts directly related to Canada's enforcement of s. 36(3) of the *Fisheries Act* and of ss. 5 and 6 and Schedules I and II of the PPER, with respect to the mills listed in Council Resolution 03-16.

The Council directed the Secretariat to consider, in developing the factual record, whether the Party concerned "is failing to effectively enforce its environmental law" since the entry into force of NAAEC on 1 January 1994. In considering such an alleged failure to effectively enforce, the factual record may include relevant facts that existed prior to 1 January 1994.

3. Request for information

The Secretariat seeks information relevant to:

- (xi) the facts concerning Canada's actions regarding alleged failures to effectively enforce s. 36(3) of the *Fisheries Act* with respect to the mills and time periods identified in Council Resolution 03-16;
- (xii) the facts concerning Canada's action regarding alleged effluent test failures and failures to conduct follow-up tests as required under the PPER with respect to mills and time periods identified in Council Resolution 03-16;
- (xiii) the facts concerning Canada's consideration of actions taken by the provinces to enforce their legislation, regulations and permit con-

ditions related to pulp and paper mills, as specified in Council Resolution 03-16, with respect to the mills identified in Council Resolution 03-16;

- (xiv) other facts directly related to Canada's enforcement of s. 36(3) of the *Fisheries Act* and of ss. 5 and 6 and Schedules I and II of the PPER, with respect to the aforementioned mills; and
- (xv) whether Canada is failing to effectively enforce s. 36(3) of the *Fisheries Act* and ss. 5 and 6 and Schedules I and II of the PPER in the context of the mills and time periods listed in Council Resolution 03-16.

4. Examples of relevant information

This section provides examples of the kind of information that the Secretariat is seeking in connection with the factual record. Information that the Secretariat receives will be considered for inclusion in the factual record. Examples of potentially relevant information include the following:

- (i) Information on effluent tests (TSS, BOD, trout lethality, *Daphnia* lethality, follow-up tests) for any of the ten mills listed above, from the time period listed for each mill up to the present time, for example information on:
 - Whether such tests were performed as required under the PPER;
 - The results of such tests;
 - The methodologies and procedures used in performing such tests.
- (ii) Information on any action that federal or provincial government authorities took in response to any non-compliance with either (1) s. 36(3) of the *Fisheries Act* or the PPER, or (2) provincial legislation, regulations or permit conditions, in regard to effluent tests for any of the ten mills and the time periods listed above, for example information on:
 - Inspections or investigations;
 - Environmental monitoring;

- Notices of violation;
 - Compliance orders or agreements;
 - Warnings;
 - Laying of charges;
 - Fines, sentences or remediation orders.
- (iii) Information on the history of compliance with *Fisheries Act* s. 36(3) or the PPER of any of the ten mills listed above prior to the time periods listed in connection with each mill.
- (iv) Information on the degree of harm (or absence of harm) to fish, fish habitat or human use of fish, or the risk of such harm, caused by any instances of non-compliance with *Fisheries Act* s. 36(3) or the PPER by any of the ten mills listed above during the time periods indicated for each mill.
- (v) Information on provincial or federal policies or practices (formal or informal) regarding enforcement of, or ensuring compliance with, either (1) s. 36(3) of the *Fisheries Act* or the PPER, or (2) provincial legislation, regulations or permit requirements applicable to pulp and paper mill effluent discharges in Ontario, Quebec, New Brunswick, Nova Scotia or Newfoundland.
- (vi) Information on application of any of the policies identified under item (v) above to any of the ten mills listed above, in connection with the mills' effluent discharges during the relevant time periods.
- (vii) Information on any public complaints regarding non-compliance of any of the mills listed above, during the time periods listed for each mill, with *Fisheries Act* s. 36(3) or the PPER, and on any response by federal or provincial authorities to any such complaints.
- (viii) Information on federal or provincial enforcement or compliance-related staff or resources available (in connection with the mills and times periods listed above) for enforcing or ensuring compliance with either (1) s. 36(3) of the *Fisheries Act* or the PPER, or (2) provincial legislation, regulations or permit requirements applicable to pulp and paper mill effluent discharges.

-
- (ix) Information on federal-provincial coordination in Ontario, Quebec, New Brunswick, Nova Scotia or Newfoundland regarding ensuring compliance with or enforcing *Fisheries Act* s. 36(3), the PPER or related provincial laws or regulations.
- (x) Information on the Canadian federal government's efforts to promote compliance with *Fisheries Act* s. 36(3) or the PPER at pulp and paper mills in Ontario, Quebec, New Brunswick, Nova Scotia or Newfoundland, including for example information on:
- Communication and publication of information on the requirements of *Fisheries Act* s. 36(3) or the PPER;
 - Public education;
 - Consultation with mills;
 - Technical assistance.
- (xi) Information regarding the challenges that the pulp and paper sector in Ontario, Quebec, New Brunswick, Nova Scotia and Newfoundland has faced in seeking to achieve compliance with *Fisheries Act* s. 36(3) and the PPER, including for example information on:
- The nature, environmental limitations, availability and compliance potential of various pulp and paper production technologies and effluent treatment technologies;
 - The kinds of process, facility and equipment changes required to achieve compliance;
 - The economic costs of compliance;
 - The variability in these factors across mills in Ontario, Quebec, New Brunswick, Nova Scotia and Newfoundland.
- (xii) Information on the effectiveness of Canada's efforts to enforce or ensure compliance with *Fisheries Act* s. 36(3) or the PPER in connection with the mills listed above, for example its effectiveness in:
- Remedying or mitigating the negative effects of any non-compliance with *Fisheries Act* s. 36(3) or the PPER;
 - Achieving compliance in the shortest possible time;
 - Preventing or deterring future violations of those provisions;

- (xiii) Information on barriers or obstacles to enforcing or ensuring compliance with *Fisheries Act* s. 36(3) or the PPER in connection with paper mills in Ontario, Quebec, New Brunswick, Nova Scotia or Newfoundland.
- (xiv) Information on the consistency of Canada's actions in regard to the mills listed above with the manner in which similar situations are being or have been handled.
- (xv) Any other technical, scientific or other information that could be relevant.

5. Additional background information

The submission, Canada's response, the Secretariat determinations, the Council Resolution, the overall plan to develop the factual record and other information are available in the Citizen Submissions on Enforcement Matters section of the CEC web site: <<http://www.cec.org>>. These documents may also be requested from the Secretariat.

6. Where to Send Information

Relevant information for the development of the factual record may be sent to the Secretariat until 30 June 2004, by e-mail to info@ccemtl.org or by regular mail to the following address:

Secretariat of the CEC
Submissions on Enforcement Matters Unit (SEM Unit)
393 St-Jacques St. West,
Suite 200
Montreal QC H2Y 1N9
Canada
Tel. (514) 350-4300

Please reference SEM-02-003 (Pulp and Paper) in all correspondence.

For any questions, please call (514) 350-4300 or send an e-mail to the attention of Geoffrey Garver, at <info@ccemtl.org>.

APPENDIX 4

**Information Requests to Pulp and Paper Mills,
NGOs, JPAC and other Parties to the NAAEC**



Form Letter to Pulp and Paper Mills

March 2004

**Re: Request for information relevant to the factual record
for submission SEM-02-003 (Pulp and Paper)**

The Secretariat of the Commission for Environmental Cooperation of North America recently began the process of preparing a “factual record” regarding the assertions that Canada is failing to effectively enforce section 36(3) of the *Fisheries Act* and provisions of the *Pulp and Paper Effluent Regulations* with respect to 10 pulp and paper mills in Ontario, Quebec, New Brunswick, Nova Scotia and Newfoundland. These assertions were made in a “submission” filed with the Secretariat in May 2002 by the Sierra Legal Defence Fund on behalf of five non-governmental organizations. I wish to emphasize that while the [MILL NAME] mill is one of the mills to be included in the factual record, the focus of the factual record is on the federal government’s enforcement activities. The factual record will reach no legal conclusion, impose any sanctions or conditions or make recommendations regarding any compliance issues addressed. Rather, the purpose of a factual record is to present a detailed and comprehensive set of facts that will allow members of the public to draw their own conclusions regarding the matters addressed.

I am writing to invite the [MILL NAME] mill to submit information relevant to the factual record. While the mill is not required to do so, the mill’s voluntary cooperation with the factual record process will greatly enhance our ability to present a comprehensive and balanced set of facts, including facts that present your company’s perspective.

The attached Request for Information explains the citizen submissions process and factual records, gives background about the Pulp and Paper submission (SEM-00-004), describes the scope of the information to be included in the factual record and provides examples of information that might be relevant. We are accepting information for possible consideration in connection with the factual record until 30 June 2004. However, to enable us to seek clarification or additional information regarding this request, we would appreciate receiving your information by 15 April 2004. Following a review of this information, we will determine the need for follow-up, including a possible visit to the mill should the mill provide such access.

Several of the examples of relevant information may describe information that is voluminous, for example the results of effluent tests. In regard to effluent tests, we would prefer to receive summary reports and to receive the information electronically, at info@ccemtl.org. In regard to test methodologies, reference to the standardized test procedure, including a description of any deviations from the standard procedure, would suffice.

We appreciate your consideration of this request and look forward to any relevant information you are able to provide. Please feel free to contact me at (514) 350-4332 or [<ggarver@ccemtl.org>](mailto:ggarver@ccemtl.org) with any questions you may have.

Sincerely,

Director
Submissions on Enforcement Matters Unit

Enc.

Form Letter to NGOs

March 2004

**Re: Request for information relevant to the factual record
for submission SEM-02-003 (Pulp and Paper)**

The Secretariat of the Commission for Environmental Cooperation of North America recently began the process of preparing a “factual record” regarding the assertions that Canada is failing to effectively enforce section 36(3) of the *Fisheries Act* and provisions of the *Pulp and Paper Effluent Regulations* with respect to 10 pulp and paper mills in Ontario, Quebec, New Brunswick, Nova Scotia and Newfoundland. These assertions were made in a “submission” filed with the Secretariat in May 2002 by the Sierra Legal Defence Fund on behalf of five non-governmental organizations. While issues regarding several specific mills are to be included in the factual record, the focus of the factual record is on the federal government’s enforcement activities. The factual record will reach no legal conclusion, impose any sanctions or conditions or make recommendations regarding any compliance issues addressed. Rather, the purpose of a factual record is to present a detailed and comprehensive set of facts that will allow members of the public to draw their own conclusions regarding the matters addressed.

I am writing to invite your organization to submit information relevant to the factual record. While you are not required to do so, your voluntary cooperation with the factual record process will greatly enhance our ability to present a comprehensive and balanced set of facts, including facts that present your organization’s perspective.

The attached Request for Information explains the citizen submissions process and factual records, gives background about submission SEM-02-003 (Pulp and Paper), describes the scope of the information to be included in the factual record and provides examples of information that might be relevant. We are accepting information for possible consideration in connection with the factual record until 30 June 2004.

We appreciate your consideration of this request and look forward to any relevant information you are able to provide. Please feel free to contact me at (514) 350-4332 or <ggarver@ccemtl.org> with any questions you may have.

Sincerely,

Director
Submissions on Enforcement Matters Unit

Enc.

Memorandum

DATE: 25 February 2004

À / PARA / TO: Chair, Joint Public Advisory Committee (JPAC)

CC: JPAC Members, CEC Executive Director,
JPAC Liaison Officer

DE / FROM: Director, Submissions on Enforcement
Matters Unit

**OBJET /
ASUNTO /RE:** Request for information relevant to the
factual record for submission SEM-02-003
(Pulp & Paper)

As you know, the CEC Secretariat recently began the process of preparing a factual record for the Pulp and Paper/SEM-02-003 submission. This submission was filed with the Secretariat in May 2002 by the Sierra Legal Defence Fund on behalf of five non-governmental organizations. Consistent with Council Resolution 03-16, the factual record will focus on the assertions that Canada is failing to effectively enforce provisions of the *Fisheries Act* and the *Pulp and Paper Effluent Regulations* with respect to 10 of the 12 mills of particular concern in the submission.

I am writing to invite the JPAC to submit information relevant to the factual record, consistent with Article 15(4)(c) and Article 16(5) of the NAAEC. For example, in addition to providing information directly responsive to this request, JPAC members might be able to identify sources of information that the Secretariat could pursue in connection with the factual record. The attached Request for Information, which is posted on the CEC website, gives background about the Pulp and Paper submission, describes the scope of the information to be included in the factual record, and provides examples of information that might be relevant. We will accept information for possible consideration in connection with the factual record until June 30, 2004.

We appreciate your consideration of this request and look forward to any relevant information you are able to provide. Please feel free to contact me at (514) 350-4332 or <ggarver@ccemtl.org> if you have questions regarding this request or the factual record process.

Letter to the Other Parties of the NAAEC (USA and Mexico)

February 2004

Re: Preparation of the factual record for submission SEM-02-003

Dear Administrator/Minister:

As you know, the CEC Secretariat recently began the process of preparing a factual record for submission SEM-02-003 (Pulp and Paper), consistent with Council Resolution 03-16. I am writing to invite the [United States] [Mexican] Party to submit information relevant to the factual record, consistent with Article 15(4) of the NAAEC.

The attached Request for Information, which is posted on the CEC website, gives background about the Pulp and Paper submission, describes the scope of the information to be included in the factual record, and provides examples of information that might be relevant. We will accept information for consideration in connection with the factual record until June 30, 2004.

We appreciate the [United States] [Mexican] Government's consideration of this request and look forward to any relevant information you are able to provide. I can be reached at (514) 350-4332 or <ggarver@ccemtl.org> should there be any questions regarding this request or the factual record process.

Sincerely,

Director
Submissions on Enforcement Matters Unit

cc: Semarnat
US EPA
Environment Canada
CEC Executive Director

Enc.

APPENDIX 5

**Information Requests to Canadian authorities
(25 February 2004, 22 December 2004
and 20 July 2005)**



Memorandum

DATE: 25 February 2004

À / PARA / TO: Environment Canada

CC: Semarnat
US EPA
CEC Executive Director

DE / FROM: Director, Submissions on Enforcement
Matters Unit

**OBJET /
ASUNTO / RE:** Request for information relevant to the
factual record for submission SEM-02-003
(Pulp & Paper)

As you know, the CEC Secretariat recently began the process of preparing a factual record for the Pulp and Paper submission, SEM-02-003, consistent with Council Resolution 03-16.

Consistent with Articles 15(4) and 21(1) of the NAAEC, I am writing to request from the Government of Canada information relevant to the Pulp and Paper factual record. The attached Request for Information describes the scope of the information to be included in the factual record and provides examples of relevant information. In regard to point (ix) in the examples of relevant information, one item of particular interest would be administrative agreements or arrangements (formal or otherwise) between the federal government and the provinces of Ontario, Quebec, New Brunswick, Nova Scotia or Newfoundland. We ask that you provide any and all information responsive to the Request for Information by 15 April 2004. Following a review of this information, we may request follow-up information or meetings with government representatives to assist in our understanding of the facts or to gather additional information.

To assist in our understanding of the information you provide, we request that you present the information in a manner that indicates how the information provided responds to the questions and examples included in that information request. In addition, if requested information has not been or will not be provided (including on a confidential

basis) because it is non-existent, confidential or privileged, or otherwise unavailable, please provide an explanation consistent with Article 21(3).

We appreciate the Government of Canada's consideration of this request. I can be reached at (514) 350-4332 or <ggarver@ccemtl.org> should there be any questions regarding it.

Memorandum

DATE: 22 December 2004
À / PARA / TO: Environment Canada
CC:
DE / FROM: Director, Submissions on Enforcement
Matters Unit
**OBJET /
ASUNTO /RE:** Request for additional information for the
factual record for submission SEM-02-003
(Pulp and Paper)

I am writing to request additional information from Canada in connection with the factual record for submission SEM-02-003 (Pulp and Paper), consistent with NAAEC Article 21. This request includes a set of general questions, plus specific questions regarding the four Atlantic Provinces mills of concern in the factual record. For your convenience, I have attached copies of documents from your June 1 response to which we make reference below. We may at a future date make a separate request with specific questions regarding the other six mills.

It may be possible to address some of the questions in this request during the meeting between the Secretariat and Environment Canada (EC) that we have discussed holding in early February 2005, and in other such meetings that we may also wish to convene in Quebec or Ottawa. We anticipate that, as with past factual records, there will also be a need for a written response. This additional information will help clarify information EC provided the Secretariat on 1 June 2004 and information received from pulp and paper mills and other sources, and will greatly assist us in accurately presenting information in the draft factual record.

We request Canada's answers, and copies of supporting information if any, for each of the following questions. I note that your response of June 1 included an indication of the documents supporting each question, which was very helpful; if Canada has already provided supporting information, please identify the information that is responsive to a particular question. If requested information has not been or will not be provided (including on a confidential basis) because it is non-existent, confidential or privileged, or otherwise unavailable, please provide an explanation consistent with Article 21(3).

General questions:

1. Information that we have obtained from mills indicates that, in the view of at least some mills, a “legal sample,” in which chain-of-custody and other requirements are applied to ensure reliability, is required to support prosecution under the PPER, and samples that mills rely on in reports to EC on effluent quality do not generally meet these requirements. This is their understanding as to why the federal government does not prosecute directly on the basis of data that the mills report. Does Canada agree with this? What, in Canada’s view, is a “legal sample”?
2. EC’s June 1 information included information regarding the compliance history of all mills under consideration in the factual record, except the Irving Pulp and Paper mill for the reasons noted, for 1999. Is there any other compliance history with respect to any of the mills that EC took into account in connection with PPER non-compliance in 2000 for those 9 mills? If so, please provide that information. The relevance of this information is that the *Fisheries Act Compliance and Enforcement Policy* indicates that the history of compliance and whether an incident is a repeated occurrence are factors relevant to determining how to respond to alleged violations.
3. EC’s June 1 information, as well as Canada’s response to the submission, included information regarding margins of error or confidence intervals that are taken into account in determining an enforcement response for effluent samples that exceed the regulatory limits for TSS or BOD. The PPER appear to require flow measurement devices for mill effluent to be accurate within 10%. How, if at all, does EC account for uncertainty in effluent flow measurements in considering enforcement responses for TSS and/or BOD exceedances?
4. Several mills with whom we met mentioned issues related to uncertainty or non-reproduceability of acute trout lethality tests. For example, it appears that some mills may opt for sending trout toxicity samples to more than one analytical laboratory, because even though that may increase the likelihood of failure, it can also potentially support an argument that the trout testing methodology does not yield reproducible results. As well, in December 1999, EC published “Guidance Document on Application and Interpretation of Single-species Tests in Environmental Toxicology” EPS

1/RM/34. On page 20, para 2.6, of this document there is an indication that the inter-laboratory variation can result in a coefficient of variation (CoV) of 30% to 50%; and that within one lab one can expect CoV of 20% to 40%. How, if at all, does EC account for uncertainty or possible lack of reproducibility in trout toxicity tests in determining an appropriate enforcement response?

5. Your response of June 1, in responding to question xiv regarding the consistency of Canada's actions in regard to the mills covered by the factual record with the manner in which similar situations have been handled, indicated that a response would involve an examination of Canada's enforcement efforts at pulp and paper mills across the country. That was not the intent of the question. Rather, we are interested in information as to whether and, if so, how similar situations were taken into account for possible PPER violations at each of the ten mills of concern, for PPER exceedances that occurred during the relevant time periods for each mill. This is based on the following statement in the *Fisheries Act Compliance and Enforcement Policy*: "Enforcement personnel aim to achieve consistency in their response to alleged violations. Accordingly, they will consider how similar situations in Canada are being or have been handled when deciding what enforcement action to take."

(For example, in connection with the AV Cell mill, the June 1 information included an e-mail exchange (Attachment 1) between New Brunswick and EC officials in which New Brunswick, in connection with the setting of a fine for a toxicity violation, was seeking information from EC on fines assessed for other toxicity failures.)

6. What were the criteria used for setting the number of on-site inspections per mill, for the relevant mills and time periods? Are only general criteria used, or are the criteria tailored to each specific mill based on its particular characteristics, compliance history, etc.?
7. Please provide a summary of compliance with the PPER since 2000 of the ten mills involved in the factual record. Although we do not request full details, we would like to know the number of exceedances of TSS, BOD, trout and *Daphnia* tests, and follow-up failures, including information on how far over the limits each exceedance was.

The purpose is to provide information regarding the effect of Canada's actions regarding PPER non-compliance in 1996-2000 for Irving Pulp and Paper and in 2000 for the other mills. This is based on the following statement in the *Fisheries Act Compliance and Enforcement Policy*: "Enforcement measures are directed towards ensuring that violators comply with the *Fisheries Act* within the shortest possible time and that violations are not repeated." It is also relevant to the instruction in Council Resolution 03-16 to the Secretariat "to consider, in developing the factual record, whether the Party concerned 'is failing to effectively enforce its environmental law' since the entry into force of the NAAEC on 1 January 1994." (The French and Spanish versions of the Council Resolution are perhaps clearer, in directing the Secretariat to consider whether Canada "omet d'assurer l'application efficace de sa législation de l'environnement" or "está incurriendo en omisiones en la aplicación efectiva de su legislación ambiental" since the entry in force of the NAAEC.) Please note that the purpose for this request, in this particular case, is not to gather or present information on whether actions that Canada took in the periods referenced in Council Resolution 03-16 were effective in achieving the environmental goals of the *Fisheries Act*. Instead, it is to provide a discrete amount of information on the effect that Canada's actions had. Please also note that several mills have told us they hope the factual record will provide information on their performance with respect to the PPER since 2000, and have presented us some information relevant to this request.

8. EC documents attached to your June 1 response indicates that EC sometimes uses "enforcement compliance letters" (see Attachment 1 0016-17). What is an enforcement compliance letter?
9. Several inspection or occurrence reports included in the documents attached to your June 1 response indicate a "Non-compliant" status when the report noted exceedances of the PPER limits or toxicity failures, while other list the status as "compliant" (see Attachments 3). What is the reason for this? What does "compliant" mean and what does "non-compliant" mean in this context?
10. In New Brunswick, in determining whether the province or federal government will take the lead in an enforcement case under the PPER or the provincial equivalent, what if any consideration is given to the fact that New Brunswick imposes absolute liability in connection with certain offenses for which a due diligence defense would apply to federal charges?

11. How many announced and how many unannounced on-site EC inspections were done at each of the ten mills of concern during the relevant time periods for each?
12. Has EC made any changes in policy or procedures as a result of the experience in connection with enforcement of the PPER at the ten mills of concern in the factual record?

Irving Pulp and Paper (IPPL), Saint John, NB:

1. Please provide the following documents:
 - a. The warrant for the March 1998 inspection of the mill
 - b. Regional inspection plans for 1996-2000
 - c. Irving's April 1997 plan for complying with PPER
 - d. 12 August 1997 schedule for the reverse osmosis unit
 - e. Charging documents for the 7 October 1998 charges against IPPL.
2. IPPL representatives informed us of their belief that other pulp and paper mills put pressure on EC to take action against IPPL because IPPL decided to forego traditional secondary treatment. Is this true?
3. Did IPPL nominate itself for the CCME pollution prevention award it received in 2000?
4. IPPL representatives informed us of their belief that 60-70% of *Daphnia* failures at the mill (at least since 2000) have been due to chlorinated feedwater. Is this consistent with EC's understanding and view?
5. Who is the author, and what is the date, of the IPPL Chronology 1996-99 (Attachment 4)?
6. Was the 23 July 1996 warning letter to IPPL taken into account in future actions that Environment Canada took with regard to IPPL? If so, how? For example, was it considered in the decision to drop the 7 October 1998 charges against IPPL, and if so, how?

7. In regard to the dropping of the 7 October 1998 charges, what were Environment Canada's enforcement or compliance-promotion options at the point that the charges were dropped? For example, would it have been possible to issue another warning or an enforceable compliance order? Attachment 4 indicates that Environment Canada considered that one reason for dropping the charges was that "the desired effect had been achieved." What was the desired effect in this instance?
8. Attachment 4 refers to "Incident 1" and "Incident 2" in 1999. What was Incident 1? The document indicates that "Incident 2" in 1999 was a trout failure for which the cause was not determined. What, if any, is the significance of failing to determine the cause of the failure? Is the reason for a failure essential information for bringing charges? Does it relate to consideration of the viability of a due diligence defense?
9. In regard to Attachment 5, were the toxicity test discrepancies noted taken into account in the decision to drop the 7 October 1998 charges, and if so, how? What other consequence, if any, did these apparent discrepancies have? Did Environment Canada ever look into IPPL's chain-of-custody, lab results, or other aspects of the IPPL sample and test to see if there was a problem in IPPL's methodology? Is this kind of discrepancy common?
10. What is the date and who is the author of Attachment 6? This document includes the statement "Industry regarded this as a very successful partnership." What is the meaning of that statement? What are the details regarding the partnership to which it refers?
11. Is Environment Canada aware of any other mills in Canada that have used the IPPL approach and/or technologies to achieve compliance with the PPER (i.e. without conventional secondary treatment)?
12. What is the date of Attachment 7?
13. Was any PPER enforcement action taken with respect to the incident mentioned in Attachment 8?
14. Attachment 9 includes an apology for "heavy-handedness" What does this refer to?

-
15. Were there toxicity test failures at IPPL on both 12 and 15 December 2000?
 16. Was the report included in Attachment 10 late? Should it have been sent on 8 February?
 17. In Attachment 11, there is a reference to “conflicting data from the samples collected earlier in February of 1999.” Should the reference be to samples collected in August 1999?
 18. Attachment 12 refers to a 20% threshold. What is the 20% threshold and what is it used for?
 19. Was any action taken under the PPER in connection with the July 2000 chlorine dioxide spill? Did this incident raise PPER compliance concerns? Note that IPPL informed us that as far as they knew chlorine dioxide was not federally regulated at the time
 20. Attachment 13 refers to the termination of the IPPL investigation and to the possibility of a new investigation in the event of “actionable violations.” What was meant by “actionable violations” in this document?
 21. Attachment 14 has a note indicating that something was “unsuccessful.” What does that refer to? Who is the author and what is the date of this document?
 22. Re: Attachment 15.
 - a. What is the correct date of this document?
 - b. What is its origin and purpose?
 - c. For what period of time is the information in the document accurate?
 - d. What is the meaning of the phrase: “the concurrence of the information is validated before officially filing the inspection”?
 - e. Did the Atlantic Region consult with other regions regarding actions it took with respect to IPPL, and if so, is there any documentation of those consultations?

- f. Does the answer in this document regarding sampling needed for monthly BOD and TSS exceedances mean that it is virtually impossible, or at least impracticable, to prosecute for an exceedance of monthly TSS or BOD limits? What is the basis for the statement “[p]rosecuting based on self reported data should be valid because the alternative would be to collect a month’s worth of data.” Given the burden of proof and other considerations, is it practicable to prosecute an exceedance of a monthly limit based on self-reported data?
- g. Is it Environment Canada policy, either for the Atlantic Region, other relevant regions or Canada-wide, that a change of pH due to mixing of effluents is a chemical treatment that meets the definition of “treat” in the PPER? Please explain.

- 23. What is the date and who is the author of Attachment 16?
- 24. What is the date of Attachment 17?
- 25. Was IPPL able to claim a tax deduction for any portion of the fine/penalty resulting from the plea agreement in November 1999 for charges laid against IPPL on 26 August 1999?

AV Cell, Atholville, NB:

- 1. What is Attachment 18, and who is its author?
- 2. Was any portion tax deductible of the \$30,000 penalty imposed on AV Cell following its guilty plea on 4 January 2002, and which included a \$20,000 donation to the Atholville Children’s Millenium Park?
- 3. Please provide:
 - a. the August 1999 warning letter that EC issued to Atholville;
 - b. AV Cell’s remedial plan in place in early 2000.
- 4. In regard to Attachment 1, did EC ever provide to NB officials the information requested on 1) whether there was an increase in trout toxicity across Canada and 2) precedents on levels of fines? If so, please provide this information.

-
5. Re: Attachment 19.
- a. Were the considerations referenced in this document regarding ministerial requests and orders valid in 2000, and are they still valid?
 - b. Was the general strategy for acute lethality test failures set out in this strategy valid in 2000, and is it still valid? The strategy indicated is that for a trout failure, the mill gets a warning if it passes the three follow-up tests, and if it fails the follow-up tests, it gets either 1) Ministerial request/order, 2) injunction, 3) prosecution or 4) injunction and prosecution.
 - c. Were the considerations in this strategy re: precision of analysis and the ranges set out for BOD and TSS valid in 2000, and are they still valid? They appear to be as follows:

For BOD: 7-20% above the limit, check the results, and determine whether to take composite sample; 20.1-29.9% above, warning if reasonable measures have been taken and prosecution if not; 30% or more above the limit, prosecution.

For TSS: 5-15% above the limit check the results, and determine whether to take composite sample; 15.1-24.9% above, warning if reasonable measures have been taken and prosecution if not; 25% or more above the limit, prosecution.
 - d. The guidelines above for BOD and TSS appear to be for action to take based on the mills' reports, not on "legal samples" taken during EC investigations. Is that correct? Was that the policy in 2000, and is it still valid?
6. Re: Attachment 20. This document contains the following exchange: [EC Employee 1]: "I know that we assess the monthly data provided by companies in terms of an accuracy of plus or minus 10%. Do you know where that figure came from and do you know if there is anything in writing with regard to legal aspects of that 10%?" [EC Employee 2]: "... I don't recall the 10% rule. There is the 15% and 20% error for TSS and BOD respectively. I presume the 10% would be for possible error for the flow measuring measurement as there is a 10% accuracy requirement for calibration. Is this what you are referring to? There shouldn't be any allowance for production as this is the only parameter left which is required to be reported. Let me or [EC Employee 3] know if you are referring to

something else?" Please explain what this is about, i.e. what is the 10% rule? Does EC have any other documentation of the 10% rule referred to here?

7. Re: Attachment 21, please explain what happened in regard to the monthly report for June 2000.

Abitibi-Consolidated, Grand Falls, NF:

1. Please provide a full copy of Attachment 22. Is the date August 3, 1999 correct?
2. Was the 14 January 2000 warning letter to Abitibi-Consolidated ever taken into account with regard to any subsequent non-compliance of the PPER at the mill, and if so, how?
3. Was the 1 August 1998 warning letter to Abitibi-Consolidated ever taken into account with regard to any subsequent non-compliance of the PPER at the mill, and if so, how? For a warning letter to be taken into account with respect to a subsequent possible PPER violation, does the cause and/or effect of the subsequent incident have to be the same as for the incident that is the subject of the warning letter?
4. Did EC ever consider the possibility that the Aeration Stabilization Basin treatment system at the mill was underdesigned?
5. The mill discussed with us a penalty and order it received in 2004, for charges laid in 2003, that was related to PPER compliance problems that were ongoing in 2000. Please provide a copy of the order, including the judgment against Abitibi-Consolidated and the action plan that the court ordered Abitibi-Consolidated to follow.

Bowater-Mersey, Liverpool, NS:

1. Is it correct that the toxicity and TSS incidents in January 2000 were for different outfalls, one process effluent and the other non-contact cooling water? Was the cause of the toxicity problem in the non-contact cooling water identified, e.g. was it attributed to the quality of the water entering the mill? Is it correct that this toxicity problem is completely distinct from the toxicity problem in August-October 2000?

-
2. Please explain in detail EC's response to the 15 April 2000 TSS exceedance, which was 34.96% over the daily TSS limit.
 3. Documents for this mill discuss a toxicity identification evaluation (TIE) done for toxicity failures at the mill. Does the need to conduct a TIE have any relation to consideration of the viability of a due diligence defense? For example, could a mill argue that because a TIE was needed, and the cause of toxicity was difficult to identify, it shows that due diligence would not have prevented the toxicity failure? Have mills made this argument?
 4. Re: Attachment 23.
 - a. Under "Incident 3," what is meant by "No enforcement action was taken on advice of programs . . ."?
 - b. Did the follow-up inspection planned for 2001 and noted at the end of this document take place? If so, what were the results of that inspection?

We appreciate Canada's consideration of these questions.

[ATTACHMENTS NOT INCLUDED]

Memorandum

DATE: 20 July 2005
À / PARA / TO: Environment Canada
CC:
DE / FROM: Director, Submissions on Enforcement
Matters Unit
**OBJET /
ASUNTO / RE:** Request for additional information for the
factual record for submission SEM-02-003
(Pulp and Paper)

I am writing to request additional information from Canada in connection with the factual record for submission SEM-02-003 (Pulp and Paper), consistent with NAAEC Article 21. This request includes two general questions, as well as specific questions regarding the five Quebec mills and one Ontario mill of concern in the factual record.

The drafting of the factual record is well on its way, and therefore I am hopeful we can arrange conference calls or meetings the weeks of August 8, 15 or 22 to obtain responses to this final set of questions, as well as to discuss in general our understanding of Environment Canada's (EC) actions in connection with the Quebec and Ontario mills. There may be a need for a written response to at least some questions, along with responsive documents. This additional information will help clarify information EC has previously provided the Secretariat and information received from pulp and paper mills and other sources, and will greatly assist us in accurately presenting information in the draft factual record.

We request Canada's answers, and copies of supporting information if any, for each of the following questions. I note that your response of June 1 included an indication of the documents supporting each question, which was very helpful; if Canada has already provided supporting information, please identify the information that is responsive to a particular question. If requested information has not been or will not be provided (including on a confidential basis) because it is non-existent, confidential or privileged, or otherwise unavailable, please provide an explanation consistent with Article 21(3).

General Questions:

1. What is Environment Canada's policy in the Ontario Region and in the Quebec Region on use of self-reported data in prosecuting non-compliance with the PPER (both in 2000 and currently)?
2. A September 28, 2000 e-mail from [an employee of the] Ontario Ministry of the Environment to [an employee of] Environment Canada regarding use of a single concentration for trout lethality tests, as opposed to determining toxicity as an LC50 says:

However, as far as the power of the test goes, a single concentration is as powerful in determining toxicity as an LC50. An LC50 just gives you additional information as to HOW toxic it is. Moreover, based on events at recent court cases, it is almost better to use single concentration data instead of LC50 data because the defence like to waste a lot of the court's time arguing over the confidence limits surrounding the LC50 estimate (that is, if the 95% confidence limits surrounding the sample LC50 exceed 100% then the defence can argue that there is a good chance the true "population of effluent" LC50 exceeds 100%. This clouds the issue of toxicity, which can be established simply on the basis on response of fish in the undiluted effluent.

The EC response to this e-mail indicates that this issue will be discussed at next EC national chief's meeting: "We are having the same problems with court cases (maybe the same cases) and want to review present test requirements in light of recent court cases."

What is Environment Canada's policy on using LC50's or single-concentration tests in the regions relevant to this factual record? Was there a change in policy in light of discussions of the issues referenced in this e-mail exchange?

3. At the February 2005 meeting in Halifax, I understood EC to agree that the following information was relevant to consideration of Canada's enforcement of non-compliance with the PPER that occurred at mills in 2000: 1) non-compliance that occurred prior to 2000, as well as warning letters and other responses to any such compliance, as reflective of the mill's compliance history; 2) non-compliance after 2000 that was due to the continuation of a non-compliance situation that was occurring in 2000; enforcement action after 2000 that took into account non-compliance in 2000 (as reflected, for example, in a warning letter) as part of a mill's compliance history.

In light of this clarification, please provide any additional information regarding any of the mills at issue in the factual record that was not previously provided.

4. Aside from the categories of pre- and post-2000 information mentioned above in Question 3, we reiterate our request for comprehensive post-2000 compliance information for all ten mills, which we understand to be non-confidential, public information. A summary would be sufficient. In addition to being relevant to the factual record for reasons previously stated, we believe this information will respond to an obvious public interest in wanting to know what has happened at these mills since 2000. We have some of this information, but it is incomplete.

Interlake mill, St. Catharines, ON:

1. The information provided previously regarding the Interlake mill indicates that Environment Canada and the Ontario Ministry of the Environment undertook separate investigations of the mill with respect to non-compliance in 2000, with EC focusing on administrative matters (e.g. reporting) and Ontario focusing on substantive violations (e.g. lethality test failures). An e-mail [] dated October 19, 2001 (Attachment 1) states: "We believe this to be a good split of the workload as our office has a very good system for tracking reporting requirements and flagging violations."
 - a. Please describe in more detail the arrangement between EC and MOE.
 - b. Please describe in more detail EC's system for tracking reporting requirements.
2. This same e-mail states: "We are interested in a complete history of alleged violations before proceeding." Please provide a copy of this history if it exists.
3. In the information provided in June 2004 regarding the Interlake mill, a 15-page investigation report for investigation # 3007-2000-03-27-001 states as follows regarding a July 2, 2003 court appearance (Attachment 2):

After hearing representation from Crown and defendant, Justice of the Peace Moses spoke of the following Supreme Court of Canada cases and the Charter relevance to this case: [BLANK]

At issue is the fact that the subject Interlake Acquisition Corporation Limited provided reports stating that they had an incident that caused them to fail their LC50 and Pass/Fail tests. The subject provided the information to Environment Canada as prescribed by the Regulation. This information provided to Environment Canada can not be used in court against the subject. Nor, can any information given to any officer by an employee of the subject company. In this case there was no supporting information that was secured without the subject company having provided it to a [sic] officer, in accordance with the regulations.

The result of this conversation saw the Crown withdraw the charges 1 through 6, 9, 10, 13, and 14. . . .

- a. Please identify the Supreme Court cases and Charter provisions referred to in this passage.
 - b. What is the scope of the Justice of the Peace's July 2, 2003 ruling?
 - c. What is the nature of the evidence that was not allowed?
 - d. Did this ruling impact the scope of the guilty plea that Interlake agreed to?
 - e. Without knowing more, the Justice of the Peace's ruling seems to disallow prosecutions based solely on information provided to Canada by a mill in accordance with the PPER. Does EC interpret the ruling in that way?
 - f. Has EC followed this ruling in the other cases involved in the factual record, or is this ruling either an aberration, or more limited than is apparent from the passage above?
4. Please provide a copy of the October 10, 2003, Justice of the Peace's Fine Payment Order.
 5. Materials that Canada provided to the Secretariat indicate that the fine obtained against Interlake was ordered to be "paid into Environment Canada, Enforcement and Emergencies Division, RISS web site project." What is this project?

6. Please provide a copy of R. v. Domtar Specialty Fine Papers, Court File No. 851/98 (Sitting Justice: The Hon. Mr. Justice J.W. Quinn), which is referred to in the case chronology included in materials provided in June 2004.
7. Reference is made in materials that Canada provided to the Secretariat to a letter Environment Canada [] sent to Interlake on 18 April 2001 regarding an investigation. Please provide a copy of this letter.

Quebec mills:

1. Regarding Attachment 3:
 - a. Is this an EC document?
 - b. Is the mill referred to as “Malette” the Tembec mill in St. Raymond? If so, we would [like] further explanation of the reasons given for closing the investigation, which appear to be related to concerns that the factual evidence would not hold up in court, and that the 2-year limitations period had passed.
 - c. Please provide the remainder of this document, including the full entry for Compagnie J. Ford.
 - d. Regarding the entry for Compagnie J. Ford, what information was missing that would have been required to enable the investigator to take legal samples? Why was the mill’s information insufficient to provide the basis for obtaining a legal sample? If the mill’s information was not sufficient, does this imply that the mill was not in compliance with reporting requirements?
2. Do the warning letters included in the material provided in June 2004 regarding the Quebec mills constitute all of the warnings issued to mills for 1) non-compliance in 2000, 2) non-compliance prior to 2000, or 3) non-compliance post-2000 that either took into account non-compliance in 2000 or was a continuation of non-compliance that occurred in 2000? If not, please provide any such additional warnings that were issued to any of the Quebec mills.
3. It appears from the information provided in June 2004 that the Uniforêt mill had a conflict with Laboratoire Éco-Santé, such that

the laboratory refused to provide Uniforêt laboratory results while the conflict was pending. Please clarify this situation, and any effect it had on Uniforêt's compliance with the PPER. For example, did this situation prevent Uniforêt from submitting timely reports to Environment Canada under the PPER?

[ATTACHMENTS NOT INCLUDED]

APPENDIX 6

**List of Nongovernmental Organizations
recipient of a Request for Information
for the development of the factual record
for Submission SEM-02-003**



**Nongovernmental Organizations Recipient of a
Request for Information for the Development
of the Factual Record on Submission SEM-02-003**

ORGANIZATION	DATE OF RECEIPT OF INFORMATION (If applicable)
Abitibi-Consolidated	30 June 2004
AV Cell Inc.	28 June 2004
Bowater Mersey Paper Company	14 June 2004
Canadian Corrugated Case Association	
Canadian Environmental Law Association	
Canadian Printing Industries Association	
Cascades FjordCell, a division of Cascades Canada Inc.	
Centre québécois du droit de l'environnement	
Chemical Institute of Canada	
Citizens' Environment Alliance of Southwestern Ontario	
Conservation Council of New Brunswick	
Ecology Action Centre	
Environment North	
FF Soucy, Inc.	30 June 2004
Forest Products Association of Canada	28 June 2004
Friends of the Earth – Canada	
Greenpeace Canada	

ORGANIZATION	DATE OF RECEIPT OF INFORMATION (If applicable)
Interlake Paper ® / Cellu Tissue	
Irving Pulp & Paper	3 November 2004
Metro Paper Industries Formerly La Compagnie J. Ford	
New Brunswick Forest Products Association	
Nova Scotia Forest Products Association	
Ontario Forest Industries Association	
Paper & Paperboard Packaging Environmental Council	
Pollution Probe	
Pulp & Paper Safety & Health Association	
Pulp & Paper Technical Association of Canada	
Quebec Forest Industry Council	25 June 2004 and 30 July 2004
Quebec-Labrador Foundation	
Atlantic Center for the Environment	
Sierra Legal Defence Fund	30 June 2004 and 19 January 2005
Société pour Vaincre la Pollution	
Tembec Industries Inc.	29 June 2004 and 22 February 2005
Toronto Environmental Alliance	
Uniforêt Port Cartier Inc.	
Union Saint-Laurent, Grands Lacs (Great Lakes United)	

APPENDIX 7

Neil McCubbin – Curriculum Vitae



Resume of Neil McCubbin



Citizenship	Canadian and British
Languages	English, French, some Spanish and German
Education	B.Sc. (Eng.) 1st Class Hons. University of Glasgow, Scotland, 1964 Associate of the Royal College of Science and Technology, Glasgow.
Membership	PAPTAC Environment Committee TAPPI Process Simulation Committee Registered Professional Engineer in Quebec
Contact	NMcCubbin@McCubbin.ca +1 (450) 242-3333

Since immigrating to Canada from Scotland in 1965, Neil McCubbin's professional activities have been almost entirely related to pulp and paper industry. Initially, he worked in mills and later as a consultant to various interested parties in Canada and overseas. In the earlier stages of his career, he worked on detail design of pulp production, pollution prevention and effluent treatment systems. Latterly he has concentrated on process and environmental studies. Many of these have included assistance in resolving conflicting environmental issues and reaching consensus amongst management of the pulp and paper industry, environmental advocacy groups, and regulatory agencies.

Typical assignments completed are described below.

Legal and quasi-legal assignments

Expert witness for Natural Resources Council of Maine, contesting an effluent discharge permit issued to International Paper Company.

Technical support and advice to plaintiff's counsel on litigation by Ester Johnson vs International Paper Company, concerning wastewater discharges from the company's pulp and paper mill in Pensacola, FL. (Levn, Papantonio..., Pensacola, FL)

Technical support to the Commission for Environmental Cooperation (a NAFTA Commission) in developing a factual record in response to a submission by several environmental advocacy groups which asserted that Canada had not effectively enforced effluent control regulations in Eastern Provinces. (CEC, Montreal)

Advice to counsel and provision of expert testimony in the case of Vermont vs International Paper Company at Ticonderoga, New York. This case was tried before a special master of the US Supreme Court. N. McCubbin was responsible for all air pollution aspects of Vermont's case. The litigation was spread over several years with total legal and engineering/scientific services fees of several million dollars. (State of Vermont, Montpelier, Vermont)

Technical support for Environment Canada in investigation of a mill over alleged infringements of the Pulp and Paper Effluent Regulations. (Environment Canada, Montreal)

Advice to counsel in Gateway Industries vs Crown. Defense of charges of infringement of Pulp and Paper Effluent Regulations. (Gateway Industries, Winnipeg, Manitoba)

Assistance to Lerner David (Attorneys for Union Camp Corp) in litigation over patent rights to ozone delignification technology.

Advice on resolution of dispute over warranty claims for new boiler in paper mill. (Confidential client)

Independent review of application for effluent and atmospheric emission permits for the Organosolv pulp mill proposed by Alcell Technologies in Atholville New Brunswick. (Alcell Technologies)

Environmental regulatory agencies

Advice to investigator and counsel for Environment Canada, vs Tembec Inc. (Environment Canada, Montreal)

Member of a three man Scientific Review Panel to advise the Minister of Water, Lands and Parks of British Columbia in regulation of AOX discharges from the 13 kraft mills, and one sulphite mill, in the Province. Project included review by public, and response to comments in public meeting. (BC Ministry of WLAP, 2002)

Engineering member of a three man "Expert Committee" to study effluents from 18 "non-kraft" mills in Ontario, recommend control regulations and evaluate the economic impact of such regulations. (Ontario Ministry of the Environment, Toronto)

Engineering member of "Kraft Mill Expert Committee" to study kraft mill effluents, recommend control regulations and evaluate the economic impact of such regulations. (Ontario Ministry of the Environment, Toronto)

Evaluation of consultants reports on the capabilities of the environmental protection systems for a proposed greenfield market kraft mill in Athabasca, Alberta. (Alberta Pacific Scientific Review Board, Edmonton)

Participation in review panel and public meetings for Alberta Pacific Forest Industries new kraft mill at Boyle, Alberta. (AlPac, Boyle, Alberta)

Review of technology and costs for control of phosphorus and BOD discharges from three integrated bleached kraft mills by internal upgrades and effluent treatment. The objective was to assist a broadly based stakeholder group in arriving at a consensus on new effluent discharge limits. (State of Maine, Department of Environmental Protection, Augusta, ME, USA)

Review of technology available for reducing dioxin discharges from bleached kraft mills to levels substantially below those defined in EPA and Canadian regulations. (State of Maine, Department of Environmental Protection, Augusta, ME, USA)

Analysis of problems of tainting of fish in the Kitimat River, caused by an unbleached kraft mill. Analysis of mill operations and develop-

ment or mitigating measures. Report for the Kitimat Taint Management Committee, which includes industry, aboriginal peoples, and regulatory agencies. (Environment Canada, Ottawa and Vancouver)

Technical support and development of cost model for US Environmental Protection Agency's proposed regulatory update for effluents from US bleached chemical pulp and paper mills, and also mills processing recycled fiber. Defined alternative pollution prevention technology, developed simulation of process alternatives and a mathematical model to estimate costs of applying various technologies to each of the 86 bleached kraft mills in the US, assisted in writing technical support documents, analysis of several controversial issues related to cost and technical feasibility of alternate regulatory scenarios. Assistance to EPA in responding to comments by public. Included technical co-ordination with concurrent development of regulations for atmospheric emissions from the industry. (sub-contract Eastern Research Group, Washington, DC. Repeated assignments over an 11 year period)

Assessment of environmental impact of ammonium base sulphite at Tartas, France. (Ministère de l'Environnement, Paris)

Assessment of technical feasibility and economic impact of proposed 1992 Federal Regulations for the pulp and paper industry. This project included calculating the capital and operating cost of the primary and secondary effluent treatment systems which would be required for each of the 115 Canadian mills affected to comply with the proposed regulations. An economic analysis of the combined effects of proposed regulation of AOX, dioxins, TSS, BOD and toxicity for the all kraft and bleached sulphite mills was also included. (Environment Canada, Hull)

Review of pulp and paper section of a report on alternatives to use of chlorine in Canada. (Consortium of Federal and Provincial environmental authorities)

Definition of Best Available Technology for controlling effluent discharges from pulp and paper mills. The project included estimating capital and operating costs of applying these technologies to the 27 mills in Ontario in 1991. (Ontario Ministry of Environment, Toronto, Ontario) Further assignment to update study in 1999.

Member of panel of engineers, toxicologists and other scientists convened by the Ontario Ministry of the Environment to advise on whether the Province should pursue a ten year old commitment to

require the pulp industry to eliminate discharges of chlorinated organics by 2002. The panel included representatives of the industry, chemical suppliers and academia. (Ontario MoE, 2001)

Review and comment on regulatory development procedures and practices relative to the pulp and paper industry (Auditor General of Canada)

Technical support for confidential analysis of regulatory issues. (Auditor General of Canada)

Technical support to consultant preparing a manual on enforcement of water pollution control regulations for regulators dealing with the pulp and paper industry in the US. (Eastern Research Group, Lexington, Mass., EPA contract)

Training

Neil McCubbin has presented a number of short courses for engineers in the pulp and paper industry, and has also participated as an instructor in courses run by others. Courses were typically 2 to 5 days long. Examples include:

Preparation and presentation of one-day seminars on process closure technology for mill engineers in Melbourne, Australia and in Rotorua, New Zealand.

Preparation and presentation of short course on pollution prevention in the pulp and paper industry for Environmental Regulatory Agencies in the State of Bahia, Brazil. (CRA, Salvador, Brazil)

Preparation and presentation of short course on pollution prevention in the pulp and paper industry to engineers in Morocco. (US Agency for International Development)

Course Leader and Lecturer in CPPA Environment Course 1990 and 1992. Short course in environmental protection technology for pulp mill engineers. (Canadian Pulp and Paper Association, Toronto and Edmonton)

Course Leader and Lecturer in CPPA Energy Course 1983 and 1986. Short course in energy conservation technology for pulp mill engineers. (Canadian Pulp and Paper Association, Montebello, Québec and Saint John, NB)

Energy conservation course for group or kraft mills in Prince George, BC (PG Pulp and Paper, 1984)

Training engineers in use of process simulation software in a number of mills and consulting firms including Produits forestiers Alliance, Dolbeau, Que., Papier Cascades Inc., Kingsey Falls, Que., NLK Vancouver, Dick Engineering, Toronto, ITT Rayonier, Jesup, Georgia; Thames Board, Workington, England; and QUNO, Thorold, Ontario.

Invited lecturer in CPPA Bleaching Courses 1995, 1997 and 1998. Short courses in bleaching for pulp mill engineers. (Canadian Pulp and Paper Association, various Canadian locations)

Invited lecturer in CPPA Mill Closure Course 1997. Short course in design of closed cycle pulp and paper mills for experienced engineers in the industry. (Canadian Pulp and Paper Association, Montreal)

Invited lecturer in three Kraft Mill Closure courses (1998, 1999 and 2002). Short course in reduction of kraft mill effluent discharges by using modern process closure technology, for engineers experienced in the industry. (Technical Association of the Pulp and Paper Industry)

Preparation of reports on the "Basic Technology of the Pulp and Paper Industry and its Environmental Protection Practices" and "State of the Art of the Pulp and Paper Industry and its Environmental Protection Practices". The report won a "Distinguished" award from the Society for Technical Communications. Several short courses were presented based on these manuals. (Government of Canada, Environmental Protection Service)

Miscellaneous assignments

Invited by the Australian Pulp and Paper Technical Association (Appita) on tour of 15 pulp and paper mills in Australia and New Zealand to speak to industry management on environmental and process closure issues. Also presented two one-day seminars on process closure and addressed two Appita section meetings. (Appita, Melbourne)

Assessment of the technological level of the US pulp and paper industry and suppliers of technology to the industry, with respect to pollution prevention. (Office of Technology Assessment, US Congress)

Member of team developing methodology for application of Life Cycle Analysis techniques to pulp and paper manufacturing operations for Canadian Standards Association. (sub to Jacques Whitford, Toronto)

Preparation of brief criticizing the criteria proposed by the European Union Commission for award of Eco-labels for paper products in the European Community. (Canadian Pulp and Paper Association, Montreal)

Review of a technical and market analysis for new bleaching technology. (Confidential client)

Analysis of technical and scientific aspects of proposed criteria for award of an Eco-Logo for pulp and paper products. (Environmental Choice Program, Ottawa)

Analysis of effluent data from nine pulp mills in Alberta and Northern BC, including development of software to facilitate access to database by researchers. (Northern River Basins Study Board, Edmonton, Alberta)

Engineering studies and design

Development of plan to minimize effects of recycled board mill on receiving water by a combination of process upgrades and effluent treatment in a recycled board mill. (Petrocart, Piatra – Neamt, Romania)

Process design and equipment specifications for in-plant pollution prevention measures and effluent treatment system for kraft linerboard mill at Puerto Piray, Argentina. This included assisting local engineers in the detail design phase. (SNC-Rust, Montreal)

Technical assistance to owner's design group developing process concept and basic design for a new 750,000 tpy mill in Brazil. (Veracel Cellulose SA, Sao Paulo, Brazil)

Process studies and equipment selection for effluent treatment systems for several mills including Cellulose du Rhone, Tarascon, Procter and Gamble, Grande Prairie, Alberta, Boise Cascade, International Falls, Minn., and Irving Pulp and Paper, Saint John, NB.

Computer simulation of the processes of a number of mills including Rayonier, Jesup, Georgia; *Thames Board, Workington, England; *Consolidated Bathurst, Shawinigan, Quebec; *Consolidated Bathurst, Bathurst, New Brunswick; Boise Cascade, Kenora, Ontario; *QUNO, Thorold, Ontario; *St. Regis Paper, Sudbrook, Wales, *FF Soucy, Rivière-du-Loup, Québec, Consolidated Paper, Wisconsin Rapids, Wisc., and

advice to a number of mills and consulting firms on the use of process simulation. The purpose of these projects was to improve process operations, to reduce effluent and energy losses. In all cases, it was necessary to spend several weeks in the mills concerned to document the process operations in detail, in addition to the simulation work itself.

Environmental risk analysis of current operations and recommendations on modifications to Baikalsk Pulp and Paper Co. dissolving kraft pulp mill to minimize environmental impact. The mill is located on Lake Baikal in Siberia, which is a unique body of water, and requires exceptional protection measures be implemented in the mill. (UNIDO, Vienna)

Analysis of environmental risks and predicated costs for two bleached kraft mills as part of preparation of prospectus for a public offering of shares in a spin-off company from Kimberly Clark Corporation.. (Tory and Tory, Toronto)

Review of reports on alternatives for chlorine bleaching. (Beak Consultants, Toronto, and Teltech, Minneapolis)

Assess the technical and economic feasibility of expanding recovery boilers in the Canadian kraft pulp industry to assist mills in complying with proposed organochlorine regulations. (Industry, Science and Technology Canada, Ottawa)

Review and appraisal of the alternate means of complying with the long term government objectives for the aqueous discharges from a sulphite pulp mill. (Kruger Inc., Trois-Rivières, Québec)

Development of short and medium term plan for compliance with current and proposed regulations on effluent for an integrated TMP and newsprint mill. (Kruger Inc., Bromptonville, Québec)

Design for pulp washing, black liquor evaporation and strong liquor sales system for two very small kraft mills. These projects utilized conventional kraft recovery technology adapted to the local conditions to reduce BOD discharges. (Bolloré, Troyes and JOB, St-Girons, France)

Analysis of technical and economic feasibility of application of ozone bleaching in kraft mills. The purpose was to assist manufacturers of chemicals competing with ozone to assess future market developments. (CEFIC. Association of European Chemical Manufacturers)

Air pollution issues

Assessment of the atmospheric emissions from a group of seven pulp and paper mills, recommendations on control technology for current and predicted regulations and the preparation of order of magnitude capital cost estimates. Projects included analyses of the dispersion of the atmospheric emissions using various computer models. (Consolidated Bathurst, Head Office, Montreal, Quebec)

Study of operating electrostatic precipitator which had never attained design efficiency. This resulted in a low cost solution to the problem and the publication of a paper which won the Douglas Jones Award for the best environmental paper presented at CPPA meetings that year. (Consolidated Bathurst, New Richmond, Quebec)

Evaluation of air pollution dispersion models. (Environment Canada, Ottawa)

Simulation of dispersion of atmospheric pollutants for several mills including Corner Brook Pulp & Paper, Corner Brook, Newfoundland, Western Pulp, Squamish, B.C., and Domtar Inc., Windsor, Quebec.

Past employment

Prior to entering private practice, Neil McCubbin was employed by pulp mills and the associated service industry:

1970 - 1973 Beak Consultants, Montreal, Quebec, Project Engineer

Responsible for a number of feasibility studies and detailed design for pulp and paper mill effluent treatment systems, and internal process modifications to control effluent quality.

Review of air pollution control technology in the Swedish pulp industry. This included visits to eleven mills and the preparation of the project (CPAR Secretariat, Ottawa, Ontario).

Review of European experience with Rotating Biological Contractor waste treatment systems. This included visits to six operating installations and various research establishments in Germany, France, Denmark, and England (Environment Canada, Ottawa, Ontario).

1968 - 1970 Multifibre Process Limited, Montreal, Quebec

Project Engineer with turnkey chlorine dioxide system equipment manufacturer.

Responsible for design, construction and start-up of bleach chemical plants and air pollution control equipment (Georgia Pacific, Crossett, Arkansas and Western Kraft, Hawesville, Kentucky).

1966 - 1968 North Western Pulp and Power Ltd., Hinton, Alberta

Engineer in pulp mill. Projects included installation of primary clarifier and aerated stabilization basin.

1965 - 1966 Rayonier Canada Ltd., Woodfibre, B.C.

Project Engineer during start-up of kraft pulp mill expansion.

Publications

Solutions to Limitations in Recovery System Capacity when Closing the Process in Existing Mills. International Non-chlorine Bleaching Conference, Orlando, 1996.

Is Deinking Environmentally Desirable? Proc. International Environmental Conference, Portland, Oregon, 1994. (with Jens Folke, Paper won prize as "Best in General Category")

Dioxins and Organochlorines in the Ontario Kraft Industry. Proc. CPPA Annual Mtg., Montreal, 1989. (with J.B. Sprague and N.C. Bonsor)

Best Available Technology for the Ontario Pulp and Paper Industry. (with E. Barnes, E. Bergman, H. Edde, J. Folke, and H. Edde). Report prepared for the Ontario Ministry of the Environment. 1992 (600 pp.)

Kraft Mill Effluents in Ontario (with John B. Sprague and Norman C. Bonsor), April 1988. Report prepared for the Ontario Ministry of the Environment (260 pp.)

Effluents from Non-kraft Pulp and Paper Mills in Ontario (with John B. Sprague and Norman C. Bonsor), 1991. Report prepared for the Ontario Ministry of the Environment (300 pp.)

The Basic Technology of the Pulp and Paper Industry and its Environmental Protection Practices, Environment Canada, EPS 6-EP-83-1.

- (winner of distinguished award, Society for Technical Publications and Graphic Arts Competition, 1984) (179 pp.)
- State of the Art of the Pulp and Paper Industry and its Environmental Protection Practices, Environment Canada, EPS 3-EP-84-2. (128 pp.)
- Costs and Benefits of Various Pollution Prevention Technologies in the Kraft Pulp Industry. Proc. International Symposium of Pollution Prevention in the Manufacture of Pulp and Paper – Opportunities and Barriers. Washington DC. August 18-20, 1992.
- Economic Impact of Proposed Regulations on Pulp and Paper Industry – BOD, TSS, Toxicity, Organochlorines (AOX) Dioxins and Furans, Prepared for Environment Canada, No C&P KE 144-9-6190. 1990
- Technology Available to Compensate for Recovery Boiler Overloads, Proc. CPPA Environment Conference, Thunder Bay, Ontario, October, 1993.
- Review of Technology for Overcoming Capacity Limitations in Kraft Pulp Industry Recovery Boilers. Prepared for Industry and Science and Technology Canada (July, 1990).
- Review of EPA Regulations. Pulp and Paper Canada, December 1993.
- Eco-Labeling in Europe. Pulp and Paper Canada, September 1993.
- Summary of Proposed Air Emission Standards for US Mills, Pulp and Paper Canada, February, 1994.
- Significance of AOX vs Unchlorinated Organics, Proc. CPPA Environment Conference, Thunder Bay, Ontario. October 1993.
- Variability of Effluents from Mills with Advanced Control, Proc. TAPPI Environmental Conference, Richmond VA, 1992. (with Jens Folke, Alistair Stewart, and Kirsten Vice) TAPPI Vol. 77, No. 1, January 1994.
- Simplified Bioassays and Chemical Analyses to be Used for Regulatory Purposes in the Pulp Industry. (with Jens Folke, Lars Landner and Karl-Johan Lehtinen) Proc TAPPI Environmental Conference, Boston, March 1993.
- Is AOX Removal by Biological Treatment Consistent with Environmental Protection Objectives? Proc. TAPPI Environmental Conference, Richmond VA, 1992. (with Jens Folke and Lars Landner)
- An Evaluation of European Experience with the Rotating Biological Contactor, Environment Canada, EPS 4-WP-73-4.

Review of Swedish Pulp and Paper Industry Air Pollution Control Technology, CPPA Environmental Conference, 1974, Member of Five-member Canadian Study Group (report author), CPAR Secretariat.

Energy Conservation vs Fuel Alternatives: Conservation Could be the Better Investment, Pulp and Paper Canada, May 1981.

A Practical Method to Increase Efficiency of Existing Precipitators (Winner of 1978 Douglas Jones Award).

In-plant Suspended Solids Control Systems are the Most Economical, Pulp and Paper Canada, April 1984.

Simplified Toxicity Testing for Mill Effluents, Pulp and Paper Canada, July 1984.

Dispersing Atmospheric Pollutants, Pulp and Paper Canada, November 1984.

Monthly series on using microcomputers in mill engineering and technical departments. (October 83 to Dec. 2004).

Process Engineering: What Role for Micro-computers?, TAPPI Engineering Conference, Boston 1984.

Process Simulation: A Key Tool for the Design and Modernization of Mills in the Eighties, Pulp and Paper Canada, August 1982.

Generation of Steam for TMP Mill Exhausts, Pulp and Paper Canada, March 1981.

Alternatives to Fossil Fuel for the Lime Kiln, Proc. Ottawa, CPPA Energy Conference 1983.

Assessment of Chlorine Dioxide Generating Capacity in the Canadian Bleached Pulp Industry. Industry, Science and Technology Canada, Ottawa, Ontario, Contract No. 67RPI-9-0278, July 1990. (with Dennis Owen)

Awards

Best paper in "General Category" at TAPPI International Environmental Conference, Portland, Oregon, 1994.

Doug Jones Award 1978 (Best paper presented at a CPPA meeting on an environmental issue).

National Award Society of Technical Communications 1984.

Tasman Fellowship 1988.

Canada's Who's Who – 1991 to date.

ATTACHMENT 1

**Council Resolution 07-03,
dated 31 January 2007**



31 January 2007

COUNCIL RESOLUTION 07-03

Instruction to the Secretariat of the Commission for Environmental Cooperation to make public the Factual Record for Submissions SEM-02-003 (Pulp and Paper submission)

THE COUNCIL:

SUPPORTIVE of the process provided for in Articles 14 and 15 of the *North American Agreement on Environmental Cooperation* (NAAEC) regarding submissions on enforcement matters and the preparation of factual records;

HAVING RECEIVED the final factual record for Submission SEM-02-003;

NOTING that pursuant to Article 15(7) of the NAAEC, the Council is called upon to decide whether to make the factual record publicly available; and

AFFIRMING its commitment to a timely and transparent process;

HEREBY DECIDES:

TO MAKE PUBLIC and post on the registry the final factual record for Submission SEM-02-003;

TO ATTACH to the final factual record comments provided by Canada and the United States of America to the Secretariat on the draft factual record; and

TO INCLUDE with the final factual record a disclaimer which states that the document was prepared by the Secretariat, and that the views contained therein do not necessarily reflect the views of the governments of Canada, Mexico or the United States of America.

APPROVED BY THE COUNCIL:

[Judith E. Ayres]
Government of the United States of America

[Enrique Lendo Fuentes]
Government of the United Mexican States

[David McGovern]
Government of Canada

ATTACHMENT 2

Comments of Canada





Gatineau QC K1A 0H3

May 10, 2006

Mr. William Kennedy
Commission for Environmental Cooperation
393, rue St-Jacques Ouest
Bureau 200
Montréal, QQ H2Y 1N9

Dear Mr. Kennedy:

Canada was pleased to review the draft Factual Record in relation to Submission on Enforcement Matters SEM-02-003 (the "Pulp & Paper" submission), pursuant to Article 15(5) of the North American Agreement on Environmental Cooperation (NAAEC).

In order to assist the Secretariat in the development of the final Factual Record for this submission, I would like to provide Canada's comments, which you will find attached. Furthermore, I would like to raise the importance of the following two general comments by including them here.

1) Conformity to Council Instructions on the Factual Record

First and foremost, Canada must highlight the importance of the factual record conforming to the instructions provided by the Council in Resolution 03-16. In this resolution, the Council instructed the Secretariat to pursue the development the factual record and included clearly specified timeframes for the examination of the federal government's "alleged failures to effectively enforce section 36(3) of the *Fisheries Act* and alleged effluent test failures and failures to conduct follow up tests as required under the 1992 Pulp and Paper Effluent Regulations (PPER) regarding each of the ten pulp and paper mills. These timeframes were determined based on the facts presented by the submitter in its submission in support of its allegations.

Canada is pleased to observe that the pulp and paper mills that were referred to in the submission were forthcoming in providing information to the Secretariat regarding recent compliance-related activities.

However, given the instructions provided by the Council, Canada is compelled to request the removal of the “Up date” sections provided for each of the mills in Section 8, as this information exceeds the specified timeframes denoted in the above-mentioned Council Resolution.

As noted above, the purpose and scope of this Factual Record concerns the failure to effectively enforce s. 36(3) of the *Fisheries Act* and the PPER as regards 10 particular pulp and paper mills. Accordingly, data concerning broader regional enforcement statistics as provided under 6.5.3 of the draft Factual Record does not relate to the enforcement of s. 36(3) of the *Fisheries Act* and the PPER regarding the 10 mills identified by the submitters in their submission. The data included in this section also concern time periods which exceed the dates provided in Council Resolution 03-16, particularly the third paragraph which attempts to summarize Environment Canada’s enforcement activities from 1999-2005. Canada makes this information available in its annual reports; namely, *Administration and Enforcement of Pollution Prevention Provisions by Environment Canada: Report on FY 2000-2001*. However, in Canada’s view, it is of fundamental importance to the entire citizen submission process that the facts presented in a Factual Record relate directly to the specific factual allegations raised in the submission, and which conform to the parameters of the Council’s instruction. Accordingly, Canada is requesting that the first three paragraphs of section 6.5.3 be removed from the Factual Record.

2) Contextual Information Included in the Factual Record

Canada is of the view that a shorter factual record that is released in a timely manner, would also provide the benefits of increased relevance, as well as increased readership. Although Canada recognizes the importance of providing contextual information to orient the reader, best attempts should be made ensure that the information provided in a factual record is closely tied to the relevant enforcement matters; in this case, the enforcement of the Federal *Fisheries Act*, and the 1992 PPER. Canada believes that excess contextual information subtracts from the importance of Section 8 (Facts Regarding Enforcement of *Fisheries Act* and the PPER at the Ten Pulp and Paper Mills of Concern), which is the essence of the factual record.

In this regard, one example of excessive and extraneous contextual information is the lengthy description of provincial laws, regulations and policies, given that the factual record is intended to examine federal enforcement activities regarding federal legislation. As noted in CR 03-16, a description of Canada’s consideration of actions taken by the prov-

inces to enforce their legislation is intended to specifically focus on the information submitted by the provinces to the federal officials where such provincial enforcement actions were relied upon by the federal officials. Furthermore, as you are aware, Article 41 of the NAAEC makes it clear that for Canada, a federal state with shared constitutional jurisdiction over the environment, the obligations of the NAAEC apply exclusively to the federal government, and only to those provinces which have agreed to be so bound. In Canada, that agreement is codified in the Canadian Intergovernmental Agreement (CIA) regarding the NAAEC. The description of provincial laws, regulations and policies, particularly concerning the provinces which are not signatories to the CIA is considered excessive and of little relevance to the enforcement matters to be examined in this factual record

Analysis and interpretation of case law, including a discussion on the *Canadian Charter of Human Rights and Freedoms* present a concern for Canada since such passages contain legal opinions, as opposed to facts. The case law does not give the reader significant insight regarding the existing legislation, regulations or policies. Of particular concern is section 6.5.2.3.2 on “self-incrimination” as it includes a lengthy opinion on the state of Canadian jurisprudence on this issue. The inclusion of case law in the Factual Record should be reconsidered by the Secretariat.

In order to facilitate our review of the final Factual Record and increase the timeliness of making a decision on publication, it would be appreciated if the Secretariat could provide Canada with an electronic version of the final Factual Record in “revision mode”.

Canada notes that as a matter of procedure, comments of a Party are not to be made public unless and until Council votes to make the final Factual Record publicly available pursuant to Article 15(7) of the NAAEC.

Yours sincerely,

David McGovern
Assistant Deputy Minister,
International Affairs

c.c.: Ms. Judith E. Ayres
Mr. José Manuel Bulás

Pulp Submission SEM-02-003 (Pulp and Paper) Draft Factual Record

Specific Comments

Note: Unless otherwise noted, the page numbers associated with the following comments refer to the hard copy of the English version of the draft Factual Record (the page numbering of the electronic version does not coincide).

In several places, the document indicates that the province of Québec applies the federal Pulp and Paper Effluent Regulations (PPER). Québec, in fact, does not apply the PPER but does apply its own regulations (*Regulation respecting Pulp and Paper Mills*) (RRPPM).

Page 6, 4th paragraph should be replaced by:

The history of co-operation with Québec on this issue goes back to 1994 with the signing of the first formal agreement between the federal government and Québec regarding the implementation of federal pulp and paper regulations in that province. The first agreement expired in January 1996 and later agreements followed from November 1997 to March 31, 2000 and April 1, 2000 to March 31, 2005. These formal, administrative agreements do not provide for enforcement of the federal PPER by the province of Québec; the agreements state that the federal and provincial governments each retain their authority to enforce their respective legislation. The agreements instead provide for the Québec provincial government to act as the primary interface with the pulp and paper industry in that province. Among the obligations listed under the agreements, the province of Québec collects the majority of the information required under the PPER from the mills, and then forwards the information to Environment Canada.

This error must be corrected wherever it occurs, including: page 6, 4th paragraph, page 70, 2nd paragraph, page 74, 1st paragraph, page 81, last paragraph (Québec does not issue warnings for exceedances under the PPER, but for exceedances according to the provincial regulations) and page 216, 2nd paragraph.

Page 1, list of mills

Identification of the following mill should be corrected: The Tembec St-Raymond mill is located in Saint-Léonard-de-Portneuf, not Saint-Raymond.

Page 3, 1st paragraph, second sentence, Section 1.2.1

The 1992 PPER was considerably amended in 2004, but it was also amended on June 13, 1996, April 1, 1999 and in 2003. Thus, the version of the PPER that was in effect during the periods covered by the factual record is the version amended in 1996 and 1999.

Page 3, 1st paragraph, Section 1.2.1

“The PPER define acutely lethal pulp and paper effluent, biochemical oxygen (BOD) matter and suspended solids (TSS) as deleterious substances.”

This should be replaced by: “The PPER prescribes acutely lethal effluent, biochemical oxygen demand (BOD) matter and suspended solids (TSS) from pulp and paper mills or off-site treatment facilities as deleterious substances”.

Page 4, 2nd paragraph, Section 1.2.2

“Enforcement measures include site inspections, investigations, warnings”

This information is incomplete and should be replaced by the following paragraph:

“Enforcement activities include inspections and investigations. The purpose of an inspection is to verify compliance, and inspections may occur on-site at a pulp and paper mill or off-site at Environment Canada offices where EC fishery officers/fishery inspectors inspect reports and other information submitted by mills. Investigations involve collecting evidence of alleged violations of the *Fisheries Act* and the PPER. Measures to respond to alleged violations include warnings, directions by fisheries inspectors, Ministerial orders under s.37, injunction and prosecution.” (see pp. 20 to 27 of the Compliance and Enforcement Policy for the Habitat Protection and Pollution Prevention Provisions of the *Fisheries Act*).

Page 7, 2nd paragraph, section 1.2

In this section, it is mentioned that the Québec Region of Environment Canada conducted no inspections. The province of Québec conducted inspection activities, toxicity tests, and characterization of water at various mills in Québec under the provincial regulations. More details are available in the annual report prepared by the Agreement Management Committee in September 2004.

Page 7, 2nd paragraph

“The Québec Region did not consider non-compliance in mill reports to provide sufficient grounds to believe an offence had occurred ... “. This statement is false since the Québec Region pursued enforcement action, including warnings for statements that showed violations (see table 1 of the draft factual record). According to the *Fisheries Act* Compliance and Enforcement Policy, an inspector or fisheries officer must have reasonable grounds for believing that a violation of the law and/or regulation has occurred in order to issue a warning (see p. 22 of the Policy).

Page 8-11, Table 1, section 1.5

The column entitled “Non-compliance pre-2000” should be removed. The information presented in this column is sporadic and confusing. Furthermore, where no dates or timeframes are specified for the TSS/BOD exceedances, the reader is not provided with an idea of a given mill’s compliance history as the listed exceedances could be spread over months, years, or decades.

Row 5: Tembec St-Raymond: the reference to an investigation that was “dropped” should be changed to “closed” or “terminated”.

Page 13, 4th paragraph, section 2.1

The reference to 1991 PPER should be changed to 1992 PPER.

Page 14, 4th paragraph, section 2.2

There are 65 regulated mills in Québec according to the 2000 “Bilan annuel de conformité environnementale”. The total number of mills should be specified, as is done for Ontario and the Atlantic provinces.

Page 18, 3rd paragraph, section 3.2.1.1

Environment Canada did not close the inspection in 1996. As correctly indicated in the Summary, Table 2 on page 12, Environment Canada closed the investigation in 2000. The third sentence should be changed to the following: In 2000, Environment Canada closed the investigation...

Page 20, section 3.2.2

“With respect to mills in Québec, Canada’s response explains that consistent with the spirit of an expired federal-provincial agreement, the six mills...”

This sentence should clarify that Québec continued to assume the responsibilities specified in the expired Agreement, until a new agreement was signed. This should be replaced by: “With respect to mills in Québec, Canada’s response explains that there was unofficial agreement to continue working in the spirit of an expired federal-provincial agreement until another agreement could be signed. The six mills discussed in the response, therefore, submitted...”

“The federal-provincial agreement expired in 2000²⁴” should be replaced by “The federal-provincial agreement expired on March 31, 2000”.

Page 36, 1st paragraph, section 6.2.3

The second sentence is missing the word “production”. It should read as follows: “The reference production rate...”

In the fourth sentence, the words “for an authorization” should be deleted.

In the fifth sentence, the word “authorization” should be replaced by an interim RPR.

Page 37, 4th paragraph, section 6.2.4

As the Secretariat quotes a study conducted by Paprican, there should be some information about the organization provided to the reader either in a footnote, or in the text. For example, Paprican is the Pulp and Paper Research Institute of Canada and its primary source

of funding is the Canadian pulp and paper industry. The organization conducts research for the pulp and paper industry in Canada, and also conducts research in collaboration with Environment Canada on topics of mutual concern.

Page 42, Table 4, section 6.2.7

Column 3, row 2: replace “Same” with “6, 14, and 15-20 (mills under authorization)”.

Column 2, row 5: should read “29-34”.

Page 44, Section 6.3

“The *Fisheries Act* lists a range of potential responses to alleged violations ..., including... warnings...” It is incorrect to say that the *Fisheries Act* provides for warnings. Warnings are responses to alleged violations that fishery officers and fishery inspectors may pursue under the conditions stipulated in the Compliance and Enforcement Policy for the Habitat Protection and Pollution Prevention Provisions of the *Fisheries Act*.

Page 55, Note 171, section 6.5.1

“¹⁷¹Warnings are discussed in detail in the Compliance and Enforcement Policy at 21-22.” should be replaced by “¹⁷¹Warnings, as well as the conditions of their issuing, are described in the Compliance and Enforcement Policy at 22-23”. [Footnote numbering is out of sync. “170” in English is “171” in French.]

Page 56, 2nd paragraph (French version page 64)

The following sentence is confusing: “The Policy notes that, because the *Fisheries Act* already requires these actions for deposits out of the ordinary course of events, fishery inspectors do not ordinarily issue directions”. [French version: « La Politique précise que, comme la *Loi sur les pêches* prescrit déjà de telles interventions en cas d’immersion ou de rejet irrégulier, les inspecteurs des pêches ne donnent habituellement pas de directives »]

It would be clearer to express the above as follows: “The Policy notes that, because the *Fisheries Act* imposes the obligation to take such measures for deposits out of the normal course of events, fishery

inspectors do not ordinarily issue directions unless the appropriate measures are not taken.” [« La Politique précise que, comme la *Loi sur les pêches* impose aux personnes l’obligation de prendre de telles mesures dans le cas de rejet ou d’immersion irréguliers, l’inspecteur ne donne habituellement pas de directives à moins que l’obligation de prendre les mesures appropriées ne soit pas respectée. »]

Page 59, 1st paragraph, section 6.5.2.1

“Canada provided the Secretariat with a *Draft Revised Enforcement Strategy for the Pulp and Paper Effluent Regulations (PPER) of the Fisheries Act* for the period from December 2, 1992 to December 31, 1993 (April 1, 1993) ...”. The Secretariat then presents a long description of this draft document that covers approximately four pages.

Canada finds that the Secretariat places a great deal of importance to this draft strategy which was never accepted by Environment Canada, was not adopted by the regions, is about ten years old and, covers a relatively short period (1 year) at a time when the mills had transitory approval.

The footnotes are out of synch: 185 in French is 184 in English.

Page 66-69, Section 6.5.2.3.2

An analysis of the Canadian Charter of Human Rights and Freedoms is unnecessary since the Government of Canada clearly acknowledged and informed the Secretariat that the “Supreme Court of Canada has ruled that it is not self-incrimination for regulatees to report data showing non-compliance if they are required by laws or regulations to submit information. It is thus possible to prosecute regulatees on the basis of self-reported data.” Since Canada has recognized this fact, it is unnecessary to enter into an analysis of the *Canadian Charter of Rights and Freedoms* on the subject.

Page 71, 1st paragraph

The resources allocated to compliance promotion of the PPER were 0.5 person-years and \$5,000 for inspections and 2 person-years and \$8,000 in overhead costs for investigations (and not for inspections as indicated in the report).

Page 72, 1st paragraph

The titles of the following regulations should be corrected:

- *Pulp and Paper Effluent Regulations*
- *Pulp and Paper Mill Effluent Chlorinated Dioxins and Furans Regulations*

Page 72, 2nd paragraph, Section 6.5.3.2

The following statement is inaccurate and should be supplemented with the following underlined text: “Accordingly, Québec agrees to gather the information required under the PPER with respect to effluent quality, reported on a monthly basis, as well as information required under the CEPA 1999 regulations respecting dioxins and furans, wood chips and defoamers, and provide it to Canada within an agreed time, as well as to provide certain information on EEM studies and on accidental releases from mills.” In addition, the province of Québec agrees to submit to Canada results of effluent characterization from 10 mills, as well as toxicity measurements from 20 mills.

Page 84, 1st paragraph (French version)

En conséquence, le Québec convient de recueillir les renseignements requis en vertu du REFPP concernant les rapports mensuels sur la qualité de l’effluent et en vertu des règlements sur les dioxines et furannes ainsi que sur les copeaux de bois et les antimousses et de les transmettre au Canada dans un délai convenu²⁵⁰, [...] .De plus, le gouvernement du Québec convient de transmettre au Canada les résultats de la caractérisation des effluents de 10 fabriques et la mesure de la toxicité de 20 fabriques. En 2000, Environnement Canada examinait (...).

Page 72, Extract

Canada believes that the use of following extraction relays information that may lead to confusion:

“Under the Canada-Québec Agreement... in place and functioning.”

The following is a more precise explanation which more accurately supplements the paragraph preceding the extract:

“The 1997 agreement expired on March 31, 2000. From April 1, 2000 to the signing of the subsequent agreement in 2003, there was no transfer of funds to Québec. The new agreement signed in 2003 was retroactive to April 1, 2000, and the equivalent of \$225,000 per year in equipment purchase was made for Québec. In the interim period – i.e. from April 1, 2002 to September 2003, the governments agreed to continue to collaborate in the spirit of the agreement to be officialized. Thus, there was no impact on the transmission of self-monitoring data from the mills.”

Page 84 and 85, Table 6

Provisions of Québec’s *Environment Quality Act*:

- For ss. 19.1 to 19.7, it is advisable to add the word “certain” before the “individuals” since not all individuals can take advantage of those provisions (see s. 19.3 of the EQA on this subject).
- For ss. 22 and 24, it is advisable to replace “Ministerial” by the “from the Minister” since it is the Minister who issues authorizations and not the Ministry.
- For s. 31, it is advisable to replace “Ministry” by “government”, since it is the government that has the power to pass regulations (French version only);
- For ss. 31.1 to 31.9, it is advisable to replace “Cabinet” by “government”, since that is the word used in the EQA;
- For s. 96, it is advisable to add the following to the end of the sentence: “, with certain exceptions”. Some orders cannot be contested before the Administrative Tribunal of Québec; section 96 lists them;
- For s. 106.1, à la Question visée par l’article 106.1, il y aurait lieu de remplacer l’expression “deuxième infraction” par le mot “récidive” et de remplacer également l’expression “infraction ultérieure” par “récidive additionnelle” car c’est ce que l’article 106.1 prescrit et que ces expressions ne sont pas synonymes; [French version only]

- For s. 107, it is advisable to add, after “Failure”, the words “of an individual” and to also add the following at the end: “For a corporation found guilty of such a violation, the minimum fine shall be three times higher and the maximum fine six times higher”;
- The final row of table 6, erroneously names ss. 121.1 and seq., rather than 122.1 and seq. which is subsection that deals with the amendment or cancellation of authorizations issued under the EQA.

Page 85-86, Footnote, section 6.6.2.1.2

The abbreviation “O.C.” is used to refer to two Government of Québec orders.

When referring to an order in council issued in Québec, the abbreviated reference should be to a “Décret”.

Page 86, 1st paragraph, section 6.6.2.1.1

- The last sentence of the 2nd paragraph on this page reads as follows: “Under ss. 31.1 and seq. of the *QEQA*, the construction of a pulp and paper mill is subject to environmental impact assessment”. That statement is incorrect. It is more accurate to write: “S. 2 (1) (1) of the Regulation respecting Environmental Impact Examination and Review (R.S.Q., 1981, c. Q-2, r.9) subjects the construction of pulp and paper mills to the environmental impact assessment and examination procedure described in ss. 31.1 and seq. of the *QEQA* and the issuing of a certificate of authorization by the government under s. 31.5 of that Act.”
- The 3rd paragraph discusses exemptions to suits for injunction and lists the following two cases where exceptions apply: 1) if the plaintiff can establish contravention of an approval, regulation or decontamination certificate or 2) if the plaintiff can demonstrate that an entire certificate of approval is null and void. In support of those two exceptions, the text refers to the note at the bottom of page 330, which quotes s. 19.7 of the *QEQA*. However, s. 19.7 of the *QEQA* only specifies the first exception case. This requires correction.

Page 87, 1st paragraph and footnote, section 6.6.2.1.1

The third sentence of the last paragraph refers to the two-year limit for bringing forward charges, with an exception for offenses relating to hazardous waste. The footnote associated with this information references article 110.1 of la Loi sur la qualité de l'environnement au Québec, which provides for another exception. Therefore, to avoid misrepresentation of the article in question the underlined words should be added to the above-mentioned sentence:

"Charges can only be brought within two years of the commission of the offense, except in cases of false representation or for offenses relating to hazardous waste, for which proceedings can be brought...".

Page 88, 1st paragraph, section 6.6.2.1.2

It is advisable to replace the word "Ministry" by "Minister", since it is he who has the power to impose different requirements;

Page 89, 1st paragraph

- The word "Ministry" should be replaced by the word "Minister".

Regarding the memorandum of agreement between Québec and the Association des industries forestières du Québec: *"Discussion of whether an agreement such as this, between an industry association and a government ministry regarding the ministry's exercise of statutory or regulatory powers, would apply to individual industrial establishments is beyond the scope of this factual record.* For the same reason, the paragraph that follows this statement should be deleted (i.e. the 2nd paragraph).

Page 90, first paragraph, section 6.6.2.2

The list of parameters covered by Québec's standards is incomplete. Hydrocarbons and polychlorinated biphenyls (PCBs) should be added.

Page 90, last paragraphe, 6.6.2.2

The wording is inaccurate and should be changed as follows: "... ss. 25-33 set average and daily discharge limits calculated by multiplying average production by an average or daily factor in kg/ton of production, for TSS,"

Page 91, second paragraph

The following wording should be changed in two places:

First sentence: add “daily” before “discharge”: “The Québec regulation limits daily discharges of suspended solids ...”

Fourth sentence: replace “must ... be” by “is”: “The RPR is normally above the average production rate for 30 days.”

Sixth sentence, replace with the following: “The effect is that, considering that the reference production rate is generally higher than average production and that the applicable standard is 15 % lower than the federal standard, allowable daily discharges of TSS under Québec provincial regulations are lower and stricter than those of the PPER.

{Translation for French version, p. 106: Il en résulte, considérant que le rythme de production de référence est généralement supérieur à la production moyenne et que la norme applicable est de 15 % inférieur à la norme fédérale, que les rejets quotidiens admissibles de MES en vertu du *Règlement du Québec* sont inférieurs et plus stricts que ceux du REFPF.}

Page 116, 4th paragraph

It is inaccurate to state that there is not a significant need for sludge handling and disposal. The quantities to be processed are very large and the production of sludge, though lower than for other types of biological processing, requires proper management at the basin level. Otherwise, TSS effluents standards cannot be met.

Page 121, 3rd paragraph and Table 8, Section 8

The Secretariat is again describing the 1993 draft strategy (see comments on section 6.5.2.1).

Page 158, Table 13

The table clearly shows that non-compliance dropped markedly not only in 1999, but in 1997 as well; with continuing improvement thereafter.

Page 161, 1st paragraph, 2nd sentence

The following sentence should be revised: "The sample failed the trout... *Fisheries Act*." In its current form, it does not make sense.

Page 173, section 8.4.6

Note 620 indicates that an Environment Canada warning letter was sent to AV Cell mill on August 20, 1999 regarding a sample collected in May 2000. The date of the warning should be changed to August 20, 2000.

Page 178, section 8.5.3

At point 8.5.3, it is indicated that primary and secondary sludges are spread. In the years in question, the sludges from this mill were composted or used on agricultural land.

Page 180, table 19

The title of the table should be changed to reflect exceedances of daily limits.

Page 181, section 8.5.5

"The report of the second cycle of EEM for the Tembec Saint-Raymond mill states:" This sentence should be clarified by replacing it with the following sentence: "The report of the second cycle of EEM sent to Environment Canada by the Tembec Saint-Raymond mill states:"

Page 182, 4th paragraph, section 8.5.6

"On July 7, 2000, Environment Canada inspectors received an application for investigation under the PPER concerning the alleged violations at the Tembec Saint-Raymond mill in December 1999 and January 2000". This sentence should be clarified and replaced by the following sentence: "On July 7, 2000, Environment Canada inspectors received an application for investigation under the PPER concerning alleged violations at the Tembec Saint-Raymond mill in February 2000. Subsequent violations were later added to the investigation file."

Page 185, section 8.6.1

It is mentioned that Arbec Forest Products operates the pulp mill. In fact, the operator is Katahdin pâte Québec Inc. Katadin Pulp Québec Inc. leases it from Arbec Forest Product Inc. which is the new corporate name of Uniforêt Inc.

Page 187, table 21, section 8.6.4

With regard to Daphnia, the table implies that there is a discharge requirement associated with this toxicity test. There is no federal discharge requirement to that effect. Rather, there is an accelerated follow-up obligation in terms of further testing. A note should therefore be included in the table to make that clear.

In this table, a discharge of 2,820 kg of BOD is indicated for February 28, 2000. That discharge is under the daily BOD limit; since this does not constitute an exceedance, it should be removed from the table.

The title of Table 20 should be corrected to reflect daily limits.

Page 189, 2nd sentence, section 8.6.7

“The 2002 EEM study report that Environment Canada states:” should be replaced by: “The 2002 EEM report, produced for the mill and submitted to Environment Canada, states:”

Page 190, 4th paragraph, section 8.6.6

The letter refers to exceedances in 2000, and not in 2001. This should be changed to 2000 [*Error in French version only*].

Page 194, Table 22, section 8.7.4

The title of the table should be changed to reflect exceedances of daily limits.

In this table, a 2,182 kg BOD discharge is indicated for October 27, 2000. As that discharge is under the daily BOD limit, it should therefore be removed from the table.

Page 197, section 8.7.5

“The 2002 report of EEM for the Fjordcell mill, (...) states:” should be replaced by: “The 2002 report of EEM, concerning Fjordcell and submitted to Environment Canada, (...) states:”.

Page 197, section 8.7.6

The mill provided a corrective plan in March 2001 and not August 2001. This action plan was provided to the provincial government following a notice of infraction issued in February 2001 concerning exceedances in the year 2000.

Page 199, 1st paragraph, section 8.7.6

The following statement is incorrect and should be removed; in addition, the table numbers incorrectly refer to tables relevant to Tembec and Uniforêt mills, respectively:

“Neither warning led to an on-site inspection or any other enforcement action with respect to the non-compliance in 2000 indicated in Tables 19 and 20, above”.

This sentence could be replaced by the following: “In September 2000, the Fjordcell file was sent to Environment Canada’s Investigations Section concerning alleged violations following two warnings. The subsequent violations were later added to the investigation file”.

Page 226 (French version only), section 8.7.6

The Fjordcell mill began operations in March 1999. A sentence indicates that the Secretariat does not have any information regarding compliance with the regulations for this mill before 1999. This should be specified since the wording implies that information was not provided. *[This sentence is absent in the English version.]*

Page 228 (French version only), section 8.8.2

Production processes. “rouleau asphalté” [roofing felt] is indicated as a finished product when it should say “carton feutre à toiture”. Using the term rouleau asphalté causes confusion and implies that an asphalt application was performed on-site when that is not the case. [The term is correct in the English version.]

Page 201, section 8.8.3

As the Secretariat was unable to obtain certain information from the mill during the development of the draft factual record, in order to have consistent information regarding each Québec mill,, the province of Québec has provided the following supplemental information: In 2000, the mill operated a primary treatment system that included filtering, a dissolved air flocculation/flotation unit and an aeration basin. This is the same treatment as mentioned in the last paragraph of section 8.8.7.

Page 228 (French version only), section 8.8.4

A typographical in the first line: It should read "DBO" and not "SBO". [*This is correct in the English version*]

Page 203, section 8.8.5

This following paragraph does not reflect the information found in the second cycle EEM report, nor does it reflect information in an extract from the second cycle report submitted by the mill in March 2000:

"Environment Canada states that the second cycle EEM for the MPI (La Compagnie J. Ford) indicated that "the overall effect of mill effluent was one of mild to moderate nutrient enrichment; the addition of phosphorous and nitrogen to the receiving environment caused by the release of pulp and paper mill effluent led to the growth of 'benthic invertebrates' (aquatic animal organisms that are found in sediments and that serve as food for fish). The community of those organisms showed an increase in at least one of the following key indicators: abundance, diversity and structure."

As the above information is incorrect, the paragraph should be replaced by the following statement: "The study of benthic community data indicates that there is a close exposed area discharge effect, resulting in a decrease mainly in the density of benthic organisms."

Page 206, section 8.9

"Information regarding the Uniforêt mill ..." should be replaced by "Information regarding the F.F. Soucy mill ...".

Page 234 (French version only), section 8.9.3

Translation error: Replace “station d’activation des boues” by “station de type boues activées”.

Appendix

Environment Canada staff had been informed by the Secretariat that individuals would not be named in the factual record. While names were not included in the body of the report, they were included in the appendices. Canada, therefore, requests that the names be removed.

ATTACHMENT 3

Comments of United States







**UNITED STATES ENVIRONMENTAL
PROTECTION AGENCY**
WASHINGTON, D.C. 20460

OFFICE OF
INTERNATIONAL AFFAIRS

May 2, 2006

Mr. William Kennedy
Executive Director
Secretariat of the Commission for Environmental Cooperation
393, rue St-Jacques West, bureau 200
Montreal QC H27 1N9

Re: Pulp & Paper Draft Factual Record

Dear Mr. Kennedy,

Thank you for providing the United States with a copy of the draft factual record for Submission SEM-02-003 (Pulp & Paper). The United States strongly supports the public submissions process provided for under Articles 14 and 15 of the North American Agreement on Environmental Cooperation (NAAEC) and welcomes the opportunity to review and comment on the Pulp & Paper draft factual record.

Although the term "factual record" is not defined in the NAAEC nor the *Guidelines for Submissions on Enforcement Matters under Articles 14 and 15 of the North American Agreement on Environmental Cooperation* ("Guidelines"), both of these sources provide guidance regarding the purpose of the factual record and the type of information it should include. A factual record should provide the public with an impartial presentation of the relevant facts but should not contain conclusions as to whether a Party is, in fact, effectively enforcing its environmental law. A factual record should provide the public with the information they need to draw their own conclusions regarding the effectiveness of the enforcement by a Party of its environmental law. It is with this backdrop that the United States provides its comments to the Secretariat on the Pulp & Paper draft factual record attached hereto.

The United States recognizes the substantial effort it took to prepare the Pulp & Paper draft factual record and greatly appreciates the Secretariat's effort in this regard.

Should you have any questions regarding the United States' comments, please do not hesitate to contact Nadtya Ruiz (202-564-1391) or Daniel Flores (202-564-0838).

Sincerely,

Judith E. Ayres
Assistant Administrator

Attachment

1. The United States generally supports the comments of the Government of Canada noted in Canada's comment transmittal letter. The United States wishes to stress that it is particularly important that, in preparing this and other factual records, the Secretariat hew precisely to the terms of the Council resolution authorizing such preparation, and that the Secretariat avoid drawing legal opinions and conclusions in the factual record. The United States notes that its general support of Canada's comments should not be read to constitute agreement by the United States with each and every legal interpretation offered by Canada in those comments.
2. The United States also makes the following, additional comments:
 - A. As was the case with past factual records, this draft factual record should not be finalized without a disclaimer that the document has been prepared by the Secretariat, and that the views contained therein do not necessarily reflect the views of the governments of Canada, Mexico or the United States of America.
 - B. The summary of the Submitters' general assertions (Sec. 2.1) should be modified, so that it includes only characterizations of the Submitters' legal assertions, and does not offer or appear to offer legal opinions or conclusions by the Secretariat. Specifically, the following text should be modified consistent with the following suggestions:
 1. P. 13, Para. 3, l.3, change "They note" to "They submit;"
 2. P. 13, Para. 4, l.1, change "The Submitters note" to "The Submitters indicate;"
 3. P. 14, Para. 2, l.4, change "... 2000 and note" to "... 2000 and suggest;"
 4. P. 14, Para. 2, l.5, change "They note" to "They contend;"
 5. P. 14, Para. 2, l.9, change "... tests, failure to conduct" to "... tests, they submit that failure to conduct;"
 6. P. 14, Para. 2, l.13, change "... offense under the *Fisheries Act*" to "... offense under the *Fisheries Act*, claim Submitters."

3. Miscellaneous typographical errors should be corrected.

In order to facilitate the United States' review of the final Factual Record and increase the timeliness of making a decision on publication, the United States requests that the Secretariat provide it with an electronic version of the final Factual Record in "revision mode." In addition, the United States notes that, as a matter of procedure, its comments are not to be made public unless and until their publication is authorized consistent with the NAAEC.

