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**Environmental Control of the Mining Industry  
in Canada and Chile:  
A Comparative Review of  
Legal and Regulatory Requirements**

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Prepared for:

The Canadian Environmental Law Association  
and Observatorio De Conflictos Ambientales De Chile

Prepared by:

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CHILE**

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**OCTOBER 1998**

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## I. INTRODUCTION

Recent bilateral free trade negotiations between Canada and Chile, including the negotiation of a parallel agreement on environmental cooperation,<sup>1</sup> have stimulated interest in the existing and prospective legislative and regulatory regimes in place in both countries for protection of the environment. Nowhere has this been more in evidence than with respect to the issue of environmental control of mining activities due to increased interest by Canadian firms in investing in the establishment and expansion of mining operations in Chile,<sup>2</sup> as well as in other Latin and South American countries.<sup>3</sup> The purpose of this report is to identify, describe, and evaluate existing and prospective environmental requirements in the laws of Canada and Chile at the national and sub-national level relating to establishment, operation, and de-commissioning of mining activities.

Part II of this report will describe the nature of environmental problems arising from mining activities, including identifying key mine types and phases, mining activities, and resulting environmental effects. Part III will examine constitutional considerations in both countries in environmental control of mining activities. Part IV will look at common law and civil law protection of the environment applicable to mining operations. Part V will examine the applicable statutory regimes in place in both countries to protect the environment from mining activities, including environmental planning and impact assessment laws, more traditional emission, discharge and waste management control regimes under both environmental and mining statutes, as well as the role recognized for the public in protection of the environment and natural resources. Part VI will consider emerging initiatives in both countries regarding environmental control of mining activities. Part VII will provide a brief concluding assessment and recommendations respecting environmental controls of mining activities in both countries.

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<sup>1</sup> Free Trade Agreement Between Chile and Canada, and Agreement on Environmental Cooperation Between Chile and Canada (1997).

<sup>2</sup> RENACE, CHILE-CANADA BILATERAL AGREEMENT DOES NOT ASSURE ENVIRONMENTAL PROTECTION 2 (1997)(Canadian mining companies invested a reported \$5,000,000,000 in Chile in 1995).

<sup>3</sup> See, e.g., Bart Jones, *Venezuelan activists defend 'Eden,'* Globe and Mail (Toronto), Aug. 20, 1997, at B9 (noting that Venezuelan environmentalists are opposing plans by the Vancouver-based mining firm Placer Dome Inc. and the Venezuelan government to establish an open pit mine nearly two kilometers square near the Brazilian border to extract what is thought to be the largest gold deposit in Latin America).

## II. NATURE OF ENVIRONMENTAL PROBLEMS FROM MINING ACTIVITIES IN CANADA AND CHILE

A proper understanding of potential environmental problems from mining activities must begin with an adequate understanding of the types and phases of mining operations as well as associated activities likely to be found in either country.

### A. Mine Types, Phases, and Activities

Mine types fall into three basic categories: (1) metal; (2) non-metal; and (3) energy-related. Metal mines include base metal,<sup>4</sup> uranium, iron ore, and gold mines.<sup>5</sup> Non-metal mines include salt, quartzite, and related industrial minerals.<sup>6</sup> Energy-related mines include surface and underground coal mines.<sup>7</sup> There are essentially four phases to mining: (1) exploration; (2) mining and milling; (3) smelting and refining; and (4) mine closure.<sup>8</sup>

There are a variety of activities associated with each phase of mining. The exploration phase of mining may include: (1) prospecting; (2) airborne and ground-based geochemical and geophysical surveys; (3) claim staking; (4) line cutting; (5) stripping; (6) drilling and trenching; (7) road/trail building and/or helicopter transport; and (8) bulk sampling. The mining and milling phase may include: (1) feasibility, engineering design and environmental impact assessment studies; (2) mine construction and pre-production; (3) stripping/storing of soil and vegetation overburden; (4) ore extraction; (5) crushing or grinding of ore; (6) flotation or chemical concentration of ore; (7) mine and surface water treatment; and (8) storage of waste rock and tailings. The smelting and refining phase may include subjecting mineral concentrate to high heat or electro-chemical process to form ingots or bars of pure metal or alloy. Finally, the mine closure phase may include: (1) recontouring of pit walls and waste dumps; (2) covering of reactive tailings dumps; (3) decommissioning of roads; (4) dismantling of buildings; (5) re-seeding/planting of disturbed areas; (6) ongoing monitoring; (7) possible treatment for water quality; (8) other mine reclamation activity; (9) and abandonment.<sup>9</sup>

### B. Environmental Effects

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<sup>4</sup> Base metal mines may include: nickel, lead, copper, and zinc.

<sup>5</sup> Ontario and the federal government, for example, regulate metal mines for discharges to water under several provincial and federal laws. See *infra* part V.B.

<sup>6</sup> Ontario also regulates non-metal mines for discharges to water under several provincial environmental laws. See *infra* part V.B.

<sup>7</sup> ENV'T CANADA, THE STATE OF CANADA'S ENV'T, 11-53 (1996)[hereinafter STATE OF CANADA'S ENV'T].

<sup>8</sup> HOUSE OF COMMONS STANDING COMM. ON NATURAL RESOURCES, STREAMLINING ENVTL. REGULATION FOR MINING: FINAL REPORT 3 (1996)[hereinafter STREAMLINING ENVTL. REGULATION].

<sup>9</sup> *Id.* See also ENVTL. MINING COUNCIL OF B.C., ENVTL. CONSIDERATIONS FOR MINERAL DEVELOPMENT 1 (1996)[hereinafter B.C. ENVTL. MINING COUNCIL I]; and ENVTL. MINING COUNCIL OF B.C., MORE PRECIOUS THAN GOLD (DRAFT)10 (1997)[hereinafter B.C. MINING COUNCIL II].

Each phase of mining carries with it the potential for environmental impact. In the exploration phase environmental effects may include: (1) land alienation from protection options; (2) camp garbage; (3) trail/road and trenching erosion; (4) disruption of habitat as well as harvesting and fishing activities; (5) noise pollution; and (6) acid mine drainage. In the mining and milling phase environmental effects may include: (1) wildlife and fisheries habitat loss; (2) changes in local water balance; (3) increased erosion and sedimentation of lakes and streams; (4) containment of toxins in tailings ponds or leaching solutions; (5) tailings ponds or leaching pads stability failure; (6) potential acid generation from waste rock and pit walls; (7) heavy metal leaching from acid mine drainage; (8) cyanide solution containment at heap leach operations; (9) contamination of surface water and groundwater from discharge of acid mine drainage including heavy metals originating in ore and tailings, and organic chemicals and cyanide originating from milling processes; (10) alienation of land as a result of waste rock piles and tailings disposal areas; and (11) noise and wind borne dust. In the smelting and refining phase environmental effects may include: (1) heavy metals, organics, and sulphur dioxide emissions to air; (2) discharges of toxic chemicals, such as sulphuric acid and ammonia used during processing; (3) alienation of land as a result of the generation of slag; and (4) high energy consumption resulting in indirect environmental impacts. In the mine closure phase environmental effects may include: (1) seepage of toxic contaminants, such as heavy metals, into surface water and groundwater from acid mine drainage; (2) wildlife and fisheries habitat loss; (3) alienation of land; (4) revegetation failure; (5) wind borne dust; and (6) slope and tailings impoundment failure causing discharge of contaminants and sediments to water.<sup>10</sup> A summary of mine phases, activities, and associated environmental effects appears in Appendix I to this report.

### III. CONSTITUTIONAL CONSIDERATIONS IN ENVIRONMENTAL CONTROL OF MINING ACTIVITIES

Constitutional authority over mining activity may be invoked by government in the capacity of owner of resources to be mined as well as that of regulator. This part of the report sets out the constitutional basis for such legislative control of mining activities on public and private lands under both the Canadian and Chilean Constitutions.

#### A. Canadian Constitution

Canada is a federal state, with powers divided between the federal and provincial levels of government under the Canadian Constitution. In Canada, the environment is too general a subject to be assigned by the Canadian Constitution exclusively to either the federal or provincial level of government.<sup>11</sup> It is an aggregate of matters, which come within various classes of subjects, some of which are within federal jurisdiction, others of which come within provincial jurisdiction.<sup>12</sup> The Canadian Constitution can be said, therefore, to distribute the legislative basis for environmental control of mining activities between both levels of government.<sup>13</sup> The Canadian Constitution also provides the potential for protection of the

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<sup>10</sup> STREAMLINING ENVTL. REGULATION, *supra* note 8, at 3; B.C. ENVTL. MINING COUNCIL I, *supra* note 9, at 1; B.C. ENVTL. MINING COUNCIL II, *supra* note 9, at 10; and WORLD BANK, CHILE: MANAGING ENVIRONMENTAL PROBLEMS-ECONOMIC ANALYSIS OF SELECTED ISSUES 18-20 (1994).

<sup>11</sup> Friends of Oldman River Soc'y v. Can., [1992] 1 S.C.R. 3, 63-64, 70.

<sup>12</sup> PETER W. HOGG, CONSTITUTIONAL LAW OF CANADA 29-19 TO 29-20 (3d ed. 1992).

<sup>13</sup> CAN. CONST. (Constitution Act, 1867), ss.91-92.

individual from state action.<sup>14</sup> The extent to which this authority may protect the individual from environmental impacts from mining activities, or restrict the right of government to enact and enforce legislation to protect the environment, is explored below.

## 1. Division of Powers

### a) Federal Powers

Federal power to exercise environmental control over mining activities arises from ownership of public property, such as federal lands,<sup>15</sup> and the authority to regulate pursuant to such general powers as the criminal law power,<sup>16</sup> and the peace, order, and good government clause.<sup>17</sup> Other federal heads of power provide a significant, if more focused, basis for legislative control of mining activities including the power to legislate with respect to seacoast and inland fisheries,<sup>18</sup> and in relation to works declared by the Parliament of Canada to be for the general advantage of Canada.<sup>19</sup> The constitutionality of several federal environmental and natural resource laws has been considered by the courts, including the Supreme Court of Canada. In general, the cases suggest that where federal environmental laws address matters of national concern or dimension,<sup>20</sup> stay within "criminal" penalty-type enforcement mechanisms,<sup>21</sup> or focus on protection or conservation of a resource specifically entrusted to the federal government (e.g.

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<sup>14</sup> CAN. CONST. CHARTER OF RIGHTS AND FREEDOMS. (Constitution Act, 1982), pt. I, s.7.

<sup>15</sup> CAN. CONST. (Constitution Act, 1867), s.91(1A)(public debt and property).

<sup>16</sup> *Id.*, s.91(27).

<sup>17</sup> *Id.*, preamble to s.91.

<sup>18</sup> *Id.*, s. 91(12).

<sup>19</sup> *Id.*, s. 92(10)(c).

<sup>20</sup> See, e.g., *R. v. Crown Zellerbach Ltd.*, [1988] 1 S.C.R. 401 (federal regulation of marine pollution within provincial boundary waters upheld under predecessor statute to the Canadian Environmental Protection Act ("CEPA") pursuant to national concern test of peace, order, and good government power, because marine pollution pre-dominantly extra-provincial as well as international in character and clearly a matter of concern to Canada as a whole). For a federal law to be upheld under the national concern test pursuant to the peace, order, and good government clause, the government must show that the matter has a singleness, distinctiveness, and indivisibility that clearly distinguishes it from matters of provincial concern and a scale of impact on provincial jurisdiction that is reconcilable with the fundamental distribution of legislative powers under the constitution. In determining whether the matter has attained such characteristics it is relevant to consider what would be the effects on extra-provincial interests of a provincial failure to deal effectively with the control or regulation of the intra-provincial aspects of the matter. *Crown Zellerbach*, 1 S.C.R. at 431-432. See also *Re Can. Metal Co.* (1982), 144 D.L.R. (3d) 124 (Man. Q.B.) (air pollution from lead smelter satisfied national concern test).

<sup>21</sup> In order to qualify as valid federal legislation under the criminal law power, a statute must meet two requirements. First, it must have a valid criminal law object. Second, it must address that object by means of prohibitions accompanied by penal sanctions. See, e.g., *Re Can. Metal Co.* (1982), 144 D.L.R. (3d) 124 (Man. Q.B.) (upholding provisions of former Clean Air Act - now CEPA - under criminal law power). See also *RJR-MacDonald Inc. v. Can. (A.G.)*, [1995] 3 S.C.R. 199, 240; and *R. v. Hydro-Que.*, File No. 24652, at \_ (Sup. Ct. of Can. Sept. 18, 1997)(prohibitions under CEPA preventing entry into the environment of certain toxic substances and interim orders issued under CEPA to control PCBs meet these two requirements for valid federal legislation under the criminal law power).



fisheries),<sup>22</sup> they may be upheld by the courts, and will not be seen as interfering with property, generally a provincial subject matter. The constitutionality of federal environmental impact assessment procedures have been upheld on the basis of all the relevant subject matters of s. 91 of the Canadian Constitution, including the peace, order, and good government clause.<sup>23</sup> The constitutionality of federal law regulating the uranium industry has been upheld by the courts on the basis of the declaratory power and the peace, order, and good government power.<sup>24</sup> As a result, prospecting for, mining, refining, and handling uranium may be regulated under federal law.<sup>25</sup>

### **b) Provincial Powers**

Provincial power to exercise environmental control over mining activities arises from the authority to legislate with respect to the management of public lands belonging to the province,<sup>26</sup> property and civil rights in the province,<sup>27</sup> matters of a merely local or private nature in the province,<sup>28</sup> local works and undertakings in the province,<sup>29</sup> and non-renewable natural resources.<sup>30</sup> The constitutionality of several provincial environmental and natural resource laws also has been considered by the courts, including the Supreme Court of Canada. The courts have upheld broad provincial environmental legislation prohibiting the emission of contaminants into the natural environment on the basis of the provincial power over property and civil rights.<sup>31</sup> Provincial regulation of mining activities also has been upheld by the courts

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<sup>22</sup> The power to protect the environment of fish is not a general power to regulate water pollution. See, e.g., *Fowler v. The Queen*, [1980] 2 S.C.R. 213 (section 33(3) of Fisheries Act prohibiting logging and land clearing operations that may place debris in water frequented by fish, declared unconstitutional as provision did not link the prescribed conduct to actual or potential harm to fisheries). See also *Northwest Falling Contractors v. The Queen*, [1980] 2 S.C.R. 292 (section 33(2) of Fisheries Act prohibiting deposit of deleterious substances in water frequented by fish upheld as within federal fisheries power as it was based on a direct link between the prescribed activity and protection or conservation of fish).

<sup>23</sup> *Friends of Oldman River Soc'y v. Can.*, [1992] 1 S.C.R. 3, 73 (federal government authorized to impose environmental assessment requirement on provincial government hydroelectric project where project had an effect on various areas of federal responsibility such as navigable waters, fisheries, and Indians and Indian lands).

<sup>24</sup> *Ont. Hydro v. Ont.*, [1993] 3 S.C.R. 327 (upholding the Atomic Energy Control Act).

<sup>25</sup> HOGG, *supra* note 12, at 29-5 to 29-6.

<sup>26</sup> CAN. CONST. (Constitution Act, 1867), s. 92(5).

<sup>27</sup> *Id.*, s. 92(13).

<sup>28</sup> *Id.*, s. 92(16).

<sup>29</sup> *Id.*, s. 92(10)(a).

<sup>30</sup> *Id.*, s. 92A. Each province may make laws in relation to exploration for non-renewable natural resources, and the development, conservation and management of non-renewable natural resources, including laws in relation to the rate of primary production therefrom, as well as taxation of such resources. Production from a non-renewable natural resource is primary production therefrom if it is in the form in which it exists upon its recovery or severance from its natural state, or it is a product resulting from processing or refining the resource. *Id.*

<sup>31</sup> *R. v. Lake Ont. Cement Ltd.* (1973), 2 O.R. 247 (Ont. H.C.).

under the power to legislate in regard to local works and undertakings.<sup>32</sup> Provincial laws may have greater difficulties being upheld, however, where they purport to regulate the activities of federally regulated businesses, particularly those declared by the Parliament of Canada to be for the general advantage of Canada,<sup>33</sup> or where they attempt to legislate with regard to interprovincial pollution problems.<sup>34</sup>

## 2. Charter of Rights and Freedoms

The Charter of Rights and Freedoms entrenches certain fundamental liberties in the Canadian Constitution by limiting the right of government to interfere with those liberties,<sup>35</sup> except to the extent that government can show that such interference is demonstrably justified.<sup>36</sup> The courts have not been willing to invoke the Charter as a basis for protecting property owners who argue that state action in approving development activities diminish their use and enjoyment of property or their local environment.<sup>37</sup> The Supreme Court of Canada, however, has upheld broad and general pollution prohibitions frequently contained in provincial environmental statutes from Charter challenge, finding such generally worded laws to be justified in pursuing the public policy objective of environmental protection.<sup>38</sup>

### B. Chilean Constitution

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<sup>32</sup> Re Nat'l Energy Bd. Act, [1988] 2 F.C. 196 (F.C.A.).

<sup>33</sup> R. v. Eldorado Nuclear Ltd., (1981), 34 O.R. (2d) 243 (Ont. Div. Ct.)(federal Crown corporation that discharged radioactive material from its uranium reprocessing facility into one of the Great Lakes could not be convicted of water pollution under Ontario environmental protection legislation).

<sup>34</sup> Interprovincial Cooperatives Ltd. and Dryden Chemicals Ltd. v. The Queen, [1976] 1 S.C.R. 477 (legislation in one province that is otherwise constitutionally valid, cannot be applied to activities in an adjoining province that contaminate the rivers of the first province. Thus, Manitoba legislation that purported to remove barriers to fishermen suing for compensation arising from mercury pollution originating in Ontario and Saskatchewan was declared invalid by the Supreme Court of Canada on the grounds that the victim province could not pass laws governing activities in a different province).

<sup>35</sup> CAN. CONST. CHARTER OF RIGHTS AND FREEDOMS. (Constitution Act, 1982), pt.I, s.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).

<sup>36</sup> *Id.*, s.1(Charter of Rights and Freedoms guarantees the rights and freedoms set out in it subject only to such reasonable limits prescribed by law as can be demonstrably justified in a free and democratic society).

<sup>37</sup> Manicom v. County of Oxford (1985), 21 D.L.R. (4th) 611 (Ont. H.C.J.)(section 7 of Charter did not protect property owners who argued against provincial cabinet approval of waste disposal site).

<sup>38</sup> R. v. Can. Pac. Ltd. (1995), 17 C.E.L.R. (N.S.) 129 (S.C.C.) (section 13(1)(a)[now section 14(1)(a)] of Ontario Environmental Protection Act prohibiting discharges into natural environment that may cause an adverse effect not unconstitutionally vague under s. 7 of Charter). Legislatures are justified in choosing broad language in order to pursue the public policy objective of environmental protection. Environmental laws in other provinces, and at the federal level, contain similarly broad pollution prohibitions. A finding of unconstitutionality of the Ontario statute would place the prohibitions in these other environmental laws in constitutional jeopardy and impede the ability of the legislature to provide for environmental protection, and constitute a significant social policy setback. *Can. Pac. Ltd.* 17 C.E.L.R. (N.S.) 162-163.

Chile is a unitary state. As a result, the national government has free rein under the Chilean Constitution to legislate with respect to the development and protection of the country's natural resources. Moreover, as much mining activity takes place on public lands, the national government can control mining activity in its capacity as both owner of the resource as well as regulator. Several other provisions of the Chilean Constitution may also apply to control environmental effects of mining activity including the guarantee of integrity of life to every Chilean citizen, and the guarantee of a right to live in a contamination free environment.<sup>39</sup>

### III. COMMON LAW AND CIVIL LAW PROTECTION OF THE ENVIRONMENT FROM MINING ACTIVITIES

Canada is both a common law and civil law jurisdiction. Chile is a civil law jurisdiction. This part of the report summarizes the development of judge-made law and principles in both countries that can be employed, in the absence of regulatory or administrative action, to protect the environment from mining activities.

#### A. The Common Law Regime in Canada

Nine of the provinces in Canada are common law jurisdictions.<sup>40</sup> In these jurisdictions, there are a variety of common law causes of action available to individuals seeking redress for environmental damage or injury caused by activities such as mining operations. The causes of action include: (1) negligence; (2) trespass; (3) private nuisance; (4) riparian rights; (5) strict liability; and (6) public nuisance. A wide array of remedies may be available including damages, injunctions, and declarations. However, there are a number of defences available to these actions<sup>41</sup> and provincial mining legislation has sometimes supplemented, if not superseded, common law rights of redress.<sup>42</sup>

#### 1. Common Law Causes of Action

Each of the causes of action discussed below have potential application in varying degrees to each phase of mining from exploration, mining and milling, smelting and refining, to mine closure, and the associated mining activities for each phase.

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<sup>39</sup> CONST. CHI. art. 20(acts resulting in damage to rights), art.19(1) (right to life), art.19(8)(right to live in a contamination free environment), art.19(24)(protection of property). Where these rights are infringed, the person adversely affected may request a court to order the offending party to cease the activity. This remedy is called the remedy of protection. The Chilean courts have invoked the Constitution in at least one case to order a mining company to cease activities causing water pollution, though not to clean up past environmental damage.[NEED CASE REF.]

<sup>40</sup> British Columbia, Alberta, Saskatchewan, Manitoba, Ontario, New Brunswick, Nova Scotia, Prince Edward Island, and Newfoundland and Labrador.

<sup>41</sup> The defences include: (1) standing to sue; (2) statutory authority; (3) prescription; and (4) acquiescence. These defences are discussed *infra* part IV.A.2.

<sup>42</sup> Mining Act, R.S.O. 1990, c. M.14, s.175 (easement authorized to dump tailings on lands of any person subject only to right of compensation). Discussed *infra* part IV.A.3.

Negligence is conduct that breaches a standard of care owed to a person who is harmed by that conduct. The elements to be proved by the plaintiff include: (1) the plaintiff is within a class of persons to whom the defendant owed a duty of care; (2) the defendant's conduct fell below the standard required of a reasonable person engaged in the particular activity; (3) foreseeable damage resulted from the breach of duty.<sup>43</sup> Negligence is also available against public authorities where harmful conduct is approved or where agency officials fail to take steps to prevent harm where they knew or ought to have known that harm would result.<sup>44</sup> Recently, fear of future lawsuits have prompted Ontario environment ministry officials to develop defences to claims of regulatory negligence.<sup>45</sup>

Trespass is the physical invasion of property by people or objects, however minute the invasion, without the consent of the owner or occupant. Liability in trespass does not depend on proof of damages.<sup>46</sup> To deposit a foreign substance such as water, garbage, or other waste on the property of another, and in doing so disturb his or her possession of property, however slight the disturbance, constitutes trespass, regardless of whether the substance is toxic or non-toxic.<sup>47</sup>

Private nuisance is the unreasonable interference with the owner's or occupier's use and enjoyment of land. Liability in private nuisance does not depend on physical invasion of land, as does trespass, nor on interference with exclusive possession. The essence of private nuisance, which may be either physical damage or disturbance of occupation, is an interference with an owner's or occupier's interest in the beneficial use of his or her land. The reasonableness of the interference depends upon the degree of impact that it has on a neighbour's enjoyment of his or her property, not on how useful, necessary, or diligent is the offending activity.<sup>48</sup>

Riparian rights refer to rights to the use and enjoyment of water in a stream, river, or lake arising from possession of land bordering on the water. An interest in the land gives a person the right to the continued flow of the water in its natural quantity and quality in an undiminished and unpolluted state. Actual damage need not be shown, just a deterioration in the quality of water flowing past the riparian's land.<sup>49</sup>

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<sup>43</sup> William Charles & David Vanderzwaag, *The Common Law Approach*, in ENVIRONMENTAL POLICY AND LAW 90 (Elaine L. Hughes et al. eds., 1993).

<sup>44</sup> *Just v. B.C.*, [1989] 2 S.C.R. 1228 (while a public authority is not liable where conduct that results in harm is the result of a policy decision, liability in negligence may result if the conduct that results in harm arises from the operation of the policy, such as an inadequate system of inspection implemented pursuant to the policy).

<sup>45</sup> Martin Mittelstaedt, *Ontario prepares negligence defence; environment officials fear lawsuits*, *Globe and Mail* (Toronto), Feb. 18, 1997, at A1, A11.

<sup>46</sup> *Kerr v. Revelstoke Building Materials Ltd.* (1976), 71 D.L.R. (3d) 134, [1976] W.W.D. 139 (Alta. S.C.T.D.) (physical invasion of motel business by smoke, sawdust and fly ash from nearby lumber operation).

<sup>47</sup> *Friesen v. Forest Products Ltd.*, (1978), 22 N.B.R. (2d) 146 (N.B.S.C.Q.B.D.) (pesticide spray drift).

<sup>48</sup> *Schenck v. Her Majesty the Queen in Right of Ont.*, (1981), 34 O.R. (2d) 595 (Ont. H.C.) (salt applied to highway by provincial agency causing damage to fruit farm). See also *Steadman v. Erickson Gold Mining Corp.*, (1987), 2 C.E.L.R. (N.S.) 127 (B.C.S.C.), (1989), 35 B.C.L.R. (2d) 130 (B.C.C.A.) (silt contamination of plaintiff's surface water and groundwater arising from construction of road by mining company on land adjacent to plaintiff's land constituting private nuisance).

<sup>49</sup> *Gauthier v. Naneff*, [1971] 1 O.R. 97 (Ont. H.C.J.).

Strict liability arises from the act of a person bringing onto his or her land something which is "not naturally" there, and which is likely to cause harm if it escapes. If it does escape, the person may be required to compensate another for injury or damages even though the loss was neither intentionally or negligently inflicted.<sup>50</sup>

Public nuisance is an unreasonable interference with a right common to all members of the general public. However, a private citizen may only bring an action in public nuisance upon suffering a harm different from the harm suffered by the general public. Where a plaintiff's injury is common to all and is no greater than that of other members of the public, only the Attorney-General may sue in public nuisance to vindicate the right.<sup>51</sup> Recent statutory reforms in Ontario now permit any person to bring an action who has suffered or may suffer a direct economic loss or direct personal injury as a result of a public nuisance causing environmental harm, without the consent of the Attorney-General and whether or not other persons have been similarly injured.<sup>52</sup>

## 2. Defences

Defences to one or more of the common law causes of action that may be employed in the context of environmental impacts from mining activities include: (1) standing to sue; (2) statutory authority; (3) prescription; (4) acquiescence; (5) act of God; (6) deliberate act of a third person; and (7) default of the plaintiff. These defences are briefly described below.

Lack of standing to sue arises primarily in the context of a public nuisance action. Unless the plaintiff can demonstrate special damage beyond that suffered by the general public, only the Attorney-General may sue in public nuisance to vindicate the right.<sup>53</sup>

If a public authority has acted in conformity with its legislative mandate in approving or regulating an activity with potential environmental consequences, or if a member of the regulated community has complied with the terms and conditions of any permits issued to it or with other regulatory requirements, then these entities may not be liable for harm caused to private persons. A legislature can specifically authorize a tort (e.g. negligence, nuisance, etc.) and can also provide for compensation for harm caused. Normally, however, the legislature is silent on such authorization or compensation issues. In these situations, the courts have had to interpret the statutory purposes and context and have only allowed the defence of statutory authority to succeed if: (1) the defendant has specific statutory authority to proceed with the activity; (2) the statute under which the defendant acted expressly or impliedly authorized the tort; and/or (3) the tort was the inevitable consequence of what the statute authorized and contemplated.<sup>54</sup> Canadian courts have traditionally "read down," or narrowly interpreted, statutory provisions authorizing particular activities so as to minimize interference with the personal and property rights of individuals harmed by such activities.<sup>55</sup>

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<sup>50</sup> Rylands v. Fletcher, (1868), L.R. 3 H.L. 330 (H.L.) (flooding of mining works by reservoir).

<sup>51</sup> Hickey v. Elec. Reduction Co. Of Can. Ltd., (1971), 21 D.L.R. (3d) 368 (Nfld. S.C.).

<sup>52</sup> Environmental Bill of Rights, S.O. 1993, c.28, s.103.

<sup>53</sup> Hickey 21 D.L.R.at 369.

<sup>54</sup> Charles & Vanderzwaag, *supra* note 43, at 122-123. See also Stephens v. Village of Richmond Hill, [1956] O.R. 88 (Ont. C.A.).

<sup>55</sup> See, e.g. City of Portage La Prairie v. B.C. Pea Growers Ltd., [1966] S.C.R. 150; and Tock v. St. John's Metro Area Board, [1989] 2 S.C.R. 1181.

Prescription refers to the right to pollute a neighbour's lands that is acquired by one who has caused a private nuisance continuously for twenty years with the neighbour's knowledge and acquiescence. Where a court finds that a prescriptive right has been acquired, the court will not uphold the plaintiff's claim.<sup>56</sup> However, prescription is not a defence to an action in public nuisance.

Acquiescence refers to conduct by a plaintiff in expressly consenting or actively encouraging the offending activity of a defendant. Where the court finds acquiescent conduct by a plaintiff, the action will be barred. However, merely standing by will not constitute acquiescence by a plaintiff.<sup>57</sup>

Other defences such as acts of God,<sup>58</sup> deliberate acts of third persons,<sup>59</sup> or a plaintiff's consent to, or default in connection with, the conduct of a defendant<sup>60</sup> may be available to defendants in certain rare and limited circumstances.

### 3. Mining Legislation Limitations on Common Law Rights of Redress

The mining legislation of certain common law provinces may provide mining companies with certain rights or easements on neighbouring lands to conduct mining activities. These provisions can have the effect of limiting persons harmed to monetary compensation, as opposed to an injunction, for any damage caused by such activities. In Ontario, for example, the owner of a mine or mill may obtain an order from the Mining Commissioner of Ontario following a hearing to: (1) open, construct, and use ditches, tunnels, flumes, or other conduits on any land for the drainage or conveyance of water; (2) discharge water on any land through drainage or other means; (3) drain, divert, or lower the water of any lake, stream, river, pond, or watercourse, whether or not the water is on the land of another person or that other person may have rights in the water; (4) dam water even though it may overflow other land; (5) obtain rights of way over any lands for the construction of roads or transmission of electricity; (6) enter upon and use in connection with the working of his or her mine a specified area of other land; and (7) deposit tailings, slimes, or other waste products upon any land, or discharge such materials into any water, so long as the effects of such deposit or discharge are not injurious to life or health.<sup>61</sup> Where such rights or easements are granted to mining companies, the Mining Commissioner must order reasonable compensation to the person whose land has been or will be effected by the mining activities.<sup>62</sup>

#### B. The Civil Law Regime in Canada and Chile

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<sup>56</sup> *Schenck* 34 O.R. 608.

<sup>57</sup> ALLEN M. LINDEN, *CANADIAN TORT LAW* 516 (4th ed. 1988).

<sup>58</sup> *Id.* at 486-487 ("act of God" refers to an unforeseeable and unavoidable natural phenomenon such as a flood, tornado, or earthquake).

<sup>59</sup> *Id.* at 518 (act of a third person refers to an act of sabotage or related action by a person outside the control of the defendant).

<sup>60</sup> *Id.* at 517 (an example would be contributory negligence by plaintiff).

<sup>61</sup> Mining Act, R.S.O. 1990, c. M.14, s. 175(1)(a)-(i), as am.

<sup>62</sup> *Id.*, s. 175 (2)(3).

Both the province of Quebec and Chile are civil law jurisdictions. This part of the report reviews relevant provisions of the Quebec and Chile Civil Codes that may have relevance to redress of environmental damage from mining activities.

## 1. Quebec Civil Code

Civil law concepts of abuse of rights are analogous to those found in the common law regarding potential or actual environmental damage between private parties, though the civil law does not recognize the difference between private and public nuisance.<sup>63</sup> Several obligations created by the new Civil Code of Quebec<sup>64</sup> can play a significant role in environmental protection. For example, under Article 1457 "every person has a duty to abide by the rules of conduct which lie upon him....so as not to cause injury to another."<sup>65</sup> Where such person is "endowed with reason and fails in this duty, he is responsible for any injury he causes to another person and is liable to reparation for the injury..."<sup>66</sup> Such person is also liable for "injury caused to another by the act or fault of another person or by the act of things in his custody."<sup>67</sup> This provision and a related one<sup>68</sup> are new under the Civil Code of Quebec, which has only recently come into force.<sup>69</sup> However, they are the successors to provisions under the former Civil Code of Lower Canada<sup>70</sup> which had long been applied by the Quebec courts to redress environmental harm,<sup>71</sup> including harm arising from mining activities.<sup>72</sup> These provisions rely on fault as a requirement which is a mixture of concepts of intent, negligence, and balance of harm, though in certain environmental cases the Quebec courts have presumed fault.<sup>73</sup> Other provisions in the new Civil Code of Quebec may make it easier in

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<sup>63</sup> Lorne Giroux, *Environmental Law in Quebec*, in ENVIRONMENTAL LAW AND POLICY 152 (Elaine L. Hughes et al. ed., 1993).

<sup>64</sup> Civil Code of Quebec, S.Q. 1991, c. 64.

<sup>65</sup> *Id.*, art. 1457.

<sup>66</sup> *Id.*

<sup>67</sup> *Id.*

<sup>68</sup> *Id.*, art. 1462. Article 1462 states that: "No person is liable for injury caused to another by an act or omission of a person not endowed with reason except in the cases where the conduct of the person not endowed with reason would otherwise have been considered wrongful."

<sup>69</sup> The Civil Code of Quebec came into force in 1994.

<sup>70</sup> Civil Code of Lower Canada, S.Q. 1980, c. 39, art. 1053. Article 1053 stated that: "Every person capable of discerning right from wrong is responsible for the damage caused by his fault to another, whether by positive act, imprudence, neglect, or want of skill."

<sup>71</sup> Giroux, *supra* note 63, at 152-156. Remedies for breach of these obligations include damages and injunctive relief. *Id.* at 152.

<sup>72</sup> See, e.g., *Lachance v. Carey Canadian Mines*, [1982] R.L. 362 (air pollution).

<sup>73</sup> *Canadian Paper Co. v. Brown*, (1922), 63 S.C.R. 243 (fumes and odours from defendant's sulphate paper plant causing occupant of neighbouring property intolerable inconvenience and loss of habitability sufficient to find fault pursuant to Article 1053).

future for the Quebec courts to find environmental liability without proof or presumption of fault.<sup>74</sup> The Civil Code of Quebec also recognizes concepts of riparian rights and obligations.<sup>75</sup>

Defences to civil law theories of liability, such as governmental authority for defendant's conduct, have traditionally succeeded only if the permitted activity occurs in a manner which does not exceed the normal measure of inconvenience that should be acceptable in the circumstances. Commentators have suggested that specific environmental approvals, especially those setting allowable emission or effluent limits, may be a more difficult defence for the Quebec courts to reject in future.<sup>76</sup>

## 2. Chilean Civil Code

Although the Chilean Civil Code does not recognize the general principle of abuse of rights, the principle may be inferred from other principles in the Civil Code respecting relationships between neighbours and management of certain natural resources.<sup>77</sup>

## IV. STATUTORY REGIMES APPLICABLE TO PROTECTION OF THE ENVIRONMENT FROM MINING ACTIVITIES IN CANADA AND CHILE

This part of the report focuses on three aspects in the development of legislation respecting environmental protection from mining activities in Canada and Chile: (1) environmental planning and impact assessment legislation; (2) regulatory legislation controlling emissions and discharges of contaminants to the environment, as well as management of mining activities, such as exploration and reclamation; and (3) the role of the public in administrative and judicial processes relating to protection of the environment.

### A. Environmental Planning and Impact Assessment Regimes

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<sup>74</sup> Civil Code of Quebec, S.Q. 1991, c. 64, art. 7 (no right may be exercised with the intent of injuring another or in an excessive and unreasonable manner which is contrary to the requirements of good faith), art. 976 (neighbours shall suffer the normal neighbourhood annoyances that are not beyond the limit of tolerance they owe each other, according to the nature or location of their land or local custom). Article 976 is a special rule on the ownership of immovables.

<sup>75</sup> Civil Code of Quebec, S.Q. 1991, c. 64, art. 979 (owner of higher land has no right to aggravate the condition of lower land regarding natural water flows), art. 981 (riparian owner may, for his needs, make use of a lake, the headwaters of a watercourse, or any other watercourse bordering or crossing his land, and as the water leaves his land, he shall direct it, not substantially changed in quality or quantity, into its regular course), art. 982 (unless it is contrary to the general interest, a person having a right to use a spring, lake, sheet of water, underground stream, or any running water may, to prevent the water from being polluted or used up, require the destruction or modification of any works by which the water is being polluted or dried up).

<sup>76</sup> Giroux, *supra* note 63, at 159,

<sup>77</sup> Under Chilean civil law if a tree on neighbouring land is in danger of falling on another's property, the latter may compel the neighbour to cut the tree, or otherwise correct the problem. This concept also exists under Quebec civil law. Civil Code of Quebec, S.Q. 1991, c. 64, art. 985.

Other principles under Chilean civil law may also be invoked such as the principle that damage should be indemnified except in cases of *force majeure* or act of God. CHI.COD. CIV., ss. 1437, 2284, 2314, 2329.



Over the past two decades, federal and provincial governments in Canada have enacted environmental impact assessment legislation as a supplement to more traditional regulatory legislation controlling emissions and discharges from industrial operations, including mining activities. More recently, Chile has also developed environmental impact assessment procedures under its national environmental laws. The following briefly reviews the programs of both countries.

## 1. Canada

Environmental impact assessment is a planning tool that requires early identification and evaluation of all potential environmental consequences of a proposed development undertaking and its alternatives, combined with a decision making process that attempts to reconcile any approval of the proposed development with environmental protection and preservation.<sup>78</sup> The development of environmental impact assessment requirements at the federal and provincial levels of government in Canada has been an evolutionary process over the past two decades. There are several factors that distinguish environmental assessment at the federal level from the way it has developed in certain provinces in Canada. The federal process has been characterized since its inception by three principle qualities: (1) self-assessment by the proponent of the activity; (2) public hearings that are more like public meetings held by expert panels appointed to make recommendations, not decisions, on the proposal with few legal entitlements for members of the public to test the proponent's environmental information; and (3) the ability of the proponent to proceed with the undertaking even in the face of adverse recommendations made by the expert panels.<sup>79</sup> Litigation in connection with the federal regime before the federal courts has focused on questions of whether the environmental assessment process was a legally binding requirement on federal departments; and if so whether a particular project should be subject to the process.<sup>80</sup> In contrast, at the provincial level in jurisdictions such as Ontario, the environmental assessment process has been marked by specific, legally-binding environmental assessment approvals issued by an administrative tribunal with decision-making authority following quasi-judicial hearings in which there has been full public involvement.<sup>81</sup> With some exceptions,<sup>82</sup> litigation in connection with the Ontario process has not been in the courts, but rather has been primarily before the administrative tribunal dealing with the substantive environmental merits of the proposal itself and whether it should be approved. In the past, therefore, the federal and Ontario regimes have been the polar opposites of each other. However, recent changes to Ontario's law, discussed below, may change this picture in future.<sup>83</sup> The following examines key features of both the theory and practice of environmental assessment law at both levels of government.

### a) Federal

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<sup>78</sup> *Friends of Oldman River Soc'y v. Can.*, [1992] 1 S.C.R. 3, 71.

<sup>79</sup> These characterizations apply to all three versions of federal environmental assessment procedures that have been in existence at various times since the early 1970s. See *infra* part V.A.1.a.(i)-(iii).

<sup>80</sup> See *infra* part V.A.1.a.(ii).

<sup>81</sup> See *infra* part V.A.1.b.

<sup>82</sup> See, e.g., *Re Temagami Wilderness Soc'y*, No. 597/88, at 1-2 (Ont. Div. Ct. Apr. 11, 1989) (exemption of timber management activity from environmental assessment hearing valid).

<sup>83</sup> See *infra* part V.A.1.b.

Federal environmental assessment in Canada falls into three historical periods: (1) 1973 to 1984; (2) 1984 to 1994; and (3) 1995 to date. These periods correspond with the different procedural regimes that have been in place in each of these periods. The first period corresponds with the establishment of the Environmental Assessment and Review Process ("EARP"),<sup>84</sup> a regime with no legally binding effect. The second period corresponds with that of the EARP Guidelines Order ("EARPGO"),<sup>85</sup> a regime initially believed by the federal government to have no legally binding effect, but one which the federal courts and the Supreme Court of Canada eventually held was legally binding on federal departments. The third, and current period, corresponds to the passage by the Parliament of Canada of the Canadian Environmental Assessment Act ("CEAA"),<sup>86</sup> a statute which, despite its status as law, in many respects retains the essential characteristics of the earlier regimes, and may well be less comprehensive in its coverage of federal activities than EARPGO. The basic characteristics of the federal environmental assessment process including self assessment by the proponent department, and recommendations, not decisions, by expert review panels that may be ignored by the proponent and responsible authority, have remained the same, therefore, regardless of the environmental assessment regime in place.

(i) **EARP**

Inspired by the development in the late 1960s-early 1970s of legislative requirements in the United States which imposed on federal agencies the obligation to prepare environmental impact statements for all federal actions significantly affecting the quality of the human environment,<sup>87</sup> Canada developed its own environmental assessment procedures. The period from the early 1970s to the mid 1980s constituted the period when the federal government determined by cabinet policy that the environmental effects of proposed federal projects initiated by a federal department or agency, for which federal funds were solicited, or for which federal property was required, would be subject to the EARP regime "before

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<sup>84</sup> GOV'T OF CAN. FEDERAL CABINET POLICY ON THE ENVTL. ASSESSMENT AND REVIEW PROCESS (1973) [hereinafter EARP].

<sup>85</sup> Env'tl. Assessment and Review Process Guidelines Order, SOR/84-467 (1984) [hereinafter EARPGO].

<sup>86</sup> Canadian Environmental Assessment Act, R.S.C. 1985, c. C-15.2 [hereinafter CEAA].

<sup>87</sup> National Environmental Policy Act, 42 U.S.C.A., ss. 4321, 4331-4335 (West 1997) [hereinafter NEPA]. NEPA requires that "to the fullest extent possible...all agencies of the federal government shall...include in every recommendation or report on proposals for ...major federal actions significantly affecting the quality of the human environment, a detailed statement by the responsible official on: (i) the environmental impact of the proposed action; (ii) any adverse environmental effects which cannot be avoided should the proposal be implemented; (iii) alternatives to the proposed action; (iv) the relationship between local short-term uses of man's environment and the maintenance and enhancement of long-term productivity; and (v) any irreversible and irretrievable commitments of resources which would be involved in the proposed action should it be implemented." *Id.*, s. 4332 (2)(C). The Supreme Court of the United States has held that the requirements of NEPA are procedural not substantive, in the sense that the statute requires a fully informed and well-considered decision by the decision making agency, not necessarily a decision the court would have reached. *Vermont Yankee Nuclear Power Corp. v. Natural Resources Defense Council*, 435 U.S. 519 (1978). In effect this decision means that once the agency has met the procedural requirements of NEPA in terms of producing an environmental impact statement ("EIS") that meets the content requirements of s. 4332 (2) (C), the agency is free to make any decision it wants on the merits of the proposed action, regardless of what the EIS shows to be the potential environmental consequences of such action. The Supreme Court of the United States also subsequently held that: (1) NEPA does not require that action be taken by agencies to mitigate the adverse effects of major federal actions; and (2) NEPA does not require agencies to include in every EIS a detailed explanation of specific measures which will be employed to mitigate the adverse impacts of a proposed action. *Robertson v. Methow Valley Citizens Council*, 490 U.S. 332 (1989).

commitments or irreversible decisions" were made.<sup>88</sup> Proprietary Crown corporations and federal regulatory agencies were invited, but not required, to participate.<sup>89</sup> Public hearings, which were in practice more analogous to public meetings, before expert panels were also authorized when appropriate. The EARP regime of this period constituted voluntary self-assessment by proponent departments, who determined if they would subject themselves to the process, whether environmental effects were significant, and whether to proceed with their projects, irrespective of any recommendations by expert review panels.

## (ii) EARPGO

As a result of perceived gaps in the EARP regime, the federal government revised the process in 1984, creating the EARPGO, by regulation pursuant to the Department of Environment Act.<sup>90</sup> The purpose of EARPGO was to require all federal departments and agencies that may have a decision-making authority for any proposal, that is, any initiative, undertaking, or activity that may have an environmental effect on an area of federal responsibility, to initially screen such proposal to determine whether it may give rise to any potentially adverse environmental effects. If a proposal could have a significant adverse effect on the environment, provision was made for public review by an environmental assessment panel whose members must be unbiased, free of political influence, and possessed of special knowledge and experience relevant to the technical, environmental, and social effects of the proposal.<sup>91</sup> The process was still based on the principle of self assessment<sup>92</sup> and the federal government continued to regard EARPGO as it had EARP; a set of advisory guidelines only.<sup>93</sup> However, beginning in 1989,<sup>94</sup> and culminating with a 1992 decision of the Supreme Court of Canada,<sup>95</sup> the courts interpreted EARPGO as mandatory in nature and capable of conferring enforceable rights. These court decisions had the effect of overruling federal government decisions not to apply EARPGO to proposals which had been subject only to provincial environmental assessments.<sup>96</sup> Other federal court decisions compelled federal departments to apply

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<sup>88</sup> EARP, *supra* note 84, at 1.

<sup>89</sup> *Id.*

<sup>90</sup> Department of the Environment Act, R.S.C. 1985, c. E-10, s.6.

<sup>91</sup> *Friends of the Oldman River Soc'y v. Can.*, [1992] 1 S.C.R. 3, \_.

<sup>92</sup> EARPGO, SOR/84-467, s. 3 (1984).

<sup>93</sup> Ted Schrecker, *The Canadian Environmental Assessment Act: Tremulous Step Forward, or Retreat Into Smoke and Mirrors?*, 5 C.E.L.R. (N.S.) 192, 194-195 (1991) (noting that federal officials had been treating EARPGO as a set of non-binding administrative guidelines).

<sup>94</sup> See, e.g., *Canadian Wildlife Fed'n Inc. v. Can. (Minister of the Env't)*, (1989), 3 C.E.L.R. (N.S.) 287 (F.C.T.D.); *aff'd* 4 C.E.L.R. (N.S.) 1 (F.C.A.) (EARPGO, as an enactment or regulation and not a mere description of policy or program, is mandatory and may create enforceable rights).

<sup>95</sup> *Friends of the Oldman River Soc'y v. Can.*, [1992] 1 S.C.R. 3 (Department of the Environment Act capable of supporting power to enact binding subordinate legislation and nothing in statute or EARPGO indicates that the latter is merely another form of administrative directive which cannot confer enforceable rights).

<sup>96</sup> In both *Canadian Wildlife Fed'n* and *Friends of the Oldman River*, hydroelectric facilities in Saskatchewan and Alberta respectively had been previously approved under provincial environmental assessment laws.

EARPGO to on-going federal proposals in compliance with EARPGO requirements.<sup>97</sup> These and other court decisions, as well as other international factors,<sup>98</sup> helped spur Parliament to enact CEEA to resolve these and related issues.

During the ten year period 1984-1994, several mining projects subject to EARPGO were considered by the courts. In *Curragh Resources Inc. v. Canada (Minister of Justice)*,<sup>99</sup> the Federal Court of Appeal held that the Department of Indian Affairs and Northern Development ("DIAND"), as a department with decision-making responsibility for a proposal, could rely on EARPGO as a basis for requiring a mining company to provide \$4.4 million in security for the purpose of mitigating the adverse environmental effects of acid mine drainage to water quality and fish in streams leading from two lead-zinc mines proposed by the proponent.<sup>100</sup> In another federal court decision involving mining activity, *Canadian Parks and Wilderness Society v. Canada (Minister of Indian Affairs and Northern Development)*,<sup>101</sup> the Federal Court Trial Division held that a federal department subject to EARPGO did not err in law by failing to include in its screening report the environmental effects that bulldozer activity would have at the mine site, nor did the department attempt to ignore cumulative environmental effects or circumvent an effective review process by having the mining project evaluated on a piecemeal basis.<sup>102</sup> However, even though the court recognized that the screening report did not consider the significance of a heritage river that would be potentially effected by the project, and that the department did not notify or seek the comments of the applicants whose members would be directly effected, the court dismissed the application to have the mining permits declared invalid, because the bulldozer activity was already completed and therefore no useful purpose would be served by granting the order requested.<sup>103</sup>

Also during this period several major uranium mining and refining projects in Ontario and Saskatchewan were the subject of expert panel reviews, some of which recommended approval,<sup>104</sup> others

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<sup>97</sup> *Friends of the Island Inc. v. Can. (Minister of Public Works)*, (1993), 10 C.E.L.R. (N.S.) 204 (F.C.T.D.) (generic initial environmental evaluation failed to fully consider environmental implications of later specific bridge proposal, resulting in court order requiring environmental assessment of specific bridge design).

<sup>98</sup> Schrecker, *supra* note 93, at 193-194 (credibility of federal government's support for Brundtland Commission's principles of sustainable development jeopardized by widespread perception of the historical weakness of federal environmental assessment procedures).

<sup>99</sup> *Curragh Resources Inc. v. Can. (Minister of Justice)*, (1993), 11 C.E.L.R. (N.S.) 173 (F.C.A.).

<sup>100</sup> *Id.* at 192.

<sup>101</sup> *Canadian Parks and Wilderness Soc'y v. Can. (Minister of Indian Affairs and N. Dev.)*, (1996), 19 C.E.L.R. (N.S.) 271 (F.C.T.D.).

<sup>102</sup> *Id.* at 286-287 (noting that the cumulative effects doctrine, which is designed to ensure that the full impact of an activity is not minimized by dividing a proposal into several different applications and seeking to have the environmental impacts of each assessed without regard to the others, not applicable in *Canadian Parks* because situation was one where an ancillary aspect of a development activity is subject to review, because a government issued permit is required, while the main activity in question is not).

<sup>103</sup> *Id.* at 287.

<sup>104</sup> See, e.g., DOMINIQUE - JANINE EXTENSION, McCLEAN LAKE PROJECT, AND MIDWEST JOINT VENTURE ENVTL. ASSESSMENT REVIEW PANEL (1993) (Dominique - Janine extension recommended for approval subject to conditions); and McARTHUR RIVER UNDERGROUND EXPLORATION PROGRAM ENVTL. ASSESSMENT JOINT

of which recommended rejection.<sup>105</sup> In connection with subsequent changes to one of these projects in Saskatchewan, the Federal Court Trial Division held in *Shiell v. Atomic Energy Control Board*,<sup>106</sup> that an applicant seeking an order requiring a federal regulatory board to refer the proponent's new uranium mine tailings disposal system to an expert panel under EARPGO, lacked standing to bring such an application because she lived several hundred miles from the facility, had no direct personal interest in the matter, and the board's decision to amend the proponent's licence did not affect her any differently than other members of the public.<sup>107</sup>

(iii) **CEAA**

In January 1995, CEAA came into force. This statute replaced EARPGO, which the federal government described as a "vague" process which had "prompted numerous court challenges, high costs and long delays."<sup>108</sup> CEAA requires that an environmental assessment be conducted where a federal authority, called a responsible authority under the statute: (1) is the proponent of the project; (2) pays for the project or provides financial assistance; (3) disposes of federal land by sale, lease or other means to enable the project to proceed; or (4) exercises a prescribed regulatory duty such as issuing a permit, licence, or approval.<sup>109</sup> Physical works are subject to CEAA unless exempted.<sup>110</sup> Physical activities are not subject to CEAA unless they are designated.<sup>111</sup> Four regulations under CEAA determine which projects will be assessed and the level of environmental assessment required. The Exclusion List Regulations exempt those physical works by category deemed to have insignificant environmental effects.<sup>112</sup> The Inclusion List Regulations designate physical activities by category that will be subject to environmental assessment if they are regulated by any of the provisions set out in the Law List Regulations.<sup>113</sup> The Law

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FEDERAL PROVINCIAL REVIEW PANEL (1993) (underground exploration program recommended, subject to conditions).

<sup>105</sup> See, e.g. RABBIT LAKE URANIUM MINING A-ZONE, D-ZONE, EAGLE POINT ENVTL. ASSESSMENT REVIEW PANEL (1993) (mining at A-zone and D-zone not recommended to proceed until further studies undertaken and suitable mitigation established).

<sup>106</sup> *Shiell v. Atomic Energy Control Board*, (1995), 17 C.E.L.R. (N.S.) 286 (F.C.T.D.).

<sup>107</sup> *Id.* at 290-291.

<sup>108</sup> 128 Can. Gaz. Part II, 3388 (1994) (regulatory impact analysis statement accompanying CEAA regulations).

<sup>109</sup> CEAA, R.S.C. 1985, c. C-15.2, s. 5.

<sup>110</sup> *Id.*, ss. 5, 7. Projects are physical works that include any proposed construction, operation, modification, decommissioning, abandonment or other undertaking in relation to those physical works. *Id.*, s. 2. A physical work may be exempted by the Exclusion List Regulations, or if the project is to be carried out in response to an emergency. Otherwise it is a project subject to CEAA.

<sup>111</sup> *Id.*, s. 59 (b). Projects are physical activities that do not relate to a prescribed physical work designated under section 59 (b). Physical activities designated by the Inclusion List Regulations are projects subject to CEAA.

<sup>112</sup> Exclusion List Regulations, SOR/94-639.

<sup>113</sup> Inclusion List Regulations, SOR/94-637.

List Regulations contain regulatory provisions from numerous federal statutes that will trigger a requirement to perform an environmental assessment.<sup>114</sup> The Comprehensive Study List Regulations designate projects by category that are likely to have significant adverse environmental effects and for which the most rigorous study will be required.<sup>115</sup> Several types of major mining and mineral processing projects are identified under this regulation.<sup>116</sup>

Under CEAA, an agency is established, the Canadian Environmental Assessment Agency ("Agency"), whose objects include administering the process and promoting uniformity and harmonization in the assessment of environmental effects across Canada.<sup>117</sup> The responsible authority, however, determines the scope of the environmental assessment and is responsible for the early stages of the process, including the screening process for those projects likely to have routine or low impacts.<sup>118</sup> If, after screening, more investigation is necessary or if public concern warrants a public review, the responsible authority must refer the project to the federal minister of the environment<sup>119</sup> who then refers the project to mediation, or a review and hearing by an expert panel, including where necessary a joint federal-provincial panel, that can compel persons to give testimony.<sup>120</sup> However, under CEAA, the responsible authority, or ultimately the federal cabinet, may still approve any project likely to have "significant adverse environmental effects which can be justified in the circumstances."<sup>121</sup> Whether environmental effects can or cannot be justified in the circumstances is a highly vague and subjective test which places the responsible authority in the same position to make a final decision as was the case under EARP and EARPGO. The test will also likely invite the very judicial scrutiny that the federal government sought to avoid.

Overall concerns with CEAA may be summarized as follows: (1) proponents review the environmental effects of their own projects (self-assessment) and may, particularly where they are also

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<sup>114</sup> Law List Regulations, SOR/94-636.

<sup>115</sup> Comprehensive Study List Regulations, SOR/94-638.

<sup>116</sup> *Id.*, ss.16-18. The provisions apply to the proposed establishment, expansion, construction, decommissioning, or abandonment of metal, gold, coal, potash and other categories of mines, as well as metal mills. The threshold production capacity for the application of CEAA to a mining project under these regulations would appear to be quite high, and would appear to result in only mega-projects, not smaller scale mining projects, being to environmental assessment requirements. For example, the required production capacity for a proposed coal mine to be subject to the regulations is 3,000 tonnes per day. Assuming 200 days of operation per year (less than 20 days of operation per month), the threshold requirement for application of CEAA to a coal mine project pursuant to these regulations would be production capacity of 600,000 tonnes per year. By comparison, British Columbia requires any proposed coal mine with a production capacity of 100,000 tonnes per year to be treated as a reviewable project under that province's environmental assessment requirements. See *infra* note 161 and accompanying text. CEAA Comprehensive Study List Regulations are reproduced as Appendix II to this report.

<sup>117</sup> CEAA, R.S.C. 1985, c. C-15.2, ss. 61-63.

<sup>118</sup> *Id.*, ss. 15-20.

<sup>119</sup> *Id.*, s. 20.

<sup>120</sup> *Id.*, s. 29 (referral of matter by Minister to a mediator or review panel), s. 40 (joint review panels authorized).

<sup>121</sup> *Id.*, s. 37.

the responsible authority, ignore the recommendations made by expert review panels;<sup>122</sup> (2) it is not mandatory for proponents to assess the need for their projects, nor to assess alternatives to their projects;<sup>123</sup> (3) CEAA focuses on physical works or construction, which is a narrower examination than what was possible under EARPGO;<sup>124</sup> (4) principles of fairness and due process are not guaranteed at review panel hearings;<sup>125</sup> (5) participant funding for members of the public is not mandatory for review panel hearings or mediations;<sup>126</sup> (6) it is not an offence for proponents to ignore or violate CEAA or its regulations;<sup>127</sup> and (7) the public cannot seek injunctions to restrain violations of ministerial orders.<sup>128</sup>

Major mining projects that have been, or are currently, subject to CEAA exhibit some of the same problems with the approach of federal departments, as occurred under EARP and EARPGO. In *Union of Nova Scotia Indians v. Canada (Attorney General)*,<sup>129</sup> the Federal Court Trial Division set aside federal fisheries department decisions to issue approvals under the Fisheries Act to a mining company that planned to dredge a lake bottom to facilitate its industrial operations. The court held that despite brief references in the department's screening report of potential adverse effects, the actual use of fishery resources within the lakes by the aboriginal community was not addressed carefully, or at all. The court held that it was essential that the responsible authority address environmental effects under CEAA. The court observed that it might be that, if reviewed, the result would be the same, but that could not be assumed without consideration of the matter. Failure to consider the Crown's fiduciary duty and responsibility to the aboriginal community constituted a failure by the government to act with fairness towards them in the environmental process. According to the court, it was an error of law to fail to address the aboriginal interests, and to assess whether any environmental effect was warranted.<sup>130</sup>

Other recent mining project proposals under CEAA have generated considerable controversy regarding the adequacy of the review panel process and resulting recommendations. In the case of an

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<sup>122</sup> *Id.*, ss. 11, 15, 16, 20, 37.

<sup>123</sup> *Id.*, s. 16 (in discretion of responsible authority).

<sup>124</sup> *Id.*, ss. 2, 7, 59(b) (project defined as physical work, not exempted by CEAA Exclusion List Regulations; and physical activities designated as subject to CEAA by the Inclusion List Regulations). EARPGO covered any "proposal" which included any initiative, undertaking, or activity for which the Government of Canada has a decision making responsibility, and that may have an environmental effect on an area of federal responsibility. EARPGO, SOR/84-467, ss. 2, 6 (b).

<sup>125</sup> When a review panel holds a hearing it must offer the public an opportunity to participate. CEAA, R.S.C. 1985, c. C-15.2, s. 34. However, CEAA makes no reference to panel compliance with the rules of natural justice or procedural fairness, standing, notice, right to counsel, right to present evidence, or cross-examine witnesses. Moreover, under EARPGO, to be eligible for panel appointment an expert had to be "free of political any political influence." EARPGO, SOR/84-467, s. 22(b). This requirement has been removed from CEAA. R.S.C. 1985, c. C-15.2, s. 33.

<sup>126</sup> *Id.*, s. 58 (i) (minister may establish a participant funding program to facilitate the participation of the public in mediations and assessments by review panels).

<sup>127</sup> CEAA is silent on offences or penalties for violations of the Act or regulations.

<sup>128</sup> *Id.*, s. 51 (only Attorney General of Canada may seek injunction for violation of ministerial order issued under s. 50).

<sup>129</sup> *Union of Nova Scotia Indians v. Can. (Attorney General)*, (1997), 22 C.E.L.R. (N.S.) 293 (F.C.T.D.).

<sup>130</sup> *Id.* at 313-315.

open pit and underground diamond mining project in the Northwest Territories recommended for approval, the review panel, despite producing 29 recommendations,<sup>131</sup> failed to make any recommendations in such areas as: (1) sustainable development and cumulative effects; (2) mine closure and reclamation; (3) alternatives to the project or alternative methods of carrying out the project; (4) wilderness and protected areas; and (5) mining impacts on traditional resource harvesting activities.<sup>132</sup> These and related gaps caused one of the major intervenors in the case to characterize the resulting environmental review as fundamentally flawed and neither comprehensive, rigorous, nor fair.<sup>133</sup> The federal government nonetheless accepted the panel's recommendations and approved the project.<sup>134</sup> This project, among others, has caused some commentators to question whether the federal environmental assessment process is a failure, particularly in connection with resource development issues in northern Canada.<sup>135</sup>

Environmental impact assessment guidelines for a major nickel and cobalt mine/mill project in Voisey's Bay, Labrador have recently been developed by an expert review panel. These guidelines may be the most comprehensive guidelines yet developed for mining activities under federal environmental assessment procedures,<sup>136</sup> although generic environmental assessment guidelines for mining activities are also being developed.<sup>137</sup> The scope of the guidelines for the Voisey's Bay project is in part a function of a unique memorandum of understanding developed between the Governments of Canada, Newfoundland/Labrador, and two aboriginal groups, the Innu Nation of Labrador, and the Labrador Inuit Association, which sets out the factors to be considered by the proponent in its environmental assessment, including need, consideration of alternatives, and examination of cumulative environmental effects.<sup>138</sup> However, this project has also been controversial, in part because of attempts by the proponent to seek provincial approval to construct major infrastructure facilities including a dock, an airstrip, and a road at the mine exploration site while the environmental assessment studies under CEAA are in progress, and before the review panel holds its hearings.<sup>139</sup> While the proponent maintains that these facilities are not part of the process that is subject to environmental assessment and review by the

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<sup>131</sup> BHP DIAMONDS INC. ENVTL. ASSESSMENT REVIEW PANEL, EXECUTIVE SUMMARY (1996).

<sup>132</sup> Letter from Terry Fenge, Executive Director, Canadian Arctic Resources Committee, to the Hon. Sergio Marchi, Minister of Environment (June 21, 1996).

<sup>133</sup> *Id.*

<sup>134</sup> Kevin O'Reilly, *Diamond Mining and the Demise of Environmental Assessment in the North*, NORTHERN PERSPECTIVES, Fall-Winter 1996, at 1-4.

<sup>135</sup> ANDREW NIKIFORUK, THE NASTY GAME: THE FAILURE OF ENVIRONMENTAL ASSESSMENT IN CANADA (1997). Independent Public Report commissioned by Walter & Duncan Gordon Foundation in Toronto.

<sup>136</sup> VOISEY'S BAY MINE AND MILL PROJECT ENVTL. ASSESSMENT PANEL, FINAL ENVTL. IMPACT STATEMENT GUIDELINES FOR THE UNDERTAKING (1997) [hereinafter VOISEY'S BAY GUIDELINES].

<sup>137</sup> CANADIAN ENVIRONMENTAL ASSESSMENT AGENCY, ENVIRONMENTAL ASSESSMENT GUIDELINES FOR MINING SECTOR ACTIVITIES (DRAFT) (1997). [NEED TO VERIFY]

<sup>138</sup> VOISEY'S BAY GUIDELINES, *supra* note 136, at 1. These guidelines are reproduced as Appendix III to this Report. The memorandum of understanding is reproduced as Appendix IV to this Report.

<sup>139</sup> Voisey's Bay Mine and Mill Project Env'tl. Assessment Panel, Transcript of Proceedings of the Scoping Session (Apr. 25, 1997) (testimony of Daniel Ashini, vice-president, Innu Nation of Labrador).



panel,<sup>140</sup> others have raised concerns that approval and construction of these facilities in advance of, or simultaneously with, the CEAA process is an attempt to circumvent the statute.<sup>141</sup>

Overall, the CEAA process exhibits many of the limitations of its predecessor regimes. If, as the Supreme Court of Canada stated in *Friends of the Oldman River* that, environmental assessment is a planning tool, then the statute's focus on physical works is too narrow and too late in the decision making process to deal with issues of multiple exploration activities in the same region such as are currently being experienced in northern Canada. Environmental examination of development, including mining activities, in an isolated, fragmented, and piece-meal fashion is contrary to the spirit and purpose of environmental assessment and sustainable development principles.<sup>142</sup> What should first be examined in the context of environmental assessment is government policies and programs that stimulate such development activities in particular regions, and not merely the end-result of such policies, one project at a time. Given the other limitations in the statute noted above, extreme caution must be used in holding Canadian mining companies operating abroad to no greater environmental assessment standards than those applicable in Canada.<sup>143</sup> Although CEAA is the third version of federal environmental assessment procedures in the last twenty-five years, much more work remains to be done to improve the process.

## **b) Provincial**

Provincial environmental assessment laws vary in each of the provinces in Canada. This part of the report examines two provincial environmental assessment regimes: (1) Ontario; and (2) British Columbia. The choice of these two provinces over others is in part based on the fact that Ontario's law is both the oldest in Canada and perhaps, until recent amendments, the most rigorous though infrequently applied to mining activities, while British Columbia's is the newest and has already been applied to many mining projects. The experience with both laws may provide a contrast with federal environmental assessment procedures.

### **(i) Ontario**

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<sup>140</sup> *Id.* (testimony of Bevin LeDrew, manager, environmental assessments, Voisey's Bay Nickel Co.).

<sup>141</sup> *Id.* (testimony of Daniel Ashini). The Newfoundland Court of Appeal recently quashed a provincial minister's order which would have permitted these activities to proceed without an environmental assessment holding that the minister made a false dichotomy between exploration and mining when he said that the former were not subject to environmental assessment while the latter were under the memorandum of understanding between the parties. See Labrador Inuit Assn. v. Nfld. (Minister of Env't and Labour), No. 223, *Docket* 97/124 (Nfld. C.A. Sept. 22, 1997).

<sup>142</sup> The preamble to CEAA declares that the "Government of Canada seeks to achieve sustainable development by conserving and enhancing environmental quality and by encouraging and promoting economic development that conserves and enhances environmental quality." The statute also defines sustainable development consistent with that established by the Brundtland Commission: "...development that meets the needs of the present, without compromising the ability of future generations to meet their own needs." R.S.C. 1985, c. C-15.2, s. 2.

<sup>143</sup> RENACE, *supra* note 2, at 4-5 (noting that Canadian companies are reported to have indicated that they will follow Canadian standards in regard to any activities that could adversely effect the environment of Chile).

Ontario's Environmental Assessment Act ("OEAA")<sup>144</sup> requires proponents of public, and designated private-sector undertakings, to prepare an environmental assessment that outlines the purpose of, and rationale for, the undertaking. The environmental assessment must also consider possible alternatives to, and alternative methods of carrying out the undertaking, the affected environment, potential environmental effects, mitigation measures, and the advantages and disadvantages to the environment of the undertaking and the alternatives.<sup>145</sup> For projects subject to the Act because they are a certain size, category, cost, or because they are controversial, approvals under the statute are preceded by quasi-judicial hearings before a permanent administrative tribunal which adjudicates both the adequacy of the environmental assessment and whether approval to proceed with the undertaking should be granted.<sup>146</sup> The Act and guidance documents<sup>147</sup> prepared by the Ministry of the Environment and Energy ("MOEE") in effect require a proponent to go through an environmental planning process that contains five key features: (1) consultation with affected parties; (2) consideration of reasonable alternatives; (3) consideration of all aspects of the environment; (4) systematic evaluation of net environmental effects; and (5) provision of clear and complete documentation.<sup>148</sup> Tribunal jurisprudence under the OEAA suggests that environmental assessment approvals will only be granted where the proponent: (1) demonstrates need for the project;<sup>149</sup> (2) examines a reasonable range of alternatives;<sup>150</sup> and (3) demonstrates that the environment, particularly surface water and groundwater can be protected if the undertaking proceeds.<sup>151</sup>

Experience with the OEAA, however, has been primarily in relation to public sector activities, such as hazardous waste treatment complexes, municipal waste disposal sites, highways, transmission lines, and hydroelectric facilities. Because the statute defines "undertaking" to include "plans or programs"<sup>152</sup> long-term planning activity by Crown corporations, such as for supply of electricity generation,<sup>153</sup> has also been subject to OEAA requirements, and not just individual physical works. In addition, private sector activity on Crown land, such as logging activity, has been subject to class environmental assessment,

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<sup>144</sup> R.S.O. 1990, c. E.18, as am.

<sup>145</sup> *Id.*, s. 6.1

<sup>146</sup> *Id.*, ss. 9.1-9.3.

<sup>147</sup> See, e.g., ENVTL. ASSESSMENT BRANCH, MINISTRY OF THE ENV'T AND ENERGY, PLANNING AND APPROVALS GUIDE FOR INDIVIDUAL ENVTL. ASSESSMENT PROJECTS (1995)[hereinafter ENVTL. ASSESSMENT BRANCH].

<sup>148</sup> *Id.* at 7-23.

<sup>149</sup> Re: Steetley CH-91-01 (1995) (Jt. Bd. found need assumed by proponent unrealistic).

<sup>150</sup> Re: Meaford CH-88-03 (1990) (Jt. Bd. found proponent alternative site selection process flawed and unacceptable); and Re: Ont. Waste Management Corp. CH-87-02 (1994)(Jt. Bd. found alternative waste management systems analysis inadequate to support proponent's conclusion that selected undertaking preferred to unexamined alternatives).

<sup>151</sup> Re: Halton CH-87-02 (1989) (Jt. Bd. rejected one of two proposed sites because of failure of proponent to demonstrate ability of site in its natural or engineered capacity to ensure protection of surface and groundwater regime).

<sup>152</sup> R.S.O. 1990, c. E.18, s. 1(1).

<sup>153</sup> Re: Ontario Hydro Demand-Supply Plan EA-90-01(F)(1990)(25 year plan for supply sources of electricity generation such as nuclear, fossil fuel, and hydroelectric facilities by provincial Crown corporation subject to OEAA). This proposal was eventually withdrawn by proponent

hearings, and decisions by an independent tribunal.<sup>154</sup> However, because the OEAA only applies to the private sector if specifically designated by regulation, few resource extraction activities, even those on Crown lands, have been subject to designation and hearings under the statute. Emergency activities to clean up abandoned mine sites, which might otherwise have been subject to the Act because a public agency was the proponent, also have been exempted from OEAA requirements.<sup>155</sup>

Amendments to the OEAA, which came into force in 1997, grant the minister discretion to permit a proponent subject to the Act to submit terms of reference acceptable to the minister for preparation of what would be less than a full environmental assessment.<sup>156</sup> The practical effect of these amendments may be to reduce the obligation on proponents to address alternative methods of carrying out the undertaking, such as different locations for siting proposed activities, or functionally different alternatives to the undertaking, such as resource conservation, instead of resource exploitation. The extent of the application of the OEAA to mining activities, if at all, under the new amendments remains to be seen.

(ii) **British Columbia**

British Columbia's Environmental Assessment Act ("BCEAA"),<sup>157</sup> which came into force in mid-1995, applies to a project that either meets criteria set out in regulations under the Act,<sup>158</sup> or is specifically designated by the Minister of Environment, Lands, and Parks ("MELP").<sup>159</sup> Categories of mine projects that are identified in the regulations as reviewable projects<sup>160</sup> include establishment of new, or significant

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<sup>154</sup> Re: Timber Management EA-87-01 (1994)(environmental assessment board approving environmental assessment of timber management planning of provincial ministry of natural resources who was surrogate proponent for timber industry in lieu of need to a conduct multiplicity of hearings for Crown timber licensees).

<sup>155</sup> See Exemption for Emergency Activities on Three Abandoned Mine Sites in the Townships of Tisdale and Deloro, City of Timmins, O.Reg. 169/92 (1992).

<sup>156</sup> R.S.O. 1990, c.E.18, s. 6, as am.

<sup>157</sup> R.S.B.C. 1996, c. 119.

<sup>158</sup> *Id.*, s.3.

<sup>159</sup> *Id.*, s.4.

<sup>160</sup> Env'tl. Assessment Reviewable Projects Regulation, B.C. Reg. 276/95 (1995)(Part 2 - Mine Projects). Part 2 of these regulations is reproduced as Appendix V to this report.

modification of existing, coal mines,<sup>161</sup> mineral mines,<sup>162</sup> sand and gravel operations,<sup>163</sup> placer mines,<sup>164</sup> stone and industrial mineral quarries,<sup>165</sup> and off-shore mines.<sup>166</sup> The proponent of a reviewable project must submit information respecting environmental, social, economic, and related matters in connection with the project including information on the existing setting, potential effects of the project, measures to prevent or mitigate adverse effects, consultation activities with the public and first nations, and other pertinent information.<sup>167</sup> Projects progress through the environmental assessment review process depending on their environmental significance. Projects with more significant environmental effects may be subject to project review by the government in which alternative sites, methods of construction, and monitoring of effects, are considered.<sup>168</sup> The Minister may also refer any application for a project approval to an administrative tribunal, the Environmental Assessment Board, for a hearing, followed by a report and recommendations.<sup>169</sup> If a project is approved, a project approval certificate is issued by the Minister following provincial cabinet approval.<sup>170</sup> Since the coming into force of the BCEAA in 1995, six major mine projects have been approved by the provincial cabinet, with a further dozen projects at various stages of review.<sup>171</sup>

If Ontario's environmental assessment law is characterized by a rigorous hearing regime, which has rarely applied to mining activity, British Columbia's law can be characterized as a regime that in its short history frequently has applied its review process to mining activities, but has rarely subjected mining projects to hearing requirements. Because British Columbia's environmental assessment law only has been in effect for two years, this situation may change in future. What is unclear is the extent of smaller

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<sup>161</sup> *Id.*, s.19. A proposed coal mine is a reviewable project if the facility when completed will have a production capacity of 100,000 tonnes or more per year of clean coal or raw coal, or a combination thereof. Modification of an existing facility constitutes a reviewable project if over 250 hectares of new land will be disturbed by mining activity, or the new area to be disturbed is over 35 percent of the area of land already disturbed by mining activity). *Id.*, s. 19(b). The 100,000 per annum tonnage production capacity is significantly greater than that required for a reviewable project under mines legislation in British Columbia, repealed when the BCEAA came into force. See Mine Development Assessment Act, S.B.C. 1990, c. 55, s.1(repealed 1995)(reviewable project included all coal mines capable of producing over 10,000 tonnes per year of coal).

<sup>162</sup> B.C. Reg. 276/95, s. 20 (1995)(production capacity over 25,000 tonnes per year of mineral ore).

<sup>163</sup> *Id.*, s. 21.

<sup>164</sup> *Id.*, s. 22 (production capacity over 500,000 tonnes per year of pay-dirt, or mined placer gravel).

<sup>165</sup> *Id.*, s.23 (production capacity over 250,000 tonnes per year).

<sup>166</sup> *Id.*, s. 24 (use of platform, artificial island or other physical work, and associated facilities intended for the purpose of exploration, or production, of a mineable substance from the foreshore or submerged land along a marine coastline or from an off-shore site located in salt water).

<sup>167</sup> R.S.B.C. 1996, c. 119, s. 7.

<sup>168</sup> *Id.*, ss. 21-23.

<sup>169</sup> *Id.*, ss. 30-33, 51-52.

<sup>170</sup> *Id.*, s. 34.

<sup>171</sup> B.C. ENVTL. ASSESSMENT OFFICE, OVERVIEW AND UPDATE ON THE ENVTL. ASSESSMENT PROCESS 2-4 (1997).

scale mining activity taking place in the province<sup>172</sup> that is not covered by the reviewable projects regulation, and therefore is not subject to environmental assessment requirements under the statute.

## 2. Chile

Chile's environmental assessment requirements, under the Basic Law on the Environment ("Basic Law"),<sup>173</sup> are comparatively new but were voluntarily complied with for several years by proponents of large mining projects before the requirements came into force in 1997.<sup>174</sup> Under the Basic Law, new projects, or modifications of existing projects, undertaken by both the public and private sector, require a permit pursuant to the environmental impact assessment regime,<sup>175</sup> if they are likely to cause certain environmental effects.<sup>176</sup> Mining development projects are specifically included under this requirement.<sup>177</sup> Proponents of a project subject to the law must submit an environmental impact study ("EIS")<sup>178</sup> to a regional commission on the environment ("COREMA"), or if the project may have environmental effects in more than one region, to the National Environmental Commission ("CONAMA").<sup>179</sup> The contents of an EIS must include: (1) a description of the project or activity; (2) a base line description of the environment; (3) a description and evaluation of environmental effects; (4) measures to eliminate or minimize adverse effects; (5) and plans for monitoring effects and maintaining compliance with applicable environmental

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<sup>172</sup> Smaller scale mining activity in this context would be, for example, the production of less than 100,000 tonnes but more than 10,000 tonnes per annum of coal from a mine project.

<sup>173</sup> Basic Law on the Env't, Law No. 19,300.

<sup>174</sup> Between 1990 and 1993, environmental assessment was applied to eight new projects. WORLD BANK, *supra* note 10, at 20. See also RAYEN QUIROGA MARTINEZ & SAAR VAN HAUWERMEIREN, THE TIGER WITHOUT A JUNGLE: ENVTL. CONSEQUENCES OF THE ECONOMIC TRANSFORMATION OF CHILE 86 (1996) (noting that since 1990 mining companies have voluntarily undertaken environmental assessments, and have applied internationally accepted standards that included standards stricter than those prevailing under Chilean law). It is understood that environmental assessment was applied by Presidential decree from 1992-1994. Between 1994-1997, the Basic Law's environmental assessment provisions were voluntarily complied with, before the law came into force in 1997.

<sup>175</sup> Basic Law, art. 8-10.

<sup>176</sup> Basic Law, art. 11 (proponents must perform environmental impact study if their projects produce: risk to people's health, due to the quantity or quality of effluents, emissions, or wastes; significant adverse effects on the quantity or quality of renewable resources present in the land, water, and air; human resettlement, or significant alteration of life systems and habits of human groups;

<sup>177</sup> Basic Law, art. 10 (mining development projects, including coal, petroleum and gas, including prospecting, operation of mines, processing plants, and the disposition of waste material and barren land, as well as the industrial extraction of dry materials, peat, turf or clay).

<sup>178</sup> Basic Law, art. 2 (environmental impact study defined as a document that thoroughly describes the characteristics of a project or activity to be performed or modified, provides background information for the prediction, identification, and interpretation of environmental impacts, and describes the actions to be taken to prevent or minimize significant adverse effects).

<sup>179</sup> Basic Law, art. 9.

legislation.<sup>180</sup> Proponents of projects that do not require a full-blown EIS, still must prepare an environmental impact statement in affidavit form, attesting to the fact that the project will comply with applicable environmental legislation.<sup>181</sup> Strict time limits must be met by government reviewers in evaluating an EIS, after the expiry of which approvals are deemed to be granted, subject to appropriate time extensions where information in the EIS is incomplete, or requires correction or clarification.<sup>182</sup> An EIS must be approved if it complies with applicable environmental regulations, and if it proposes suitable mitigation, compensation, or remediation measures.<sup>183</sup>

Under the Basic Law, CONAMA is responsible for ensuring that there is informed community participation in connection with the EIS process.<sup>184</sup> Public notice must be given of the project, its environmental effects, proposed mitigation measures, and related matters.<sup>185</sup> Comments of individuals and citizen organizations on the EIS may be submitted within sixty days, which comments must be considered by CONAMA before decisions are made. Appeals may be filed by the public with CONAMA where they believe their views have not been properly considered.<sup>186</sup>

In reviewing the Basic Law's environmental assessment requirements several observations may be made. First, it is apparent that there is no obligation on a proponent of a project to include in an EIS, consideration of need for, or alternatives to the project, or alternative methods of carrying out the project. Consideration of these factors, particularly alternatives, is a hallmark characteristic of environmental assessment law in both Canada and the United States.<sup>187</sup> The purpose of considering alternatives is to ensure that the proposed undertaking or project is the best or a reasonable use of natural resources, and the best or a reasonable method of achieving, a particular goal. In the normal course, the preferred undertaking should emerge from an analysis of the competing alternatives, including the alternative of doing nothing.<sup>188</sup> Under the Basic Law it would not appear that this type of examination is required of proponents, as a condition of obtaining approval of the EIS. Second, it is not clear what the threshold tests are under the Basic Law for when a new project, or modification of an existing project, will be subject to the EIS process, as opposed to the less onerous environmental impact statement process. Under CEEA and BCEAA regulations, threshold requirements have been set out in terms of production capacity or spatial size of facility increase which make it relatively clear when a mining project is subject to

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<sup>180</sup> Basic Law, art. 12.

<sup>181</sup> Basic Law, art. 18.

<sup>182</sup> Basic Law, art. 15-17.

<sup>183</sup> Basic Law, art. 16.

<sup>184</sup> Basic Law, art. 26.

<sup>185</sup> Basic Law, art. 27.

<sup>186</sup> Basic Law, art. 28-29.

<sup>187</sup> See *supra* text accompanying notes 87, 123, 132, 138, 145, 148, 150, 168.

<sup>188</sup> See, e.g. ENVTL. ASSESSMENT BRANCH, *supra* note 147, at 14 (noting that the do nothing alternative is important as it acts as a comparison or benchmark against which other alternatives can be measured, and represents what is expected to happen if none of the alternatives proposed are carried out. Clear presentation of the do nothing alternative also assists the decision maker in determining whether the proposed undertaking should be approved).

environmental assessment requirements.<sup>189</sup> Whether regulations have been developed under the Basic Law to provide the same guidance is not clear. Third, while the Basic Law requires that state agencies are responsible for inspecting for compliance with standards and conditions approved in connection with an EIS,<sup>190</sup> given the apparent rapid increase in approval of mining projects in Chile, it is not clear whether regulatory authorities have adequate resources to monitor compliance with conditions of any permits issued under the EIS process.<sup>191</sup>

## B. Regulatory Legislation

In addition to environmental planning and impact assessment procedures, which in theory are meant to provide government with a comprehensive approach to considering the environmental effects of proposed industrial activities, including mining developments, governments also apply other types of laws to supplement control of such operations. Regulatory legislation which has as its primary objective controlling emissions to air, discharges to water, or impacts to land, can be considered among the first generation of environmental statutes enacted in Canada commencing in some provinces as early as the 1950s. Mining legislation itself also has contained some elements of environmental regulation, though it is only with comparatively recent amendments to such laws in Canada that matters such as land reclamation and rehabilitation have become prominent considerations under these regimes. Chile's regulatory legislation is of a more recent vintage and so has the potential to evolve more quickly than has been the case in Canada. This part of the report provides an overview of relevant federal and provincial regulatory legislation in Canada and national legislation in Chile. Environmental protection legislation is reviewed first, followed by mining legislation.

### 1. Environmental Protection

#### a) Canada

##### (i) Federal

At the federal level in Canada, there are two environmental statutes that have application to control of mining activities: (1) the Canadian Environmental Protection Act ("CEPA");<sup>192</sup> and (2) the Fisheries Act.<sup>193</sup> These statutes and applicable regulations are reviewed briefly below, to the extent their provisions have relevance to the subject of control of environmental impacts from mining activities.

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<sup>189</sup> See *supra* text accompanying notes 115-116, 160-166.

<sup>190</sup> Basic Law, art. 64.

<sup>191</sup> RENACE, *supra* note 2, at 3-4 (noting environmental problems with recently approved mining projects in Chile and doubting whether the government has the ability to oversee proponent compliance with permits issued for projects under the EIS process).

<sup>192</sup> R.S.C. 1985, c. 16 (4th Supp.).

<sup>193</sup> R.S.C. 1985, c. F-14.

(A) CEPA

CEPA empowers the federal government to determine whether substances used in commerce and industry are toxic and to prohibit the introduction of such substances into the environment in accordance with specified terms and conditions. In particular, Part II of the statute deals first with the identification of substances that could pose a risk either to the environment or to human life and health.<sup>194</sup> Part II next provides a procedure for adding such substances to Schedule I of the Act, which is a List of Toxic Substances.<sup>195</sup> Toxic substances in Schedule I are then controlled by regulations containing terms and conditions under which such substances may be released into the environment.<sup>196</sup> CEPA's impact on mining activities is potentially enormous given the power of the federal government to designate substances as toxic following scientific and technical assessments authorized under the statute.<sup>197</sup> In practice, however, very few assessments of substances involved in mining activities have been undertaken, and even fewer of these substances have been made subject to regulations.

There are three aspects of CEPA that are germane to the subject of environmental control of mining activities. The first aspect relates to the process by which certain substances, identified by the federal government on a priority list of substances for study, are assessed to determine whether they qualify as toxic and therefore should be controlled. Some substances relating to mining activities, such as nickel,<sup>198</sup> arsenic,<sup>199</sup> and cadmium,<sup>200</sup> have been assessed under Part II of CEPA and, in reports issued in 1993 and 1994, have been found to be toxic, but to date have not been placed in Schedule I for control by regulation. Part of the delay may arise from the fact that the mining industry has expressed concern that these metals, regarded as important to the industry, will in fact be declared "CEPA-toxic" and made subject to controls under the statute.<sup>201</sup> Notwithstanding that the CEPA assessments of these substances

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<sup>194</sup> R.S.C. 1985, c. 16, ss. 11-18 (4th Supp.) (defining toxic substances, establishing Priority Substances List, and gathering information).

<sup>195</sup> R.S.C. 1985, c. 16, s. 33 (4th Supp.) (addition to List of Toxic Substances).

<sup>196</sup> R.S.C. 1985, c. 16, s. 34 (4th Supp.) (regulation making authority).

<sup>197</sup> R.S.C. 1985, c. 16, ss. 28-32 (4th Supp.) (assessment of information).

<sup>198</sup> GOV'T OF CAN., NICKEL AND ITS COMPOUNDS: PRIORITY SUBSTANCES LIST ASSESSMENT REPORT UNDER THE CANADIAN ENVTL. PROTECTION ACT 7-9, 42, 52-53 (1994) [hereinafter NICKEL ASSESSMENT] (nickel released into Canadian environment as a result of mining, smelting, refining, alloy producing, scrap metal operations, and other metal operations).

<sup>199</sup> GOV'T OF CAN., ARSENIC AND ITS COMPOUNDS: PRIORITY SUBSTANCES LIST ASSESSMENT REPORT UNDER THE CANADIAN ENVTL. PROTECTION ACT 4-5, 33-34 (1993) [hereinafter ARSENIC ASSESSMENT] (arsenic released into Canadian environment as a result of active and abandoned gold and base metal mining and ore processing facilities).

<sup>200</sup> GOV'T OF CAN., CADMIUM AND ITS COMPOUNDS: PRIORITY SUBSTANCES LIST ASSESSMENT REPORT UNDER THE CANADIAN ENVTL. PROTECTION ACT 5-8, 46-48 (1994) [hereinafter CADMIUM ASSESSMENT] (cadmium released into Canadian environment as a result of base metal smelting and refining).

<sup>201</sup> KAREN HURLBURT, CONFERENCE BD. OF CAN., GOVT. NON-FISCAL MEASURES AND THE COMPETITIVENESS OF THE CANADIAN NON-FERROUS METALS INDUSTRY 9-10 (1995).



involved a review of all available technical, scientific, health, and related information,<sup>202</sup> the mining industry would prefer that before these substances are declared "CEPA-toxic" and subjected to controls under the statute, that a thorough risk assessment be conducted.<sup>203</sup> Whether and, if so, when these substances will be made subject to controls under CEPA remains to be seen.

The second aspect relates to those substances arising from mining activities that have been placed in Schedule I and made subject to regulation. Two substances, lead from secondary lead smelter operations<sup>204</sup> and asbestos from asbestos mines and mills,<sup>205</sup> have been placed in Schedule I of CEPA and made subject to regulation. In both regulations, releases of the substances to the air environment above certain limits from these operations are prohibited, and procedures for sampling and reporting information to the federal government are set out.<sup>206</sup> Because the control of these substances under CEPA is tied to a particular phase of mining activity and only to the air environment, it is not possible currently to regulate the entire life-cycle of the substance in other phases of the mining process, or other parts of the environment. For example, while the release of lead to the air environment from secondary lead smelters is regulated by CEPA, the release of lead to the other parts of the environment or during the exploration, mining, and closure phases, is not. Given that the placing of a substance in Schedule I of CEPA means that the government has concluded that the substance is toxic, and given that there are four phases of mining activity during which releases of lead to the environment may occur, not just one, the limitation of controls on lead in this manner may not be warranted in the circumstances. Moreover, both regulations only apply to releases to air,<sup>207</sup> not to other environmental media, such as land, surface water, or groundwater. As a result, there would appear to be obvious gaps in protecting the eco-system as a whole from the adverse effects of these toxic substances.

The third aspect of CEPA that impacts mining activities relates to regulations governing the import, export, and transit through Canada of hazardous wastes.<sup>208</sup> These wastes can include metal wastes, as well as metals destined for recycling, because under the law there is no definitional distinction between material destined for recycling and material destined for final disposal.<sup>209</sup> Because the recycling of metals is an increasingly important component of the non-ferrous metals industry, the industry would prefer that metal recyclables not be classified as waste, or be specifically exempted from compliance with CEPA regulations, because compliance with these regulations is far more expensive than compliance with

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<sup>202</sup> See, e.g. ARSENIC ASSESSMENT, *supra* note 199, at 1-2.

<sup>203</sup> HURLBURT, *supra* note 201, at 10.

<sup>204</sup> Secondary Lead Smelter Release Regulations, SOR/91-155 (1991).

<sup>205</sup> Asbestos Mines and Mills Release Regulations, SOR/90-341 (1990).

<sup>206</sup> SOR/91-155, ss. 3-6 (releases to air of lead), ss. 8-12, 14-15 (sampling and reporting); SOR/90-341, ss. 3-4 (releases to air of asbestos fibres), ss. 6-10 (information, sampling, and reporting).

<sup>207</sup> SOR/91-155, ss. 3-6 (releases to air of lead); SOR/90-341, ss.3-4 (releases to air of asbestos fibres).

<sup>208</sup> Export and Import of Hazardous Wastes Regulations, SOR/92-637 (1992), as am.

<sup>209</sup> *Id.*, Part II (export and import of hazardous wastes for final disposal); and Part III (export and import of hazardous wastes for recycling). See also 128 Can. Gaz. Part II, 2655 (1994) (regulatory impact analysis statement noting that certain metal bearing wastes destined for recycling are exempt from regulation in the United States but are considered hazardous wastes in Canada).

regulations managing non-hazardous waste.<sup>210</sup> On the other hand, the movement of such material whether for purposes of recycling or for disposal poses an equal problem for the environment should they be mis-managed.<sup>211</sup>

Overall, CEPA is a statute that applies to some substances important to the mining industry. The law has the potential to become significantly more important to the industry depending on the extent to which the federal government: (1) designates additional substances as toxic and imposes prohibitions on their use; and (2) expands the scope of control on substances already designated to other mining phases and aspects of the environment. In addition, CEPA control of the movement of hazardous wastes captures metal wastes destined for recycling, which has resulted in industry lobbying to remove the hazardous waste designation from such materials.

### (B) Fisheries Act

There are four aspects of the Fisheries Act that are important to the conduct of mining activities in Canada. First, there is a prohibition on carrying out any work or undertaking that results in the harmful alteration, disruption or destruction of fish habitat.<sup>212</sup> Second, there is also a prohibition on the deposit of deleterious substances in water frequented by fish.<sup>213</sup> Both of these prohibitions are subject to a defence of due diligence.<sup>214</sup> Third, deposit of certain substances into waters frequented by fish is permissible if allowed by regulation.<sup>215</sup> Under regulations promulgated by the federal government, liquid effluent discharges from metal mining operations to water frequented by fish are allowed in certain concentrations and circumstances.<sup>216</sup> Fourth, any project that requires federal authorization to alter fish habitat or that requires modifications following the production of plans and specifications in connection therewith, automatically subjects the project to environmental assessment requirements under CEAA.<sup>217</sup> Experience with respect to each aspect is considered below.

The prohibitions on altering fish habitat and depositing deleterious substances in water frequented by fish have resulted in numerous prosecutions of mining companies over the years. The cases

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<sup>210</sup> HURLBURT, *supra* note 201, at 10-11. The natural resources standing committee of Parliament recommended that the federal government develop a "usable definition of waste that excludes safe and environmentally appropriate metal recyclables." STREAMLINING ENVTL. REGULATION, *supra* note 8, at 30.

<sup>211</sup> STREAMLINING ENVTL. REGULATION, *supra* note 8, at 28-30 (noting concerns of Environment Canada that due caution must be exercised when dealing with potentially toxic substances and that while recycling should be promoted, appropriate environmental standards should be established).

<sup>212</sup> R.S.C. 1985, c. F-14, s.35(1).

<sup>213</sup> *Id.*, s. 36(3).

<sup>214</sup> *Id.*, s. 78.6 (persons may escape quasi-criminal liability under the statute if they exercise all due diligence to prevent the commission of the offence; or reasonably and honestly believed in the existence of facts that, if true, would render their conduct innocent).

<sup>215</sup> *Id.*, s. 36(4).

<sup>216</sup> Metal Mining Liquid Effluent Regulations, C.R.C., c. 819, ss. 4-5, as am.

<sup>217</sup> CEAA, Law List Regulations, SOR/94-636, Sch. I, Part I (1994) (listing of ss. 35(2) and 37(2) of Fisheries Act subjects projects covered by these provisions to the requirements of CEAA).

demonstrate three things: (1) a wide variety of mining activities may give rise to quasi-criminal liability under this statute;<sup>218</sup> (2) the courts take into account several factors in sentencing defendants under this legislation;<sup>219</sup> and (3) the defence of due diligence to a prosecution can succeed in averting liability under the Act in certain circumstances.<sup>220</sup> However, in some parts of the country, responsibility for ensuring compliance and enforcement of the Fisheries Act rests with the provinces by formal or informal arrangement with the federal government. Recently, some provinces have announced their intention to cease providing enforcement of the fish habitat provisions of the Act, and returning this responsibility to the federal government.<sup>221</sup> With severe budget cuts currently being experienced by both levels of government, this decision may result in future problems in achieving compliance and enforcement under the statute.<sup>222</sup>

Pursuant to enabling provisions under the Fisheries Act,<sup>223</sup> regulations were promulgated in 1977 to protect fish and fish habitat from deleterious substances in liquid effluent from metal mines.<sup>224</sup> The regulations apply to every new, expanded, and re-opened mine, other than a gold mine.<sup>225</sup> Existing mines in operation before 1977 are not covered by the regulations, unless they have expanded or re-opened since 1977, or increased their production rate by more than thirty percent from 1977.<sup>226</sup> The regulations prescribe several substances as deleterious and set limits on the concentrations of such substances that may appear in metal mining effluent. The prescribed substances are arsenic, copper, lead, nickel, zinc,

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<sup>218</sup> See, e.g., *R. v. Cardinal River Coals Ltd.*, (1972), 1 F.P.R. 10A (Alta. Prov. Ct.) (discharge of water contaminated with high concentrations of coal fines into creek which flowed past open pit mines); *R. v. United Keno Hill Mines Ltd.*, (1979), 2 F.P.R. 212 (Yukon Mag. Ct.) (tailings dam failure resulting in release of 11.8 million gallons of mining effluent containing zinc, cadmium, copper, and other minerals into nearby creek); *R. v. Equity Silver Mines Ltd.*, (1983), 3 F.P.R. 372 (B.C. Prov. Ct.) (acid mine drainage from waste rock dumps at open pit mine entering creek containing fish); *R. v. Westmin Resources Ltd.*, (1985), 4 F.P.R. 487 (B.C. Prov. Ct.) (treated effluent from metallurgical process discharged into lake killing fish under test conditions); *R. Queenstake Resources Ltd.*, (1990), 5 F.P.R. 421 (Yukon Terr. Ct.) (siltation from stripping operations along creekbed).

<sup>219</sup> See, e.g. *R. v. United Keno Mines Ltd.*, (1980), 19 C.E.L.R. 43 (Yukon Terr. Ct.) and *R. V. St. Lawrence Fluorspar Ltd.*, (1989), 5 F.P.R. 503 (Nfld. Prov. Ct.) (sentencing principles include nature of environment, extent of injury, criminality of conduct, extent of attempts to comply, remorse, size of corporation, profits realized by offence, criminal record, protection of the public, specific and general deterrence).

<sup>220</sup> See, e.g., *R. v. Jack Cewe Ltd.*, (1987), 4 F.P.R. 271 (B.C. Prov. Ct.) (company took all reasonable steps in the circumstances to solve environmental problems including participating in government committee which had not identified a problem with company's operations, complying with all government directions, and spending \$1.2 million on implementing environmental protection measures).

<sup>221</sup> Gary Gallon, *Ontario Deregulation Continues: Ends Enforcement under Federal Fisheries Act*, GALLON ENV'T NEWSLETTER 1 (Sept. 8, 1997).

<sup>222</sup> *Id.*

<sup>223</sup> R.S.C. 1985, c. F-14, s. 36(4).

<sup>224</sup> Metal Mining Liquid Effluent Regulations, C.R.C., c. 819, as am.

<sup>225</sup> *Id.*, s. 3.

<sup>226</sup> *Id.*, s. 2 (definitions of new, expanded, or reopened mines).

total suspended matter, and radium 226.<sup>227</sup> The regulations also set out sampling frequencies, test methods, reporting requirements, and permitted variances.<sup>228</sup> The metal mining liquid effluent regulations have been controversial since their inception for a variety of reasons. First, when they were promulgated in 1977, they did not apply to any metal mines then operating in Canada. Second, one of the first proposed mines that was to be subject to the regulations obtained a special exemption from their requirements,<sup>229</sup> thus bringing the federal process for regulating mining activities as a whole into disrepute.<sup>230</sup> Third, more recently the mining industry and a natural resources standing committee of Parliament have expressed reservations about the prohibitions on the deposit of deleterious substances in water frequented by fish contained in the regulations. The industry would prefer that the regulations take into account such factors as risk assessment, length of exposure, contaminant concentration, and the natural chemical characteristics of water bodies before making regulatory decisions.<sup>231</sup> The industry and the standing committee have also urged adoption of recommendations arising from a multi-stakeholder report on the aquatic effects of mining which could see revisions to the regulations to take into account more site-specific effects.<sup>232</sup>

CEAA regulations make fish habitat authorizations under the Fisheries Act a trigger for the application of federal environmental assessment requirements.<sup>233</sup> Pursuant to these regulations, mining companies have been required to conduct environmental assessments of proposed projects.<sup>234</sup> However, recent parliamentary recommendations that would see management of fish habitat delegated to the provinces in whole or in part, have the potential to eliminate this trigger, have raised concerns about the constitutionality of such delegation, and have caused concern about the ability and willingness of the provinces to take on this responsibility.<sup>235</sup>

Overall, the Fisheries Act is an integral instrument in protection of fish and fish habitat, and indirectly water quality, from mining activities. A variety of initiatives are being developed by the federal

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<sup>227</sup> *Id.*, ss. 4-5, and Schs. I and II.

<sup>228</sup> *Id.*, ss. 6-11.

<sup>229</sup> Alice Arm Tailings Deposit Regulations, SOR/79-345, s. 3 (1979) (directing that the Metal Mining Liquid Effluent Regulations do not apply to the deposit of mill process effluent emanating from the operation of the Kitsault Mine into the waters of Alice Arm, B.C., and substituting other requirements).

<sup>230</sup> Schrecker, *supra* note 93, at 244-245 (noting that the exemption of the mining proposal from the requirements of the metal mining liquid effluent regulations was obtained without any public input and over the objections of environment department scientists, following private meetings between federal government ministers and officials and company officials).

<sup>231</sup> STREAMLINING ENVTL. REGULATION, *supra* note 8, at 23.

<sup>232</sup> *Id.* at 24. See also GOV'T OF CAN. ET AL., ASSESSMENT OF AQUATIC EFFECTS OF MINING IN CAN. (1996) [hereinafter AQUAMIN].

<sup>233</sup> CEAA, Law List Regulations, SOR/94-636, Sch., Part I (1994)(listing ss. 35(2) and 37(2) of the Fisheries Act).

<sup>234</sup> Union of Nova Scotia Indians v. Can. (Attorney General), (1997), 22 C.E.L.R. (N.S.) 293 (F.C.T.D.).

<sup>235</sup> STREAMLINING ENVTL. REGULATION, *supra* note 8, at 25-26. See also PAUL MULDOON & MARK WINFIELD, CAN, ENVTL. LAW ASS'N AND CAN. INSTITUTE FOR ENVTL. LAW AND POL'Y, BRIEF TO THE HOUSE OF COMMONS STANDING COMMITTEE ON NATURAL RESOURCES REGARDING MINING AND CANADA'S ENV'T 33 (1996)[hereinafter MULDOON & WINFIELD].

government, parliamentary committees, the provinces, the mining industry, and other stakeholders, that could change this picture in future, for better or worse.

## (ii) Provincial

At the provincial level in Canada there are numerous environmental statutes of general application that also are relevant to the control of mining operations. For the purposes of this report, the principal environmental laws of two provinces, Ontario and British Columbia, are reviewed.

### (A) Ontario

There are two environmental statutes in Ontario that have application to control of mining operations: (1) the Environmental Protection Act ("EPA");<sup>236</sup> and (2) the Ontario Water Resources Act ("OWRA").<sup>237</sup> Each statute will be briefly reviewed below.

The EPA, administered by the MOEE, is the province's most comprehensive environmental law, having application to air, water, and land pollution.<sup>238</sup> The statute contains a general prohibition on pollution,<sup>239</sup> establishes a permit program for dischargers which in effect constitutes an exception to the general pollution prohibition,<sup>240</sup> authorizes the issuance of a variety of environmental remediation orders,<sup>241</sup> creates an appeals tribunal in respect of approvals and orders,<sup>242</sup> establishes a complex set of offences and penalties,<sup>243</sup> including provisions creating environmental liability for officers and directors of corporations,<sup>244</sup> creates a special set of liabilities and obligations in relation to spills of pollutants into the

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<sup>236</sup> R.S.O. 1990, c. E.19.

<sup>237</sup> R.S.O. 1990, c. 0.40.

<sup>238</sup> R.S.O. 1990, c. E.19, s. 1(1)(definition of natural environment includes air, water, and land of the province).

<sup>239</sup> *Id.*, s. 14(1)(prohibition on discharging a contaminant into the natural environment that causes or is likely to cause an adverse effect, which generally refers to impairing the natural environment for any use that can be made of it).

<sup>240</sup> *Id.*, s. 9 (authorizing air approvals), part V (authorizing waste disposal approvals).

<sup>241</sup> *Id.*, s. 7 (control orders), s. 8 (stop orders) s. 17 (remedial orders), s. 43 (waste removal orders), s. 97 (restoration orders).

<sup>242</sup> *Id.*, part XIII (establishment of environmental appeal board).

<sup>243</sup> *Id.* ss. 186-194.

<sup>244</sup> *Id.*, s. 194 (director or officer engaging in activities that may result in the discharge of a contaminant into the natural environment contrary to EPA and regulations has duty to take all reasonable care to prevent the corporation from causing or permitting the unlawful discharge and commits an offence in failing to carry this duty).

environment,<sup>245</sup> authorizes special management and control of hazardous wastes,<sup>246</sup> and allows the MOEE to promulgate regulations.<sup>247</sup>

While all of the above aspects of the EPA are relevant to control of environmental contamination from mining activities, three aspects of the statute will be focused on for the purposes of this report. First, unlike the regimes under CEPA and the Fisheries Act, the EPA requires that before a company can emit contaminants into the air or dispose of them on land - water certificates being issued under the OWRA - the company must obtain a certificate of approval from the MOEE to operate.<sup>248</sup> That authority provides the ministry with an additional element of control over operators that is missing under the federal regime. Thus, when the ministry evaluates a company for compliance with the EPA, it is also evaluating the company in relation to an instrument without which the company cannot operate in the province. The ministry, however, tends to do a better job of reporting to the public on the compliance status of holders of water pollution certificates under the OWRA, than on holders of air pollution certificates under the EPA. The ministry's evaluation of air pollution effects of mining activities tend to be more generic in nature,<sup>249</sup> rather than company specific as is the case with water.<sup>250</sup> Moreover, since June 1995 the MOEE has suffered enormous budget cuts and corresponding staff cut backs<sup>251</sup> which have made it more difficult for the ministry to report on the compliance status of companies, even in relation to water, in the same degree of detail as was possible in the early 1990s.<sup>252</sup>

Second, the ministry has developed two types of controls under EPA regulations that are also applicable to mining activities; maximum concentration limits by industrial sector and total loading limits by individual company. For example, the MOEE has three sets of water pollution regulations for the metal

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<sup>245</sup> *Id.*, part X (owners and persons having control of pollutants have duty to notify ministry and others upon a spill occurring, and have duty to clean up and restore the natural environment to pre-spill conditions; failure to do so may subject these persons to civil and administrative liability under EPA).

<sup>246</sup> General Waste Management Regulation, R.R.O. 1990, Reg. 347, ss. 15-24, 27, and Sch. 2, part B (defining and establishing requirements for the tracking of hazardous and liquid industrial waste).

<sup>247</sup> R.S.O. 1990, c. E.19, s.176 (authority to promulgate regulations for each part of statute).

<sup>248</sup> *Id.*, s. 9 (air approvals), part V (waste disposal site approvals).

<sup>249</sup> See, e.g., W. KELLER & J.M. GUNN, MIN. OF THE ENV'T AND ENERGY AND MIN. OF NATURAL RESOURCES, EFFECTS OF SUDBURY SMELTER EMISSIONS ON LAKES IN ONT.: A REVIEW AND UPDATE 1 (1994)(noting that emissions of sulphur and metal particulates from the Sudbury smelters have had widespread effects on lakes in northeastern Ontario, with recent estimates indicating that over 7,000 lakes in a 17,000 square kilometre area around Sudbury having been biologically damaged due to lake acidification).

<sup>250</sup> See, e.g., 1 MIN. OF THE ENV'T AND ENERGY, REPORT ON THE 1991 INDUSTRIAL DIRECT DISCHARGES IN ONTARIO: SUMMARY OF COMPLIANCE ASSESSMENT (1993)(three-year compliance summary, particulars of monitoring results, and review of action taken to address 1991 non-compliance on a company by company basis).

<sup>251</sup> Gallon, *supra* note 221, at 1 (suggesting a 42 percent budget cut and loss hundreds of environmental officers' positions at MOEE).

<sup>252</sup> See, e.g., MIN. OF THE ENV'T AND ENERGY, 1995 WASTE WATER DISCHARGES REPORT (1996)[hereinafter 1995 WASTE WATER DISCHARGES] (qualitative summary of non-compliance only, no monitoring results included).

casting,<sup>253</sup> industrial minerals,<sup>254</sup> and metal mining<sup>255</sup> sectors of the mining industry. Under each regulation, maximum contaminant concentrations are set out for each sector,<sup>256</sup> in addition to sampling,<sup>257</sup> monitoring,<sup>258</sup> and reporting<sup>259</sup> requirements. The MOEE also has company specific air pollution regulations to combat acid rain which set out total annual loadings which may be emitted to air by each company identified by regulation.<sup>260</sup> Several of the companies subject to the acid rain regulations are mining companies emitting some of the largest quantities of sulphur dioxide in the province. While both types of regulations provide important controls on the mining industry, the water pollution control regulations do not necessarily employ the total loading approach of the company specific acid rain regulations, and the acid rain regulations only apply to one or two mining companies operating in the province.

The third aspect of the EPA that is of particular significance to environmental control of the mining industry in Ontario relates to enforcement. Under the EPA, the ministry may prosecute violations of the statute's prohibitions, orders, approvals, or regulations as quasi-criminal offences. Under these authorities, officers and directors of mining companies have been convicted for failing to take all reasonable care to prevent their corporations from causing or permitting unlawful discharges contrary to the statute.<sup>261</sup> The ministry may also issue administrative orders which are subject to appeal to the province's Environmental Appeal Board ("EAB"). This administrative body, created under the EPA, hears appeals by applicants and holders of certificates of approval regarding ministry refusals to issue approvals, or the imposition of terms and conditions thereon, or the imposition of remedial orders of various types. Experience with the EAB demonstrates that such a tribunal can provide effective examination of complex issues such as determining ownership, management, and control of tailings disposal areas,<sup>262</sup> and determining of adverse environmental effects from mining activities.<sup>263</sup>

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<sup>253</sup> Effluent Monitoring and Effluent Limits-Metal Casting Sector Regulation, O. Reg. 562/94, as am.

<sup>254</sup> Effluent Monitoring and Effluent Limits-Industrial Minerals Sector Regulation, O. Reg. 561/94, as am.

<sup>255</sup> Effluent Monitoring and Effluent Limits-Metal Mining Sector Regulation, O. Reg. 560/94, as am.

<sup>256</sup> See, e.g., *Id.*, Sch. 1 (concentration limits for cyanide, total suspended solids, copper, lead, nickel, zinc, and arsenic).

<sup>257</sup> *Id.*, ss. 7-10.

<sup>258</sup> *Id.*, ss. 20-30.

<sup>259</sup> *Id.*, ss. 34-39.

<sup>260</sup> See Inco Sudbury Smelter Complex Regulation, O.Reg. 660/85; and Falconbridge Smelter Complex Regulation, O.Reg. 661/85 (source specific regulations listing maximum amount in kilotonnes of sulphur dioxide or related emission permitted per year and setting out what maximum amount will be for subsequent years).

<sup>261</sup> *R. v. Matachewan Consol. Mines Ltd.*, (1994), 13 C.E.L.R. (N.S.) 156 (Ont. Ct.-Gen. Div.)(director convicted of failing to take all reasonable care to prevent the corporation from causing or permitting discharge of mine tailings into river).

<sup>262</sup> *Pamour Inc. v. Director, Min. of the Env't*, File No. 00016.A1(O.E.A.B. Sept. 8, 1992) (ownership of mine not include tailings under applicable legislation in force at time of contamination event).

<sup>263</sup> *Preston Elec. & Mechanical Ltd. v. Director, Min. of Env't and Energy*, File No. SWO.002.90 (O.E.A.B. Oct. 14, 1993)(effects on environment of PCB contaminated transformers in underground mine).

The OWRA is one of Ontario's oldest environmental laws, having been enacted in the 1950s. It contains many of the same provisions as the EPA, including prohibitions on water pollution, authority to issue approvals and orders regarding water pollution that constitute exceptions to the statute's prohibitions, and a complex set of offences and penalties, including provisions creating liability for officers and directors of corporations. Authority to issue water pollution regulations exists under this statute, but such regulations have in fact been promulgated pursuant to the more comprehensive powers contained under the EPA. The OWRA is also administered by the MOEE. All of the OWRA provisions potentially have application to mining activities.

Two aspects of the OWRA are of particular interest in the context of mining operations. First, despite decades of regulation of the mining industry in Ontario, mining activities are still not in compliance with Ontario water pollution control requirements. For example, ministry status reports on waste water discharges showed that in 1995 all nine mining companies operating in the northern administrative region of the ministry violated the mining effluent limits of their certificates of approval under the OWRA at certain times during the year.<sup>264</sup> One company exceeded the monthly limit for zinc once and the daily limit for zinc sixteen times.<sup>265</sup>

Second, caselaw has demonstrated that mining companies can be convicted under the general prohibition provisions of the OWRA for discharging mine effluent that is less contaminated than the receiving water body,<sup>266</sup> that OWRA offences are those of strict liability that can result in convictions for failure to take all reasonable care to avoid commission of an offence, such as negligent maintenance of a closed mine tailings dam,<sup>267</sup> and that senior mining company managers can be vicariously liable for the actions of other individuals in charge of the actual mining operations.<sup>268</sup> With the advent of major budgetary cuts to the MOEE, however, the ability of the ministry to maintain enforcement capability has been diminished. Generally, prosecutions by the ministry are down dramatically from previous years.<sup>269</sup> Because mining operations are often located in remote areas of the province, this may make compliance and enforcement efforts much more time-consuming and expensive. The extent to which budget cuts have resulted in ministry inability to prosecute mining companies for environmental violations is unclear at this time.

The ministry has recently produced guidelines for use at contaminated sites.<sup>270</sup> These guidelines, by definition are without legal effect, and are not intended to apply to mining activities where closure

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<sup>264</sup> 1995 WASTE WATER DISCHARGES, *supra* note 252, at 16-17.

<sup>265</sup> *Id.* at 16.

<sup>266</sup> *R. v. Falconbridge Nickel Mines Ltd.*, (1983), 12 C.E.L.R. 137 (Ont. Dist. Ct.).

<sup>267</sup> *Matchewan Consol. Mines Ltd.* 13 C.E.L.R. 156.

<sup>268</sup> *R. v. Sheridan*, (1972) 2 O.R. 192 (Ont. H.C.).

<sup>269</sup> See Martin Mittelstaedt, *Ontario pollution fines plunge*, *Globe and Mail*, Jan. 10, 1997, at A6 (noting that in the first 10 months of 1996 prosecutions dropped by 21 percent and fines dropped by 57 percent).

<sup>270</sup> MIN. OF THE ENV'T AND ENERGY, GUIDELINE FOR USE AT CONTAMINATED SITES IN ONT. (1997).



conditions have been specified under Ontario mining legislation.<sup>271</sup> However, the guidelines could be made to apply on a case by case basis to a particular mine site or facility by ministry order or approval.<sup>272</sup>

Overall, Ontario environmental legislation has extensive application to mining activities. Whether the ministry will be able to maintain appropriate compliance and enforcement in the face of major budget cuts remains to be seen.

### **(B) British Columbia**

The principal environmental statute in British Columbia is the Waste Management Act ("WMA").<sup>273</sup> As a statute of general application, the WMA also applies to mining activities. The statute contains many of the same general approaches found in Ontario's environmental legislation such as the ability to issue permits,<sup>274</sup> orders,<sup>275</sup> and to prosecute offences committed under the statute or regulations, as well as to manage special waste<sup>276</sup> and control spills of polluting substances.<sup>277</sup> The WMA also establishes a tribunal to hear appeals from ministry decisions on permits and approvals. Like the situation under Ontario's appeal regime, appeal hearings in British Columbia can often provide needed scrutiny on the adequacy of ministry environmental compliance and enforcement efforts.<sup>278</sup>

Two aspects of the WMA are considered below which have particular relevance to environmental control of mining activities. First, in conjunction with on-going federal and provincial initiatives on the management of contaminated sites,<sup>279</sup> recent amendments to the statute authorize the MELP to address problems in connection with such sites and to require remediation where necessary.<sup>280</sup> Mine owners must

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<sup>271</sup> *Id.*, at 4.

<sup>272</sup> *Id.*

<sup>273</sup> S.B.C. 1982, c. 41, as am.

<sup>274</sup> *Id.*, s. 8.

<sup>275</sup> *Id.*, s. 22 (pollution abate orders where substance causing pollution).

<sup>276</sup> Special Waste Regulation, B.C. Reg. 63/88 (certain sections not applying to facility where only mine tailings or waste rock managed).

<sup>277</sup> Spill Reporting Regulation, B.C. Reg. 263/90 (reporting and response requirements).

<sup>278</sup> See, e.g., *Kitamaat Village Council v. B.C. (Min. of Env., Lands and Parks)*, Appeal No. 92/25 (B.C.E.A.B. Sept. 13, 1993)(reviewing history of ministry enforcement practices and noting that where effluent permit is issued for smelter, ministry is obliged to enforce permit's terms and conditions).

<sup>279</sup> See, e.g., CAN. COUNCIL OF MINISTERS OF THE ENV'T, GUIDANCE DOCUMENT ON THE MANAGEMENT OF CONTAMINATED SITES IN CAN. 1 (1997)(noting that across Canada there are an estimated 1,000 sites contaminated with hazardous materials and that the objectives of federal-provincial cooperation are to ensure that parties responsible for contamination pay for the costs of remediation, high-risk sites for which there is no identifiable owner or responsible party be remediated, and innovative remediation strategies are developed by industry).

<sup>280</sup> S.B.C. 1993, c. 25.

provide site profiles to the ministry under certain circumstances.<sup>281</sup> These site profiles may result in ministry orders to the owner to investigate and report on conditions at the site where the ministry suspects that the site may be contaminated or contain substances that may cause or threaten to cause adverse effects on human health or the environment.<sup>282</sup> Remediation orders may be issued to any responsible person,<sup>283</sup> certificates of compliance may be issued when remediation work is completed,<sup>284</sup> and the ministry may determine that a site is an orphan site and take responsibility for its restoration.<sup>285</sup> Regulations under the WMA<sup>286</sup> specifically designate categories of mining and metal smelting industries that are subject to the contaminated sites requirements,<sup>287</sup> provide for exemptions to the regulations,<sup>288</sup> set out soil and water standards for various listed substances,<sup>289</sup> and set the fees payable to the government for determining the status of contaminated properties.<sup>290</sup> While the contaminated sites program is quite extensive, the regulations exempt coal, metal and placer mines that produce less 10,000 tonnes of ore annually,<sup>291</sup> or any site that was remediated prior to April 1997 to standards that in the opinion of MELP substantially satisfy the remediation standards of the contaminated sites regulation.<sup>292</sup>

The second aspect of the WMA that is relevant to mining activities is that placer mining waste control regulations<sup>293</sup> exempt such mining operations from the requirement to hold a permit or approval under the WMA if the discharges are from hand panning for gold, testing for the presence of placer

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<sup>281</sup> *Id.*, s. 20.11(4)(new or revised permit or stop work notice requiring site profile).

<sup>282</sup> *Id.*, s. 20.2.

<sup>283</sup> *Id.*, s. 20.5.

<sup>284</sup> *Id.*, s. 20.71.

<sup>285</sup> *Id.*, s. 20.92.

<sup>286</sup> Contaminated Sites Regulation, B.C. Reg. 375/96.

<sup>287</sup> *Id.*, Sch. 2, Col. I, Item C (metal smelting, processing, or finishing industries) and Item D (mining, milling, or related industries such as asbestos, coal, lignite, or nonferrous metal mining or milling activities).

<sup>288</sup> *Id.*, s. 4(1)(c)(exemption from site profile requirement where mine subject to reclamation permit under Mines Act, provided that the person has no reason to believe that there is contamination at the site that is not otherwise addressed in the reclamation permit).

<sup>289</sup> *Id.*, Sch. 4-5 (soil standards), Sch. 6 (water standards). Substances under these schedules include inorganic substances such as antimony, beryllium, cobalt, cyanide, mercury, nickel, silver, thallium, tin, arsenic, cadmium, copper, lead, uranium, iron, and zinc.

<sup>290</sup> *Id.*, Table 2.

<sup>291</sup> *Id.*, s. 4(10).

<sup>292</sup> *Id.*, s. 4(2).

<sup>293</sup> Placer Mining Waste Control Regulation, B.C. Reg. 107/89.

minerals in a particular way, or mining production that does not use mercury or chemicals and the mine is located on certain listed creeks.<sup>294</sup>

Environmental regulation of mining activities in British Columbia has taken both similar and novel approaches compared to Ontario. The focus on control and remediation of contaminated sites is a major innovative measure that is covered in a less comprehensive way by Ontario. Whether the exemption for smaller scale mining activities producing less than 10,000 tonnes of ore annually will constitute a significant gap in the coverage of the B.C. program remains to be seen.

## **b) Chile**

In Chile, there are two broad types of environmental regulation pertinent to control of mining activities: (1) environmental standards; and (2) prevention and decontamination plans. The key characteristics of each regime are reviewed below.

### **(i) Environmental Standards**

Chile's Basic Law<sup>295</sup> provides the framework for CONAMA to develop and promulgate three types of national environmental standards:<sup>296</sup> (1) primary environmental quality standards for protection of human health;<sup>297</sup> (2) secondary environmental quality standards for protection of the environment;<sup>298</sup> and (3) emissions standards for industrial sources.<sup>299</sup> The process for development of standards includes: determining which substances will be subject to standards,<sup>300</sup> establishing an interministerial technical

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<sup>294</sup> *Id.*, ss. 2-3.

<sup>295</sup> Basic Law, art. 32 (environmental quality standards), art. 40 (emissions standards).

<sup>296</sup> Basic Law, Regulations for Promulgation of Environmental Quality and Emissions Standards, Supreme Decree No. 93 (1995).

<sup>297</sup> *Id.*, art. 2.

<sup>298</sup> *Id.*, art. 3.

<sup>299</sup> *Id.*, art. 4.

<sup>300</sup> *Id.*, art. 9.

operating committee<sup>301</sup> to produce background studies<sup>302</sup> and draft standards,<sup>303</sup> consulting with public or private organizations on the subject matter for which standards are to be promulgated,<sup>304</sup> publishing draft standards in the Official Gazette for public comment,<sup>305</sup> finalizing the standard,<sup>306</sup> approving the standard by the President of the Chilean Republic and the relevant minister by Supreme Decree,<sup>307</sup> and allowing any person alleging that the standard is inconsistent with the Basic Law and prejudicial to that person to appeal the standard to a court within thirty days of the Supreme Decree.<sup>308</sup> Environmental quality standards must be reviewed every five years.<sup>309</sup> Pursuant to this process, for example, a primary environmental quality standard for air emissions of arsenic has been under development for some time due, in part, to concerns with respect to risks to human health arising from arsenic emissions from copper mining activities.<sup>310</sup>

In reviewing the Basic Law's requirements for establishing environmental standards a key issue relates to the distinction made in the statute between environmental quality standards and emission standards. The primary and secondary environmental quality standards appear to authorize the establishment of acceptable levels of a substance in relation to human health or the environment. However, environmental quality standards are not industrial sector specific and would not appear to apply to any particular company. The key standards would appear to be the emissions standards because they establish the maximum permitted quantity for a particular pollutant in an industrial source's emissions. Thus, while environmental quality standards appear to set the goal or objective that Chile would like to see achieved generally in relation to any particular substance, the emissions standards would appear to be the

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<sup>301</sup> *Id.*, art. 6.

<sup>302</sup> *Id.* art. 25 (studies in support of primary environmental quality standards must identify and characterize substances which may constitute a risk to life or health of the population, describe pollutant distribution from natural or man-made sources, compile information on adverse effects from exposure to the pollutant, identify sources and pathways of exposure, and effects of the pollutant in combination with other substances), art. 31 (studies in support of emission standards must focus on distribution of the pollutant in the environment, relationship between pollutant emissions and environmental quality, capacity for dilution, environmental and human health effects, technical and economic feasibility of applicable control technologies).

<sup>303</sup> *Id.*, art. 26 (criteria in preparing a primary environmental quality standard include seriousness and rate of damage and adverse effects, number of people exposed, area, magnitude, persistence, and origin of the pollutant in the environment), art. 23, 33 (secondary environmental change or metabolic alterations of the pollutant), art. 23, 33 (maximum permitted concentration limits, and periods of exposure, effluent limits, number of permitted exceedances during a given period, emergency critical values, territorial scope of standard, results expected from standard, types of sources regulated, planned deadlines and compliance levels).

<sup>304</sup> *Id.*, art. 6.

<sup>305</sup> *Id.*, art. 11, 17-20.

<sup>306</sup> *Id.*, art. 21-23.

<sup>307</sup> *Id.*, art. 24; Basic Law, art. 32, 40.

<sup>308</sup> Supreme Decree, No. 93 (1995), art. 36.

<sup>309</sup> Basic Law, art. 32.

<sup>310</sup> REPUBLIC OF CHILE, DIRECTORY OF ENVTL. LEGISLATION 83 (1996). See also MARTINEZ & VAUGHAN, *supra* note 174, at 82-83.

true basis for enforcing or achieving that goal. The environmental quality standards may therefore be analogized to ambient air quality criteria, while the emissions standards constitute the true regulatory device for achieving those criteria. This division of standards into ambient and emission also occurs in Canada at the federal and provincial level. In Canada, it is often the case that ambient air quality criteria are not enforceable, only emissions or, in some jurisdictions, point of impingement standards are enforceable.

## (ii) Prevention and Decontamination Plans

The Basic Law also establishes the framework for developing prevention and decontamination plans.<sup>311</sup> Prevention plans are environmental management instruments used to prevent primary and secondary environmental quality standards from being exceeded in areas called latent zones.<sup>312</sup> Decontamination plans are environmental management instruments designed to restore areas, called saturated zones, where primary and secondary environmental quality standards have been exceeded.<sup>313</sup> A decision that a prevention or decontamination plan for an area is necessary is made by CONAMA based on certain information which must be developed in advance of the decision.<sup>314</sup> The development of these plans occurs in a manner similar to the development of environmental quality and emissions standards, including opportunities for public notice, comment, and appeals.<sup>315</sup> The required general contents of the plans are set out in the Basic Law<sup>316</sup> and the regulations<sup>317</sup> establishing the prevention and decontamination plan process. Programs of compliance verification and inspection are also required to be included in the plans.<sup>318</sup> Decontamination plans for emissions of sulphur dioxide have been developed for

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<sup>311</sup> Basic Law, art. 43-47.

<sup>312</sup> Regulations Establishing the Procedure and Stages for the Establishment of Prevention and Decontamination Plans, Supreme Decree No. 94 (1995), art. 2. Latent zones are defined as areas in which the measurements of pollutants in the air, water, or soil are between 80 percent and 100 percent of the value of the respective environmental quality standards. Basic Law, art. 2(t).

<sup>313</sup> Supreme Decree, No. 94, art. 2. Saturated zones are areas in which one or more environmental quality standards are exceeded. Basic Law, art. 2(u).

<sup>314</sup> Supreme Decree, No. 94, art. 6-7 (studies in support of decision must include types and location of sources that impact area, magnitude of emissions, assessment of adverse impact on health of affected population, environmental characteristics of receiving media, environmental impact management instruments, social and economic impact of the use of such instruments).

<sup>315</sup> *Id.*, art. 4, 8-14, 19.

<sup>316</sup> Basic Law, art. 45 (relationship between total emission levels and the contaminant levels to be regulated, period of time set to attain plan's emission reduction goal, indication of those responsible for compliance, identification of the authorities responsible for supervision, environmental management instruments to be used to meet plan's objectives, proportional responsibility of those to achieve emission reductions, estimate of economic and social costs, emission compensation mechanisms).

<sup>317</sup> Supreme Decree, No. 94, art. 15, 17.

<sup>318</sup> *Id.*

certain "saturated" areas of Chile where air quality standards have been exceeded by private and public sector mining operations.<sup>319</sup>

The success of prevention and decontamination plans for existing operations may be highly dependent on the extent to which compliance can be verified through inspections or other means. It is unclear whether the Chilean government has the resources to oversee compliance with plans.

## 2. Mining Exploration, Development, Reclamation and Rehabilitation Controls

In addition to controls arising from environmental protection legislation, mining laws in both Canada and Chile may also provide a basis for implementing some environmentally protective measures in relation to mining operations at the exploration, development, reclamation, and rehabilitation stages. In Canada these controls, with the exception of requirements imposed on uranium and thorium mining and milling activities, primarily arise in the context of provincial law. In Chile, national mining legislation provides the basis for imposing controls during any of these stages of activity.

### a) Canada

In Canada, there are a variety of federal and provincial mining laws which may allow governments to impose environmentally protective measures on mining operations, or allow governments to withdraw certain state owned lands from mining activity.<sup>320</sup> Because of the division of powers under the Canadian Constitution, the provinces are vested with the lion's share of jurisdiction in relation to Crown lands and resources. The federal government derives most of its authority in this area in relation to uranium and thorium mining and milling activities, which have been declared by statute to be works for the general advantage of Canada,<sup>321</sup> pursuant to that head of power under the Canadian Constitution.<sup>322</sup>

#### (i) Federal

##### (A) Atomic Energy Control Act

The Atomic Energy Control Act ("AECA") regulates certain prescribed substances relevant to mining, including uranium and thorium.<sup>323</sup> The AECA establishes a Board, the Atomic Energy Control

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<sup>319</sup> WORLD BANK, *supra* note 10, at 19, 21-22.

<sup>320</sup> See, e.g., Mining Act, R.S.O. 1990, c. M.14, s.36 (allowing minister to withdraw from prospecting and staking lands, mining rights, or surface rights that are the property of the Crown, and to reopen such lands to those activities). See also BARRY J. BARTON, CANADIAN LAW OF MINING 169-176 (1993) (noting that withdrawal may be authorized for a variety of reasons including protection of infrastructure such as transmission lines, watersheds, to enforce a moratorium while conflicting future land uses are resolved, and to complement parks policies).

<sup>321</sup> Atomic Energy Control Act, R.S.C. 1985, c. A-19, s.18.

<sup>322</sup> CAN. CONST. (Constitution Act, 1867), s. 92(10)(c).

<sup>323</sup> Atomic Energy Control Act, R.S.C. 1985, c. A-19, s.2.

Board ("AECB"),<sup>324</sup> which is authorized to develop regulations respecting mining and prospecting for, and production and refining of, these substances.<sup>325</sup> The Minister of Natural Resources is authorized to acquire prescribed substances and any mines, deposits, claims, or production works in connection therewith.<sup>326</sup> Companies may be incorporated under the Act to engage in such activities, and are deemed to be agents of the federal government.<sup>327</sup>

Pursuant to the authorities set out under the statute, the federal government has promulgated regulations in relation to uranium and thorium mining activities.<sup>328</sup> The regulations constitute a complete code of conduct in relation to such activities. Matters covered under the regulations include issuance and revocation of licences and approvals for excavating, removing, siting, constructing, operating, and decommissioning such facilities. Pursuant to each of these activities applicants for a licence must satisfy the AECB that the environment will be protected and must provide appropriate supporting documentation to that effect. The regulations also set out requirements for the production of records and reports and authorize inspection and compliance initiatives by AECB inspectors. The latest amendments to the regulations emphasize development, financing, and implementation of decommissioning plans to ensure that the costs of decommissioning uranium mining facilities are borne by industry and not by government.<sup>329</sup>

Uranium mining and milling projects have long been subject to federal environmental assessment procedures.<sup>330</sup> Since 1995, various provisions of AECA have constituted triggers for the application of CEAA to uranium and thorium mining and milling projects.<sup>331</sup>

## (ii) Provincial

Historically, provincial mining laws have shared many of the same characteristics due to the fact that they are based on Crown ownership and exploitation of mineral resources under the Canadian Constitution. Most mining laws set out the manner in which the Crown may dispose of its minerals and others may obtain rights to them.<sup>332</sup> As environmental management concerns in connection with mining

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<sup>324</sup> *Id.*, s.3.

<sup>325</sup> *Id.*, s.9(c)(d).

<sup>326</sup> *Id.*, s.10(c).

<sup>327</sup> *Id.*, s.11.

<sup>328</sup> Uranium and Thorium Mining Regulations, SOR/88-243, as am (1988).

<sup>329</sup> Uranium and Thorium Mining Regulations Amendment, SOR/94-653 (1994). *See also* 128 Can. Gaz. Part II, 3509 (1994) (regulatory impact analysis statement accompanying amendment to regulation).

<sup>330</sup> *See supra* text accompanying notes 104-105.

<sup>331</sup> CEAA, Law List Regulations, SOR/94-636, s. 6; Exclusion List Regulations, SOR/94-639, ss. 21-30; Comprehensive Study List Regulations, SOR/94-638, s.19; Inclusion List Regulations, SOR/94-637, ss.20-24.

<sup>332</sup> BARTON, *supra* note 320, at 1.

activities have increased in recent years,<sup>333</sup> certain stages of mining operations including exploration, reclamation, and rehabilitation have seemed particularly well suited to be regulated under mining laws. However, there is great disparity in the approaches of provincial mining laws to these issues ranging from the application of sustainable development principles to mine exploration, development, and reclamation to outright deregulation to accommodate mining interests. Examples of these approaches are reviewed below.

### (A) *British Columbia*

The Mines Act<sup>334</sup> imposes permit requirements and authorizes permit exemptions for those proposing to establish mines in the province.<sup>335</sup> As a condition of permit issuance, the chief mine inspector may require security to ensure mine reclamation and to provide for protection and mitigation of damage to watercourses affected by the mine.<sup>336</sup> The Act also authorizes the establishment of a mine reclamation fund to ensure sufficient revenue to provide for reclamation after a mine has ceased operating.<sup>337</sup> The Act further authorizes inspectors to order work to be done to remove danger to persons or property or to abate pollution of land or watercourses affected by a mine.<sup>338</sup> The statute also authorizes establishment of a Health, Safety, and Reclamation Code. The Code, in force since 1952, sets reclamation standards for major coal and hard rock mineral mines, including requirements for the return of land and watercourses to productive use, clean-up, revegetation, the safe disposal or impoundment of waste, and the minimization of acid mine drainage.<sup>339</sup>

### (B) *Saskatchewan*

The Crown Minerals Act<sup>340</sup> requires the responsible minister to cancel any disposition of resources for which an environmental assessment determines that the development should not proceed and the provincial cabinet, on the advice of the environment minister, so directs the minister.<sup>341</sup> Upon cancellation, the former holders of the Crown disposition are entitled to compensation,<sup>342</sup> but no other remedy against

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<sup>333</sup> STATE OF CANADA'S ENV'T, *supra* note 7, at 11-56, 11-65.

<sup>334</sup> S.B.C. 1989, c. 56.

<sup>335</sup> *Id.*, ss. 1,10(1).

<sup>336</sup> *Id.*, ss. 10(4)(5).

<sup>337</sup> *Id.*, s.10. See also Mine Reclamation Fund Regulation, B.C. Reg. 287/94 (1994).

<sup>338</sup> S.B.C. 1989, s.17.

<sup>339</sup> GREG SIMMONS, SIERRA LEGAL DEFENCE FUND, ENVTL. REGULATION OF MINING: HISTORICAL OVERVIEW NOTES 1, 5-6 (1997).

<sup>340</sup> S.S. 1984-85-86, c. C-50.2.

<sup>341</sup> *Id.*, s.10.1(2).

<sup>342</sup> *Id.*, s.10.1(3).



the Crown.<sup>343</sup> These provisions have been described as linking the management of minerals with management of the environment.<sup>344</sup>

**(C) Manitoba**

The Mines and Minerals Act<sup>345</sup> declares that the object and purpose of the statute is to provide for, promote, encourage, and facilitate exploration, development, and production of minerals and mineral products in Manitoba, consistent with the principles of sustainable development.<sup>346</sup> The Act further defines sustainable development principles to include: (1) integration of decisions respecting the economy and mining with environmental protection;<sup>347</sup> (2) economic development and environmental preservation for the benefit of present and future generations;<sup>348</sup> (3) prevention or minimization of environmental hazards from mineral development by avoiding policies, programs, and decisions that have significant adverse environmental or economic impact;<sup>349</sup> (4) application of conservation policies and practices that enable mineral extraction to proceed in an environmentally and economically wise manner;<sup>350</sup> (5) recycling of mining waste by-products to enable re-use, reduction, or recovery of the by-products;<sup>351</sup> and (6) rehabilitation of lands damaged by mining activity.<sup>352</sup> Other provisions of the Act authorize the establishment of a mine rehabilitation fund,<sup>353</sup> and the promulgation of rehabilitation regulations to ensure environmental protection.<sup>354</sup>

**(D) Ontario**

The purpose of the Mining Act<sup>355</sup> is to encourage prospecting, staking, and exploration for the development of mineral resources and to minimize adverse effects on the environment through the

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<sup>343</sup> *Id.*, s.10.1(5)(6).

<sup>344</sup> BARTON, *supra* note 320, at 21.

<sup>345</sup> S.M. 1991-92, c.9.

<sup>346</sup> *Id.*, s. 2(1).

<sup>347</sup> *Id.*, s. 2(2)(a).

<sup>348</sup> *Id.*, s. 2(2)(b).

<sup>349</sup> *Id.*, s. 2(2)(d).

<sup>350</sup> *Id.*, s. 2(2)(e).

<sup>351</sup> *Id.*, s. 2(2)(f).

<sup>352</sup> *Id.*, s. 2(2)(h).

<sup>353</sup> *Id.*, s. 195.

<sup>354</sup> *Id.*, s. 230(ee).

<sup>355</sup> R.S.O. 1990, c. M.14.

rehabilitation of mining lands in Ontario.<sup>356</sup> Despite this dual purpose, amendments to the law in an omnibus bill enacted in 1996, have been characterized as "gutting" the Act's provisions related to the closure and rehabilitation of mines in the province.<sup>357</sup> In particular, the amendments: (1) weakened the Act's provisions for provincial approval of mine closure plans; (2) eliminated the requirement that mining companies post financial securities to ensure that if they go bankrupt the taxpayer does not have to pay for the mine closure; (3) exempted the financial assurances for mine closures provided by mining companies from freedom of information requests; (4) removed the requirements from mining companies to deliver to the province annual reports on implementation of closure plans; and (5) exempted companies who surrender mining leases within twelve months of the amendments from liability for pre-existing mine hazards.<sup>358</sup>

### **(E) Quebec**

As a result of 1995 amendments, the Mining Act now imposes greater obligations on the Quebec mining industry to rehabilitate and restore the environment from the adverse effects of mining activities. The environmental restoration obligations apply to open pit or underground mines and tailings areas, and identify who must carry out such work, and particularize what must be done. The rehabilitation and restoration framework has been described as an "extremely exacting" framework.<sup>359</sup>

### **b) Chile**

Chile's national mining law makes no reference to environmental protection as one of the law's objectives.<sup>360</sup> The law authorizes any person to dig test holes and take mineral samples, regardless of ownership or property rights, subject to a right of compensation for resulting damage.<sup>361</sup> Mining activities require the specific approval of certain authorities when they are proposed near river banks, water courses and public lakes,<sup>362</sup> in national parks or reservation areas,<sup>363</sup> or sites declared to be of historical or

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<sup>356</sup> *Id.*, s. 2.

<sup>357</sup> CANADIAN INSTITUTE FOR ENVIRONMENTAL LAW AND POLICY, ONTARIO'S ENVIRONMENT AND THE "COMMON SENSE REVOLUTION" 106 (1997).

<sup>358</sup> *Id.*, at 106-107.

<sup>359</sup> Paul R. Granda & Odette Nadon, *The Mining Industry and the Restoration of the Environment in Quebec*, 18 C.E.L.R. (N.S.) 197 (1996).

<sup>360</sup> Mining Code, Law No. 18, 248 (1983).

<sup>361</sup> *Id.*, art. 14, 16.

<sup>362</sup> *Id.*, art. 17(1) (governor).

<sup>363</sup> *Id.*, art. 17(2) (intendent).

scientific interest.<sup>364</sup> The mining law also authorizes easements for ore, overburden, tailing and slag piles or various relating mining facilities, subject to the payment of damages to the owner of those lands.<sup>365</sup>

While the mining laws of various Canadian provinces are not uniform or necessarily comprehensive on environmental considerations, there appears to be increasing recognition of the need to mesh mineral management with environmental management directly in mining legislation. This has been primarily addressed in relation to reclamation and rehabilitation initiatives and the adoption of funds to ensure these environmentally protective measures take place. On the face of Chile's mining statute it appears that these concerns are not currently addressed.

### C. The Role of the Public

In addition to constitutional, common law, or civil law proceedings, the public in Canada and Chile also may have the opportunity to invoke statutory provisions to permit them to participate in the decision making process, or to seek redress in the courts in connection with the environmental effects of mining activities. This part of the report briefly discusses several of these citizen initiated options.

#### 1. Canada

There are several opportunities available for the public to influence the decision making process in Canada. These include: (1) public participation in the administrative process; (2) requests for investigation of potential violations of the law; (3) statutory causes of action; and (4) class actions or proceedings. Each option is briefly reviewed below.

##### a) *Public Participation in the Administrative Process*

Most federal and provincial environmental laws now provide the opportunity for the public to be given notice of proposed regulations and the option of commenting on them before they become finalized.<sup>366</sup> Rare, however, is the opportunity to challenge in court the adequacy of the final regulation produced.

The public may also be able to participate in administrative hearings on mining projects. This potential exists, for example, under federal and provincial environmental assessment legislation.<sup>367</sup> In practice, environmental assessment hearings under CEAA are very narrowly circumscribed,<sup>368</sup> and hearings at the provincial level have been rare.<sup>369</sup>

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<sup>364</sup> *Id.*, art. 17(6) (president of the republic).

<sup>365</sup> *Id.*, art. 120, 122.

<sup>366</sup> See, e.g. Environmental Bill of Rights ("EBR"), S.O. 1993, c. 28, part II (authorizing notice and comment opportunities for statutes, regulations, instruments, and policies).

<sup>367</sup> See *supra* part V.A.1.

<sup>368</sup> See *supra* part V.A.1.a.iii.

<sup>369</sup> See *supra* part V.A.1.b.i and ii.

**b) Requests for Investigations**

It has always been open to a member of the public to complain to government about possible violations of the law. In recent environmental legislation at both the federal<sup>370</sup> and provincial<sup>371</sup> levels this opportunity has been given formal legislative sanction. In practice, perhaps because of the more formal obligations that have been placed on members of the public who wish to use this procedure,<sup>372</sup> there have not been many instances of public use of these mechanisms.<sup>373</sup>

**c) Statutory Causes of Action**

Recent legislation at the provincial level has given members of the public the statutory entitlement to use the courts to protect environment the and public resources. In Ontario, the provisions have been in existence for only three years and have yet to be invoked.<sup>374</sup> In other jurisdictions, such as Quebec, the provisions have been used on occasion.<sup>375</sup>

**d) Class Actions or Proceedings**

In conjunction with broader statutory entitlement for individuals to protect the environment, some legislatures have also enacted legislation authorizing class actions for mass harm done to individuals or the environment. In Ontario, use of class proceedings law<sup>376</sup> would have to be invoked in connection with

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<sup>370</sup> CEPA, R.S.C. 1985, c. 16, s.108 (4th Supp.)(allowing any two Canadian residents over the age of 18 who are of the opinion that an offence has been committed to apply to the Minister for an investigation of the alleged offence and requiring a response within a specified time period).

<sup>371</sup> EBR, S.O. 1993, c. 28, part V (application for investigation by any two Ontario residents who believe a prescribed statute, regulation or instrument has been contravened).

<sup>372</sup> *Id.*, s. 74 (setting out material to be included in application and provision of sworn statement of belief as to the truth of the facts alleged).

<sup>373</sup> ENVIRONMENTAL COMMISSIONER OF ONTARIO, KEEP THE DOORS OPEN TO BETTER ENVIRONMENTAL DECISION MAKING: ANNUAL REPORT 1996 7 (1997)(noting 17 applications for investigation during 1996).

<sup>374</sup> EBR, S.O. 1993, c. 28, part VI (right of any person to sue for imminent contravention of law which causes or will imminently cause significant harm to a public resource). *See also* ENVIRONMENTAL COMMISSIONER OF ONTARIO, *supra* note 373, at 54 (right to sue not used during 1996 reporting period); *and* ENVIRONMENTAL COMMISSIONER OF ONTARIO, OPENING THE DOORS TO BETTER ENVIRONMENTAL DECISION MAKING: ANNUAL REPORT 1994-1995 64 (1996) (right to sue not used during 1994-1995 reporting period).

<sup>375</sup> Environmental Quality Act ("EQA"), R.S.Q. 1993, c. Q-2, s. 19.1 to 19.7 (authorizing any person resident in Quebec to apply for an injunction to protect the environment where there has been a contravention of the EQA, regulations, orders, or approvals under the EQA). *See also* Giroux, *supra* note 63, at 163-164 (examples of injunctions issued under the EQA).

<sup>376</sup> Class Proceedings Act, S.O. 1992, c. C.6.

the province's reform of the law of standing in public nuisance.<sup>377</sup> In Quebec, class actions are authorized and have been brought in environmental matters.<sup>378</sup>

## 2. Chile

In Chile opportunities to invoke notice and comment procedures are also available under the Basic Law in connection with environmental assessment, standard setting, and contaminant prevention and decommission plans.<sup>379</sup>

In addition, the Basic Law also gives individuals who have suffered damages or prejudice the right to take legal action to restore the environment.<sup>380</sup>

## VI. EMERGING INITIATIVES RELATING TO ENVIRONMENTAL CONTROL OF MINING ACTIVITIES

During the course of this report, reference has been made to emerging initiatives in both Canada and Chile that are relevant to the issue of environmental control of mining activities. The purpose of this part of the report is not to repeat the above review, but to summarize some of these initiatives and refer to certain other initiatives not previously discussed.

### A. Canada

There are emerging initiatives in Canada with respect to control of mining activities at the federal and provincial levels of government. In addition, there are certain federal-provincial initiatives, as well as certain voluntary initiatives from industry that are worthy of note.

#### 1. Federal

Among the initiatives emerging at the federal level include: (1) CEEA guidelines regarding mining activities;<sup>381</sup> (2) potential CEPA amendments that may eventually result in more substances important to the mining industry being designated as toxic and therefore subject to regulation;<sup>382</sup> (3) enactment of a

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<sup>377</sup> EBR, S.O. 1993, c. 28, s. 103 (reforming law of standing to sue in public nuisance). The EBR does not permit a s. 84 action to be brought by way of class proceeding but does not prevent an action in public nuisance from being brought as a class proceeding. *Id.*, ss. 84(7), 103.

<sup>378</sup> Giroux, *supra* note 63, at 161-162.

<sup>379</sup> See *supra* text accompanying notes 184-186, 304-308, 315.

<sup>380</sup> Basic Law, art. 51-59.

<sup>381</sup> See *supra* text accompanying notes 136-138.

<sup>382</sup> See Bill C-74, *Canadian Environmental Protection Act, 1997*, 35th Parl., 2nd Sess., 45 Eliz. II, part v (first reading Dec. 10, 1996, House of Commons) (control of toxic substances). Complex set of amendments proposed which may have the effect of increasing the number of substances designated as toxic under the statute. See also *supra* text accompanying notes 198-203 (priority substances including nickel, arsenic, and cadmium reviewed under existing statute may eventually be designated "CEPA-toxic").

Canada Endangered Species Protection Act, which could restrict mining development primarily on federal lands, when species are designated as endangered or threatened and proposed to be protected through recovery plans;<sup>383</sup> and (4) streamlining of federal regulations under the Fisheries Act pertaining to metal mining liquid effluents, which could result in either the strengthening or weakening of those regulations.<sup>384</sup>

## 2. Provincial

Emerging initiatives at the provincial level may also be positive or negative as they relate to control of mining activities. These include: (1) deregulation efforts in Ontario under the Mining Act which could adversely effect future reclamation and rehabilitation measures;<sup>385</sup> (2) attempts to blend sustainable development and environmental assessment principles in mining legislation in several of the prairie provinces;<sup>386</sup> (3) development of stringent new provisions on reclamation and rehabilitation in British Columbia and Quebec;<sup>387</sup> (4) application of contaminated sites requirements in British Columbia;<sup>388</sup> and (5) judicial recognition of the importance of applying environmental assessment legislation to the exploration stage of mining activities.<sup>389</sup>

## 3. Federal-Provincial

Among the more important federal-provincial initiatives include: (1) harmonization efforts with respect to environmental assessment, inspections and related activities which could result in the downloading of federal responsibilities to the provinces and the withdrawal of federal involvement in environmental control efforts to an extent that is difficult to determine at this stage,<sup>390</sup> and (2) joint efforts to examine the effects of mining activity on the environment, such as acid mine drainage.<sup>391</sup>

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<sup>383</sup> See Bill C-65, *Canada Endangered Species Protection Act*, 35th Parl., 2nd Sess., 45 Eliz. II, s. 3(2), 30-32, 42 (first reading Dec. 1996, House of Commons).

<sup>384</sup> See *supra* text accompanying notes 231-232

<sup>385</sup> See *supra* text accompanying notes 355-358.

<sup>386</sup> See *supra* text accompanying notes 340-354.

<sup>387</sup> See *supra* text accompanying notes 334-339, 359.

<sup>388</sup> See *supra* text accompanying notes 279-292.

<sup>389</sup> See *supra* note 141.

<sup>390</sup> Canada-Wide Accord on Env'tl. Harmonization, Nov. 20, 1996 (sub-agreements will include environmental assessment, inspections, and standards). The accord notes that when a government has accepted obligations and is discharging a role, the other order of government shall not act in that role for the period of time determined by the relevant sub-agreement. *Id.*, p. 3.

<sup>391</sup> See *supra* text accompanying note 232 (AQUAMIN). See also GOV'T OF CAN. ET AL, MINE ENVIRONMENT NEUTRAL DRAINAGE program begun in 1989 to develop technologies to reduce environmental problems from acid mine drainage.

#### 4. Voluntary Initiatives by the Mining Industry

In conjunction with deregulation and downloading efforts by government there has been a corresponding rise in voluntary initiatives by industry including the mining industry. Indeed, Canada's mining industry is a leading proponent of voluntary measures.<sup>392</sup> One voluntary initiative supported by the mining and smelting industry is the program on Accelerated Reduction/Elimination of Toxic Substances ("ARET").<sup>393</sup> The ARET program purportedly resulted in a 68 percent drop in mining industry emissions by 1995 from the base year.<sup>394</sup> It is unclear, however, whether the reductions resulted solely from industry voluntary efforts or were caused by economic factors or even by regulation itself. Moreover, the ARET program only addresses emissions reductions, not pollution prevention or toxic use/reduction.

#### B. Chile

The principle emerging initiatives in Chile relate to developments under the Basic Law in relation to environmental assessment,<sup>395</sup> standard setting,<sup>396</sup> and prevention and decontamination plans.<sup>397</sup> In addition, judicial treatment of the constitutional provisions relating to the right to live in a contamination free environment may provide important precedential guidance on how mining operations should be conducted in future.<sup>398</sup>

### VII. CONCLUSIONS AND RECOMMENDATIONS

The interest of Canadian companies in mining exploration in Latin and South American countries, such as Chile, provides an opportunity to not only examine the adequacy of Chilean environmental laws but also the opportunity to re-examine the state of environmental control of mining activities in Canada. The Canada-Chile free-trade initiative, in particular, makes it imperative that an up to date understanding of Canadian laws controlling mining activity be available, since Canadian firms have declared their intention to meet Canadian environmental standards while operating in Chile.<sup>399</sup>

This review of Canadian and Chilean environmental laws suggests that lessons may be learned from the laws of both countries. The instruments available for environmental control of mining activities in both countries may arise from their respective constitutions, common law or civil law traditions, or environmental planning or regulatory regimes. However, the particulars of these regimes require careful study in order for proper conclusions to be drawn about the wholesale adoption of Canadian legal or

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<sup>392</sup> MINING ASSOCIATION OF CANADA, VOLUNTARY EMISSIONS REDUCTION 1 (1996).

<sup>393</sup> *Id.*

<sup>394</sup> *Id.*

<sup>395</sup> See *supra* part V.A.2.

<sup>396</sup> See *supra* part V.B.1.b.i.

<sup>397</sup> See *supra* part V.B.1.b.ii.

<sup>398</sup> See *supra* part III.B.

<sup>399</sup> RENACE, *supra* note 2, at 4.

regulatory requirements into Chile. Indeed, there are certain aspects of Chilean law which Canada might want to consider. Chile's constitutional protection of a right to a contamination free environment, for example, has no parallel in Canada. The closest analogue to a constitutionalized environmental right in Canada relates to the aboriginal right to take food which could protect hunting, trapping, and gathering from mining activities.<sup>400</sup>

Because Chile is a civil law jurisdiction it may want to consider looking to Quebec's civil code for adoption of the concept of abuse of rights to remedy private harm from mining activities. Other legal principles from Canadian common law provinces, such as strict liability, also may be of interest as standards Canadian firms should be held to while operating in Chile.

Environmental planning and impact assessment regimes in both countries present possibilities for improvement as well as problems in application. Canada's regime of environmental assessment has had a long, complex, and frustrating history. In its current form, CEAA is not a model for other jurisdictions to emulate or rely upon. CEAA is too narrowly focused on physical works and not on broader program or policy decision making which could make the law more of a long-term regional planning tool, proponent self-assessment dominates the process, the responsible authority may ignore the results and recommendations of expert review panels, the public is locked out of the enforcement process, and largely locked out of the hearing process due to a lack of procedural and due process protections. Provincial environmental assessment laws hold out greater promise for public involvement, but the promise has not necessarily been met in the context of mining projects. The encouraging aspect of Canadian environmental assessment law is that due to long experience with the existing process, there is a good sense of what reforms could be introduced to improve the performance of such laws. Chile's environmental assessment requirements are comparatively new by comparison to Canada's. What is apparent at this stage of the law's development, however, is that Chile's Basic Law lacks certain fundamental attributes of an environmental assessment regime. Chile does not require proponents of projects to consider the need for, alternatives to, or alternative methods of carrying out the project. In this regard, Chilean law could benefit from federal and provincial statutory requirements that address these concerns.

Canadian regulatory legislation at the federal and provincial levels addressing environmental protection and mining management controls, form a complex series of complementary and, in some cases, contradictory environmental requirements. Traditional pollution control legislation at the federal level is highly focused on a few substances of concern to the mining industry. Federal recognition of the need to control more substances has not been translated into swift action in implementing new requirements. Indeed, industry and government, concerned about the impact of existing requirements on the mining industry, have sought opportunities to "streamline" these laws, initiatives regarded suspiciously by the national environmental community. Provincial environmental laws have, in some instances, been bolder and more comprehensive than their federal counterparts. Some provinces have introduced industry sector wide regulations which cover more contaminant types and contain potentially stricter requirements than federal law. Provinces have also introduced contaminated sites requirements that largely have no parallel at the federal level. Therefore, as Chile moves forward in the development of its own environmental standards and approaches to prevention and decontamination, it may want to examine closely certain initiatives at the provincial level, or indeed hold Canadian mining companies to provincial as well as federal requirements.

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<sup>400</sup> The group rights of aboriginal peoples, such as hunting, fishing, and trapping rights, may be raised to the level of constitutional rights in Canada to the extent that the Canadian Constitution recognizes and affirms "the existing aboriginal and treaty rights of the aboriginal peoples of Canada." CAN. CONST. (Constitution Act, 1982) pt. I, s. 35. See also Randy Kapashesit & Murray Klippenstein, *Aboriginal Group Rights and Environmental Protection*, 36 MCGILL L.J. 925, 955 (1991).



Canadian mining law requirements for reclamation and rehabilitation are largely to be found at the provincial level, with the sole exception to this being in relation to federal requirements for uranium mining activities. Several provinces, as well as the federal government where uranium mining is concerned, have adopted reclamation and rehabilitation fund requirements because of concerns that the costs of decommissioning such facilities not be borne by the taxpayer. Chilean mining law has not been reformed to include these requirements. Chilean legislators may want to review Canadian requirements in this regard to ensure that mining properties are not abandoned in future without sufficient funds for clean-up.

Both Canada and Chile to varying degrees recognize a role for the public in the process of approval of major new mining projects, as well as opportunities for court enforcement of environmental requirements in relation to existing activities. However, in Canada the bulk of such requirements, with some exceptions, are to be found under provincial law. To the extent that Chile intends to hold Canadian companies to Canadian standards it should look more often to provincial law when the role of the public in the process is at issue.

**VIII. APPENDICES**

**Appendix I**  
**MINING PHASES, ACTIVITIES, ENVIRONMENTAL EFFECTS**

PHASE	ACTIVITIES	ENVIRONMENTAL EFFECTS
<b>Exploration</b>	<ul style="list-style-type: none"> <li>- prospecting</li> <li>- airborne and ground level geochemical and geophysical surveys</li> <li>- claim staking</li> <li>- line cutting</li> <li>- stripping</li> <li>- drilling and trenching</li> <li>- road trail building and/or helicopter pads</li> <li>- bulk sampling</li> </ul>	<ul style="list-style-type: none"> <li>- land alienation from protection options</li> <li>- camp garbage</li> <li>- trail/road and trenching erosion</li> <li>- disruption of habitat, harvesting and fishing</li> <li>- noise pollution</li> <li>- acid mine drainage</li> </ul>
<b>Mining and Milling</b>	<ul style="list-style-type: none"> <li>- feasibility, engineering design and environmental impact studies</li> <li>- mine construction and pre-construction</li> <li>- stripping/storing of soil and vegetation overburden</li> <li>- ore extraction</li> <li>- crushing or grinding of ore</li> <li>- mine and surface water treatment</li> <li>- storage of waste rock and tailings</li> </ul>	<ul style="list-style-type: none"> <li>- wildlife and fisheries habitat loss</li> <li>- changes in local water balance</li> <li>- increased erosion and sedimentation of lakes and streams</li> <li>- containment of toxics in tailings ponds or leaching solutions</li> <li>- tailings ponds or leaching pads stability failure</li> <li>- potential acid generation from waste rock and pit walls</li> <li>- heavy metal leaching from acid mine drainage</li> <li>- cyanide solution containment at heap leach operations</li> <li>- contamination of surface water and groundwater from discharges of acid mine drainage including heavy metals originating in ore and tailings and organic chemicals and cyanide originating from milling</li> <li>- alienation of land as a result of waste rock piles and tailings disposal areas</li> <li>- noise and windborne dust</li> </ul>
<b>Smelting and Refining</b>	<ul style="list-style-type: none"> <li>- subjecting mineral concentrate to high heat or electro-chemical processes</li> </ul>	<ul style="list-style-type: none"> <li>- heavy metals, organics, and SO<sub>2</sub> emissions to air</li> <li>- discharge of toxic chemicals (SO<sub>4</sub>, ammonia)</li> <li>- alienation of land as a result of slag generation</li> <li>- high energy consumption resulting in indirect environmental impacts</li> </ul>
<b>Mine Closure</b>	<ul style="list-style-type: none"> <li>- recontouring of pit walls and waste dumps</li> <li>- covering of reactive tailings dumps</li> <li>- decommissioning of roads</li> <li>- dismantling of buildings</li> <li>- re-seeding/planting of disturbed areas</li> <li>- on-going monitoring</li> <li>- possible treatment for water quality</li> <li>- other mine reclamation activity</li> <li>- abandonment</li> </ul>	<ul style="list-style-type: none"> <li>- seepage of toxic contaminants (heavy metals) into surface water and groundwater from acid mine drainage</li> <li>- wildlife and fisheries habitat loss</li> <li>- alienation of land</li> <li>- revegetation failure</li> <li>- windborne dust</li> <li>- slope and tailings impoundment failures causing discharge of contaminants and sediments to water</li> </ul>

Appendix III  
ENVIRONMENTAL IMPACT STATEMENT (EIS) GUIDELINES  
FOR THE REVIEW OF THE  
VOISEY'S BAY MINE AND MILL UNDERTAKING  
JUNE 20, 1997

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## **PART I INTRODUCTION**

Part I of the Guidelines introduces the overall scope and intent of the public review process as they apply to the preparation of the EIS.

### **1.0 PURPOSE OF THE GUIDELINES**

This document contains the Guidelines for the Voisey's Bay Nickel Company (the Proponent) to be used in preparation of an Environmental Impact Statement (EIS) for their proposed nickel, copper and cobalt mine and mill project (the Undertaking) in Labrador. The factors to be considered in the EIS are set out in the Panel's Terms of Reference which are contained in the Memorandum of Understanding (MOU) prepared and signed by the Government of Canada, Government of Newfoundland and Labrador, Labrador Inuit Association (LIA) and the Innu Nation of Labrador (Innu Nation).

Definitions in the MOU apply in the Guidelines and are found in Appendix 1. The factors to be considered in the environmental assessment review are found in Appendix 2.

#### **1.1 How the Guidelines Were Prepared**

When preparing the draft guidelines, the Panel reviewed the scoping reports prepared by the Innu Nation ("Between a Rock and a Hard Place") and the LIA ("Seeing the Land is Seeing Ourselves"), dated 15 March, 1996, and 4 July, 1996, respectively, as instructed by the MOU. The draft guidelines were available in four languages for public review and comment beginning on March 14, 1997. The Panel then held public meetings (scoping sessions) in communities in Labrador and in St. John's, during April and May of 1997 to hear comments and suggestions from the public and the signatories to the MOU.

Following the scoping sessions and after careful consideration of all comments received, the Panel has prepared these final Guidelines. Although the main purpose of the scoping phase was to produce the final Guidelines, the Panel believes all oral and written submissions made in the scoping phase to be important contributions to the review process. The Panel, therefore, encourages the Proponent to consider all information received during the scoping phase when preparing the EIS.

#### **1.2 Preparation and Review of the EIS**

The Guidelines establish the issues that the Proponent must address in the EIS, how to describe and assess these issues, and how to structure the EIS. While the Guidelines provide a framework for preparing a complete and accessible EIS, it is the responsibility of the Proponent to provide sufficient data and analysis to allow evaluation of the environmental effects of the Undertaking by the Panel, the public, and technical and regulatory agencies. The Proponent will prepare an EIS to address the requirements of the Guidelines for submission to the Panel. The Panel will then make the EIS available to the public and will receive comments, during a 75 day review period, on the adequacy of the EIS as a response to the Guidelines. The Panel will consider oral comments as fully as written comments. Within 30 days of the close of this review period, the Panel will determine if the EIS contains adequate information to hold public hearings. If the information provided in the EIS is determined not to be sufficient, the Panel will request additional information. The Panel will only proceed to public hearings when it has determined that the EIS contains adequate information to allow effective public review of the Undertaking.

#### **1.3 Panel Report**

Following public hearings, the Panel will prepare and submit a report that includes, but is not limited to, a description of the public review process, a summary of any comments and recommendations received from the public and the rationale, conclusions and recommendations of the Panel.

### **2.0 THE EIS AS A BASIS FOR PUBLIC REVIEW**

The purpose of the Guidelines is to produce an EIS that will move the review process toward its objectives as set out in the Panel's Terms of Reference. It will serve as the basis for the Panel's review of the Undertaking and will enable any interested party, the public, and the Panel to understand and assess the potential impacts of the proposed Undertaking. For this to occur the EIS must provide the following information:

- a) how the Proponent consulted with the public during the preparation of the EIS;
- b) a full description of the Undertaking and its rationale including the need for and alternatives to the Undertaking and a full description of the way that potential environmental effects have been identified and addressed by the Proponent in the Undertakings planning and design;
- c) the factors that the Proponent considers could alter the Undertaking and how it could be altered by these factors (e.g., markets, ore reserves, adjacent developments, jurisdiction or proposed regulatory changes);
- d) the current state of the Environment [ The term "Environment" when capitalized refers specifically to the MOU definition found in Appendix 1. When not capitalized, it refers to one or more components of this definition.] that could be affected by the Undertaking
- e) the short and long-term environmental effects, including residual effects, of the Undertaking within Labrador and other affected areas, the significance of these effects, and how they might be modified by the factors identified in (c) above;
- f) the cumulative environmental effects of the Undertaking in combination with other projects or activities that have been or will be carried out;
- g) proposals to create or enhance beneficial effects;
- h) the Proponent's plans for mitigation, including remediation and compensation;
- i) contingency plans for accidents, malfunctions and unplanned events; and,
- j) the Proponent's proposed follow-up program including monitoring and ongoing public communications and involvement. As an integral part of the public review process, a plain language summary and translations shall be provided which address each of the above listed sections.

### **3.0 SCOPE AND CONTENT OF THE REVIEW**

The MOU gives specific instructions to the Panel with respect to both the scope of the review and the factors to be considered. This section explains how the Panel intends to interpret certain key instructions.

#### **3.1 Full Consideration of Traditional Ecological Knowledge**

The aboriginal peoples of the region in which the Undertaking is proposed have substantial and distinct knowledge that is essential to the understanding and assessment of the impacts of the Undertaking, and the mitigation of these impacts. For much of the information requested by the Guidelines, aboriginal knowledge will make as important a contribution as scientific and engineering knowledge. The Proponent shall, therefore, fully consider local aboriginal knowledge and expertise in preparing the EIS.

For the purposes of this assessment, aboriginal knowledge may be regarded as the knowledge, understanding, and values held by aboriginal people that bear on the impacts of the Undertaking and their mitigation. This knowledge is based on personal observation, collective experience, and oral transmission over generations. The Panel recognizes that aboriginal knowledge and expertise is evolving with new experience and understanding, and therefore believes it would be inappropriate to limit aboriginal people's contribution to this assessment to what is commonly known as "Traditional Ecological Knowledge", although this will be a very important component.

Those elements of aboriginal knowledge relating to values, norms and priorities have been particularly important in the scoping phase of the review. The Panel anticipates that aboriginal knowledge relating to factual information on such matters as ecosystem function, resource abundance, distribution and quality, use of land and resources, social and economic well-being, and to explanations of these facts and causal relations among them will be required for the development of adequate baselines, impact predictions, and the assessment of significance, all of which are essential to the EIS and its review.

This information shall be obtained and presented in one of two ways.

- The Proponent shall make best efforts, with the co-operation of other parties, to incorporate into its EIS aboriginal knowledge to which it has access or which it may reasonably be expected to acquire through appropriate diligence, in keeping with appropriate ethical standards and without breaching obligations of confidentiality.
- Alternatively, the Proponent shall facilitate the presentation of such knowledge by aboriginal persons and parties themselves to the Panel during the course of the review.

The Panel believes that this decision is best decided by mutual agreement between the Proponent and the affected aboriginal parties.

### **3.2 Land Claims**

The MOU states that:

"Although a review of the substance or definition of aboriginal rights or a determination of the scope and substance of land claims negotiations are not within the Panel's Terms of Reference, the Panel may consider submissions regarding the relationship between the Undertaking and land claims negotiations."

The Panel interprets its mandate to mean that it may consider the following matters with respect to land claims:

- whether proceeding with the Undertaking prior to the negotiation of a land claims agreement with an affected aboriginal party would jeopardize, impair, or limit those negotiations; and ,
- whether documentation of land use and occupancy relating to the territorial extent of the land claim, as provided to the Panel by an aboriginal party, indicates that there are current uses of land and resources for traditional purposes that might be adversely affected by the Undertaking.

The Panel will not, however, make findings or recommendations regarding the acceptability of a claim for negotiations, the substantive merits of such a claim, or the existence or substance of aboriginal rights.

### **3.3 Sustainability Assurance**

Promotion of sustainable development is a fundamental purpose of environmental impact assessment, and the MOU specifically requires the Panel to take into consideration three factors that are directly pertinent to the task of assuring sustainability (i.e. ensuring that the full costs of development are identified, mitigated, compensated or offset). These factors are:

- the extent to which biological diversity is affected by the Undertaking;
- the capacity of renewable resources that are likely to be significantly affected by the Undertaking to meet the needs of present and future generations; and,
- the extent of application of the precautionary principle to the Undertaking (see section 3.4).

It is the Panel's interpretation that progress towards sustainable development will require the following:

- the preservation of ecosystem integrity, including the capability of natural systems to maintain their structure and functions and to support biological diversity;
- respect for the right of future generations to the sustainable use of renewable resources; and,
- the attainment of durable and equitable social and economic benefits.

Therefore, in reviewing the EIS and other submissions, the Panel will consider:

- the extent to which the Undertaking may make a positive overall contribution towards the attainment of ecological and community sustainability, both at the local and regional levels;
- how the planning and design of the Undertaking have addressed the three objectives of sustainable development stated above;
- how monitoring, management and reporting systems will attempt to ensure continuous progress towards sustainability; and,
- appropriate indicators to determine whether this progress is being maintained.

### **3.4 Application of the Precautionary Principle**

The MOU requires the Panel to consider the "extent of application of the precautionary principle to the Undertaking". The Rio Declaration of 1992, to which Canada is a signatory, states that the precautionary approach requires that: "Where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation."

The Panel interprets the precautionary principle as applying, in the particular context of this Undertaking, to the following activities:

- the release of toxic or deleterious substances into the environment;
- water withdrawals and diversions;
- the use of untested technology, or of existing technology in untested situations, where reliability is uncertain; and,
- other actions likely to cause significant damage to the environment, and particularly to biological productivity and ecosystem health.

Further, the Panel understands the application of the precautionary principle to require:

- that the onus of proof shall lie with the Proponent to show that a proposed action will not lead to serious or irreversible environmental damage, especially with respect to overall environmental function and integrity, considering system tolerance and resilience;
- scientific research and high-quality information; and,
- access to information, public participation, and open and transparent decision-making.



The Proponent shall indicate how the Undertaking conforms to the precautionary principle in at least the following ways:

- a) that in designing and operating the Undertaking priority has been given to strategies that avoid the creation of adverse impacts;
- b) that control of deleterious outputs or other potentially damaging activity goes beyond current emission standards where warranted by the potential environmental effects;
- c) that contingency plans address explicit worst-case scenarios and include risk assessments and evaluations of the degree of uncertainty;
- d) that monitoring programs are designed to ensure rapid response and correction where adverse effects are detected; and,
- e) that liability and insurance regimes are established that hold the Proponent and its contractors accountable for adverse effects and associated damages, and their limitation and control, throughout the life of the Undertaking, including its decommissioning and rehabilitation.

#### **4.0 PREPARATION AND PRESENTATION OF THE EIS**

This section sets out how the EIS is to address public participation, study strategy, methodology and presentation. Through its EIS, it is up to the Proponent to demonstrate that it has addressed the considerations listed in section 2.0.

##### **4.1 Comprehensive Public Involvement**

Public involvement is a central objective of the overall review process and a means to ensure that the Proponent addresses public concerns. In preparing the EIS, the Proponent shall first consult with residents and organizations in affected communities, other interested organizations, resource users and relevant government agencies. In particular, these Guidelines require the Proponent to demonstrate an understanding of aboriginal rights, interests, values and concerns and to recognize and respect them in planning and carrying out its proposed activities. Therefore, aboriginal and settler people who have traditionally used the area must be consulted.

The Proponent shall then describe in the EIS the objectives of this consultation, the methodology used, the results, and the ways in which the Proponent intends to address the concerns identified.

Meaningful public involvement in the environmental assessment review can only take place if the public has a clear understanding of the proposed Undertaking as early as possible in the review process. Therefore, the Proponent shall:

- a) continue to provide up-to-date information describing the Undertaking to the public and especially to the communities likely to be most affected by the Undertaking;
- b) involve the LIA and the Innu Nation in determining how best to deliver that information, i.e., the types of information required, translation needs, different formats, the possible need for community meetings; and,
- c) explain the results of the EIS in a clear direct manner to make the issues comprehensible to as wide an audience as possible (see section 4.3).

##### **4.2 Study Strategy and Methodology**

The Proponent is expected to observe the intent of the Guidelines and to identify and describe all significant

environmental and socio-economic effects likely to arise from the Undertaking, including situations not explicitly identified in these Guidelines. It is possible that these Guidelines include matters that, in the judgement of the Proponent, are not relevant or significant to the Undertaking. If such matters are omitted from the EIS, they shall be clearly indicated so that the public and other interested parties have an opportunity to comment on this judgement. Where the Panel disagrees with the Proponent's decision, it may require the Proponent to provide additional information.

The Proponent shall explain and justify methods used to predict impacts of the Undertaking on the valued components of the Environment, on the interactions among these components and on the relations of these components to the overall ecosystem and socio-economic environment. The information presented must be substantiated. In particular, the Proponent shall describe how valued components of the Environment were identified and what methods were used to predict and assess the effects of the Undertaking on these components. The value of a component not only relates to its role in the ecosystem, but also to the value placed on it by humans. The culture and way of life of the people using the area affected by the Undertaking are themselves considered valued components. Wherever possible, the Proponent shall differentiate information regarding the baseline description, impact predictions and the effectiveness of mitigation measures by age, gender and aboriginal status and by community. The Proponent shall also explain how it has used feminist research to identify how the Undertaking will affect women differently from men. The Proponent shall indicate how the significance of effects was assessed and justify the criteria selected.

In describing methodology, the Proponent shall explain how it used aboriginal, scientific, engineering and other knowledge to reach its conclusions. Any assumptions made shall be clearly identified and justified. All data, models and studies must be documented so that the analyses are transparent and reproducible. All data collection methods shall be specified. The uncertainty, reliability and sensitivity of models used to reach conclusions shall be indicated. The sections on the existing Environment and on impact predictions and assessment shall be prepared to the highest standards in the relevant subject area. All conclusions shall be substantiated.

The EIS shall identify all significant gaps of knowledge and understanding where they are relevant to key conclusions presented in the EIS. The steps to be taken by the Proponent to address these gaps should also be identified. Where the conclusions drawn from scientific and technical knowledge are inconsistent with the conclusions drawn from aboriginal knowledge, the EIS shall contain a balanced presentation of the issues and a statement of the Proponent's conclusions.

#### **4.3 Presentation of the EIS**

For clarity and ease of reference, it is suggested that the EIS be presented in the same order as the Guidelines. However, in certain sections of the EIS, the Proponent may decide that the information is better presented following a different sequence. The EIS shall include a guide that cross-references the Guidelines with the EIS so that points raised in the Guidelines are easily located in the EIS.

In the interest of brevity, the EIS shall make reference to, rather than repeat, information that has already been presented in other sections of the document. A key subject index would also be useful and should reference locations in the text by volume, section and sub-section. As well, the names of the Proponent's key personnel and/or contractors/sub-contractors responsible for preparing the EIS shall be listed. Supporting documentation shall be provided in separate volumes, and shall be referenced by volume, section and page in the text of the main EIS. The Proponent shall make the EIS text available on an internet website. The Proponent is also requested to consider presenting their documents in CD-ROM format with key subject search capacity.

The Proponent shall present the EIS in the clearest language possible. However, where the complexity of the issues addressed requires the use of technical language, a glossary defining technical words and acronyms shall be included. The Proponent shall provide charts, diagrams and maps wherever useful to clarify the text, including perspective drawings that clearly convey what the developed Undertaking site would look like. Maps shall be of a limited number of common scales to allow for comparison and overlay of mapped features.

#### **4.4 EIS Summary and Translation**

The Proponent shall prepare a plain language summary of the EIS that will provide the reader with a concise but complete overview of the EIS, including all the information listed in section 2.0. This summary, including all diagrams, maps and illustrations, shall be made available in English, Innu-Eimun and Inuktitut. The summary shall also be prepared in both video and audio tape formats in all three languages

In order for the Proponent's EIS submission to the Panel to be considered complete, the EIS summary must be prepared and translated in both the written and alternative formats, and ready for wide distribution.

It is essential to the public hearings stage of the environmental assessment that residents of those communities likely to be affected by the Undertaking have an adequate understanding of the proposed Undertaking and its effects. The Proponent shall therefore explain in the EIS how this information will be communicated effectively, either directly by the Proponent, or through collaborative arrangements with the LIA, the Innu Nation, or individual communities.

### **PART II CONTENT OF THE EIS**

Part II of the Guidelines provides specific instructions for the content of each section of the EIS.

#### **5.0 INTRODUCTION**

This section shall orient the reader to the Environmental Impact Statement (EIS) by briefly introducing the geographic setting, the proposed Undertaking, the Proponent, the environmental assessment review process, and the content and format of the EIS.

##### **5.1 The Setting**

The Proponent shall provide a concise description of the geographic setting in which the Undertaking is proposed to take place. This description shall integrate the natural and human elements of the Environment in order to explain the interrelationships between the physical and biological aspects and the people and their communities.

##### **5.2 The Undertaking**

The Proponent shall briefly summarize the mineral resource, the Undertaking, its purpose, location, scale, components, activities, timing and phases.

##### **5.3 The Proponent**

This section shall introduce readers to the Proponent. The Panel is particularly interested in corporate accountability for the management of environmental effects. Therefore the Proponent should provide information on:

- a) ownership of rights and interests in the Undertaking;
- b) corporate and management structures;
- c) the linkage of these factors between the Proponent and its parent company;
- d) placement of the parent company in world nickel markets;
- e) importance of the Undertaking to world nickel supply; and,

f) the relevant experience of the parent company over the last 10 years in mining operations in regard to the following:

- i) record of compliance within Canada and elsewhere with government policies and regulations pertaining to environmental protection and socio-economic issues, any penalties imposed by government as a result of significant non-compliance and details of any corrective measures it has implemented;
- ii) mine safety, accidents, spills and emergencies, including details of the events, the responses taken and any penalties levied;
- iii) record in honouring commitments to implement environmental and socio-economic mitigation measures, including rehabilitation, during mining operations and in the event of planned or premature mine closure;
- iv) relations with aboriginal peoples in Canada or peoples in less developed countries;
- v) relevant experience in operations in arctic and subarctic regions; and,
- vi) record in incorporating environmental and socio-economic considerations into Undertaking construction, operation, decommissioning and reclamation, including programs or techniques for avoiding or reducing adverse effects and/or enhancing beneficial effects.

#### **5.4 The Environmental Impact Statement**

The Proponent shall:

- a) briefly explain the environmental assessment review process in the context of the MOU;
- b) describe the role of the EIS in the overall environmental assessment process; and,
- c) provide an annotated table of contents for all volumes and background reports, and any other information that will help the reader find his or her way around the EIS.

#### **6.0 BOUNDARIES FOR THE ENVIRONMENTAL ASSESSMENT**

The Proponent shall define the spatial and temporal boundaries for the environmental assessment according to the following criteria.

##### **6.1 Spatial Boundaries and Scale**

In determining the spatial boundaries to be used in assessing impacts, the Proponent shall consider the following:

- a) the physical extent of the Undertaking itself, and the territory the Proponent will control through lease or other tenure arrangements;
- b) the extent of aquatic and terrestrial ecosystems potentially affected by the Undertaking (e.g., impact areas could be defined by the range of the George River caribou herd or by the extent of a plume of potential contaminant transport to the downstream point of no observable or measurable impact), giving full consideration to aboriginal knowledge;
- c) the extent of land use for subsistence, commercial, cultural, recreational, spiritual and aesthetic purposes by aboriginal and settler persons and communities whose territories encompass (a) or (b), as indicated by information provided by LIA and Innu Nation in the context of this review, as well as any interests of neighbouring aboriginal groups as defined in lands and resources within the impact area as indicated by (a) or

(b); and,

d) the zones of economic impact, including local, regional (i.e. Labrador), and provincial.

These boundaries also indicate the range of appropriate scales at which particular baseline descriptions and the assessment of impacts should be presented. The Proponent is not required to provide a comprehensive baseline description of the Environment at each of the above scales, but shall provide sufficient detail to address the relevant impact issue. The EIS shall contain a justification and rationale for all boundaries and scales chosen.

## **6.2 Temporal Boundaries**

With respect to baseline information on the Environment, the Proponent shall present a sufficient time-depth of data and information to establish norms, trends, and extremes.

In assessing the impact of the Undertaking, the Proponent shall cover the period from the discovery of the ore body through all phases of the Undertaking including construction, operation, decommissioning and demolition, to the end of post-decommissioning, i.e. the period after the mine has been decommissioned, the site rehabilitated, environmental monitoring and management obligations have been met and the Proponent has effectively surrendered any leases for a mining development and associated activities. Where residual effects of the Undertaking are predicted to last longer than the end of post-decommissioning, the Proponent shall indicate when these effects will no longer be of significant consequence.

## **7.0 UNDERTAKING DESCRIPTION**

The Proponent shall provide a description of the Undertaking that includes the following:

a) an explanation of the need for the Undertaking and an analysis of alternatives available to the Proponent if the Undertaking does not proceed;

3b) a description of those aspects of the Undertaking, including accidents and malfunctions, that could reasonably be expected to affect the physical and biological environment, the contemporary use of the land and natural resources, and the health, cultural and socio-economic conditions of affected residents;

3c) descriptions and assessment of alternative means of carrying out the Undertaking and its key components that are technically and economically feasible. These shall include, but not be limited to, tailings disposal, waste rock disposal, fly-in fly-out camp or town site, concentrate storage and transportation. Sufficient information should be provided for the reader to understand the reasons, including consideration of environmental and socio-economic impacts, for selecting the preferred alternative and for rejecting others;

d) an explanation of how the natural environment has influenced the design of the Undertaking;

e) consideration of the conditions or circumstances that could affect or alter the selection of a particular alternative, such as size of ore reserves, market conditions, pending or proposed regulatory changes and adjacent developments (see section 7.5);

3f) descriptions, including risk assessments, of occupational health and safety issues associated with all phases of the Undertaking;

3g) information on best environmental management practice in mining in Canada and elsewhere, and a discussion of known experience with these techniques, procedures, and policies, and their effectiveness and reliability, particularly under arctic or subarctic conditions;

h) a discussion of how design, engineering and management plans are consistent with the maintenance of

ecosystem function and integrity;

3i) a demonstration of how the Proponent has applied the precautionary principle in its Undertaking design and management;

3j) a discussion of the range of options considered as alternatives for the pace and scale of the operation including different scenarios contemplated for the lifespan of the mine, a consideration of the timing of phases and components of the Undertaking; and,

k) a risk assessment of those economic or other conditions that might impair the fulfillment of the Proponent's plans and commitments regarding the avoidance or mitigation of adverse impacts.

## **7.1 Regulatory Environment**

The Proponent shall identify all federal and provincial environmental and other related laws, regulations and associated standards that require compliance in respect to the Undertaking and explain how such requirements will be met. Each regulatory approval required shall be listed with the following details:

- a) activity requiring approval and when it is required;
- b) name of approval or permit;
- c) regulatory agency; and,
- d) associated legislation.

## **7.2 Undertaking Components and Activities**

The description shall address all phases of the Undertaking with particular attention to seasonal adaptations necessitated by climatic and sea ice conditions.

### **7.2.1 Construction Phase**

This section shall include information regarding all construction activities, schedules by season, methods to transport materials, infrastructure and personnel requirements (such as, occupations, skills, entry requirements, duration of work) and related support and transportation facilities during the construction phase. This information shall also address the concurrent construction and development of the underground mine with the open pit operation.

#### **7.2.1.1 Activities**

Activities described shall include but not be limited to:

- a) all site preparation and materials lay down areas;
- b) all site clearing including vegetation, soil and rock removal, and associated disposal or storage methods;
- c) all construction-related earth works including borrow pits, quarries, cut and fill and stream crossings;
- d) blasting activities including explosives transportation, manufacture and storage;
- e) the use, transportation, handling and storage of all hazardous materials, concrete and aggregate;
- f) site rehabilitation including removal of temporary services; and,

g) construction management procedures to ensure regulatory compliance, including construction camp operation and policies.

#### **7.2.1.2 Components**

These activities shall be described in relation to the construction of each of the major components of the Undertaking, including:

- a) roads, airfields, and docks;
- b) housing and other camp infrastructure and services including water supply, sewage, and waste disposal facilities;
- c) on-site power generation and transmission facilities, and/or transmission facilities from off-site;
- d) mill;
- e) concentrate storage facilities;
- f) dikes and control structures related to tailing and waste rock ponds, and other water withdrawal, regulation and diversion facilities; and,
- g) pipelines.

#### **7.2.2 Operation Phase**

This section shall include, but not be restricted to, information regarding all activities, schedules, duration, infrastructure and personnel requirements during the operation phase.

- a) Mining operations, including but not restricted to the following:
  - i) open pit mining operations including deposit geology and ore reserves, pit design, technology to be used and any site-specific problems such as those related to the high sulphide content of the ore or to permafrost;
  - ii) underground mining operations as currently defined including deposit geology and ore reserves, predicted mining methods and equipment, technology to be used, mine access, mine services and Undertaking surface support facilities;
  - iii) pits and quarries; and,
  - iv) storage or disposal of all mining waste, including a description of its physical and chemical properties and stability.
- b) Milling operations, including but not restricted to the following:
  - i) details of the chemical composition of the concentrate and ore;
  - ii) a description of the unit operations including chemical additions;
  - iii) tailings disposal installations and operations including, the physical and chemical properties and stability of tailings, pipeline and dam/liner design features including emergency spill response plans and details of deposition methods; and,
  - iv) process water supply and handling.

- c) Description of all effluents and emissions released during the Undertaking.
- d) All water diversion, withdrawal and drainage operations and structures.
- e) All site infrastructure facilities and related operations, including but not restricted to:
  - i) solid and liquid waste storage, handling and treatment facilities;
  - ii) facilities for the storage, handling and disposal of hazardous materials including explosives and petroleum products;
  - iii) power generating and distribution facilities including alternative sources considered; and,
  - iv) housing and other infrastructure provided for employees, contractors, and visitors.
- f) On-site ore concentrate transportation and storage operations and facilities.
- g) Systems and structures for air and land transportation, with estimates of traffic type and frequency.
- h) Marine transportation system including detailed information regarding, but not limited to:
  - i) preferred shipping route options, and the hydrographic and ice information and other criteria used to determine these selections;
  - ii) preferred shipping season and shipping frequency options, and any associated navigation aids, such as icebreaker support, and the criteria for making these decisions;
  - iii) marine communication systems, including information dissemination to other interested parties;
  - iv) proposed shipping vessels design and their relation to cargo, shipping routes and shipping seasons;
  - v) all environmentally hazardous materials to be shipped and measures to ensure cargo safety;
  - vi) cargo loading and unloading practices and precautions, with particular attention to toxic or dangerous goods; and,
  - vii) effluent emissions from shipping operations.
- i) All off-site facilities within Labrador specifically intended for the expediting, transport and storage of materials destined for the site or for waste removed from the site, and all fixed housing and transport facilities established for the use of employees, contractors and visitors in transit.
- j) Breakdown of all personnel requirements by occupation, skill, entry requirements, duration of work and related support and transportation facilities.
- k) Other undertakings or activities relevant to the assessment of the Undertakings effects.

### **7.2.3 Decommissioning and Post-Decommissioning Phases**

This section shall describe the Proponent's approach to, and conceptual plans for, decommissioning, including demolition and rehabilitation, and post-decommissioning activities. As well, it shall also specify ownership and control of the site and responsibility for monitoring and maintaining the integrity of essential structures relating to waste rock and tailings after decommissioning. It shall discuss and provide evidence for the long term stability of these structures under extreme conditions.



### 7.3 Environmental Protection Plan

The Proponent shall describe its Environmental Protection Plan and its environmental management system through which it will deliver this plan. The plan shall provide an overall perspective on how potentially adverse environmental effects will be managed over time and shall include:

- a) waste management/minimization plans for the following: tailings, waste rock, domestic and industrial solid wastes, liquid waste, and hazardous waste including the use, handling, transportation, storage, production and disposal of toxic substances, chemicals, fuels and lubricants;
- b) an acid rock drainage management plan;
- c) a plan to control, minimize, and mitigate any contaminants, such as heavy metals, excess suspended solids, oxygen demanding materials or organic contaminants that may be released or generated by mining, milling and storage, including any acidification that might accelerate such release;
- d) a water supply and management plan including potable and process water;
- e) an operating regime for tailing and waste rock ponds, including contingencies;
- f) a fish habitat management plan that ensures compliance with the "No Net Loss" principle of the Department of Fisheries and Oceans (DFO);
- g) a plan to control air emissions from the Undertaking including dust generated from the mine, roads, mill and concentrate handling;
- h) an air traffic management plan for the site including control over use of the airstrip by third parties;
- i) a marine transportation plan for the shipping of supplies and products, including proposed schedules;
- j) plans to manage human/wildlife interactions at the site and adjacent areas and address hazards to wildlife presented by the Undertaking and its employees (e.g., minimizing bear attraction);
- k) emergency response and contingency plans, including plans for addressing spills and other accidents and malfunctions both on land and in water;
- l) plans for ongoing site rehabilitation during the life of the Undertaking; and,
- m) plans regarding occupational health and safety including risk assessment and communication.

The Proponent shall indicate the sensitivity of its operations and management plans to variation in natural conditions including extreme events and potential climate change over all phases of the Undertaking.

### 7.4 Commitments and Policies

The Proponent shall describe its commitments, policies and arrangements directed at promoting beneficial, or mitigating adverse, socio-economic effects. The Proponent shall discuss any requirements for contractors and sub-contractors to comply with these policies. This description shall include information on:

- a) commuting and work rotation of workers;
- b) recruitment, training, hiring, employment counseling, pay equity and employment, including those policies specifically for aboriginal and local candidates and those promoting aboriginal participation, and any limitations due to existing or anticipated federal or provincial laws, regulations or obligations under international treaties

and agreements, or collective agreements;

c) orientation to the workplace, cross-cultural, anti-racism and anti-sexism policies and programs and personal counseling, for both aboriginal and non-aboriginal employees;

d) occupational health and safety and related training, committees and communications and emergency response plans for workplace accidents;

e) control of movements to and from the mining lease area by employees and others;

f) reducing the potential for social problems on the job-site or in the home communities resulting from the Undertaking, including policies on sexual and gender harassment, alcohol and drugs on the job site and work and pay schedules;

g) ensuring public safety on site with respect to firearms, while respecting the rights and needs of harvesters from adjacent communities to travel freely through the country in the course of their activities;

h) managing hunting, fishing and gathering on or from the site by non-aboriginal employees, while respecting the harvesting rights of aboriginal employees;

i) accommodating aboriginal personnel wishing to pursue harvesting and traditional activities, for example with respect to work scheduling;

j) use of committees and liaison arrangements to respond to issues raised by employees;

k) contracting and procurement, including those which promote local sourcing and participation of local businesses and how this will be accomplished;

l) education, entry requirements, career development counseling and training for job-entry, on the job and post-Undertaking employment;

m) encouraging youth to consider and pursue education, training and employment opportunities; and,

n) use of and payment for municipal facilities and services in local communities, whether directly by the Proponent or by its contractors, sub-contractors or suppliers.

## 7.5 Future Developments

The Proponent shall discuss the potential for further increasing the capacity of on-site development and infrastructure in response to new ore deposits, whether discovered by the Proponent or other parties.

## 8.0 EXISTING ENVIRONMENT

The purpose of this section is to describe the existing Environment, how it came to be, and what is valued by the different peoples who inhabit the region, at a level and scale of detail that enables readers to understand the material presented and its significance to them.

This section of the EIS shall provide a baseline description of the Environment (as defined in the MOU but subdivided in sections 8 and 9 as the physical, biological and socio-economic environments), including the components of the existing Environment and environmental processes, their interrelations and interactions, and the variability in these components, processes, and interactions over time scales appropriate to this EIS (see section 6.2). The Proponent's description of the existing Environment shall be in sufficient detail to permit

the identification, assessment and determination of the significance of potentially adverse effects that may be caused by the Undertaking.

This description shall include, but not necessarily be limited to those environmental components, processes, and interactions that either were identified to be of public concern during scoping sessions or that the Proponent considers likely to be affected by the proposed Undertaking. In doing so, the Proponent shall indicate to whom these concerns are important and the reasons why, including social, economic, recreational, cultural, spiritual, and aesthetic considerations. The Proponent shall also indicate the specific geographical areas or ecosystems that are of particular concern, and their relation to the broader regional environment and economy, e.g., the contribution of the Voisey's Bay area to critical habitat, population stocks, the presence of particular species in northern Labrador or the harvesting economy of northern Labrador.

In describing the physical and biological environment, the Proponent shall take an ecosystem approach that takes into account both aboriginal and scientific knowledge and perspectives regarding ecosystem health and integrity. The Proponent shall identify and justify the indicators and measures of ecosystem and social health and integrity it uses, and these shall be related to Undertaking monitoring and follow-up measures.

In describing the socio-economic environment, the Proponent shall provide information on the functioning and health of the socio-economic environment, encompassing a broad range of matters that affect the people and communities in the impact area.

For the biological environment, baseline data in the form of inventories alone is not sufficient for the Panel to assess impacts, although they may be useful in evaluating loss for the purposes of compensation. The Proponent shall consider the resilience of species, communities, and habitat. The Proponent is not required to generate new stock assessments for species other than fish in affected aquatic environments, but it shall include all available historical data on population stocks and status. Emphasis shall be on those species, communities and processes identified as valued components of the ecosystem during the scoping sessions, however, the interrelations of these phenomena and their relation to the entire ecosystem and communities of which they are a part must be indicated. The Proponent shall address such issues as habitat, nutrient and chemical cycles, food chains, productivity, vectors of disease and parasites, and the incidence of pathology, as these may be appropriate to understanding the impact of the Undertaking on ecosystem health and integrity. Range and probability of natural variation over time shall also be considered. To the extent that the Proponent relies on its own data obtained since 1995, it shall comment on how representative these data are over space and time, and any limitations on the inferences or conclusions that can be drawn from them.

In providing baseline information on the Environment, the Proponent shall present a sufficient time-depth of data and information to establish norms, trends, and extremes, to the extent that such information is available. Aboriginal knowledge of these matters shall be an integral part of this baseline, to the extent that it is available to the Proponent. The Proponent shall comment on the quality and reliability of these data and their applicability for the purpose used, and clearly identify gaps, insufficiencies, and uncertainties, especially those that should be remedied for monitoring purposes.

The baseline, while necessarily relying on recent and current data, should not be a static or equilibrium description of the Environment. Therefore, to assist in identifying and accounting for trends in and alterations of the Environment that are unrelated to the Undertaking, the Proponent shall:

a) identify

i) the significant events or processes, natural or anthropogenic, that have already affected the Environment since circa. 1940,

ii) how these have affected the Environment,

iii) whether these effects are ongoing;

b) indicate how activities since the staking of the Voisey's Bay mineral deposit may have altered the Environment described; and,

c) provide a description of the likely condition of the Environment within the expected lifespan of the Undertaking, if the Undertaking were not approved. Considerations shall include but not be limited to possible local impacts of global climate change, variation in wildlife abundance and distribution; contaminant distribution; and demographic and socio-economic trends, including indicators of economic and social well-being.

A key objective of the above is to maximize the possibility of distinguishing between the Undertakings effects on the Environment, and the effects of other factors, particularly those identified in (a) and (c) above, and the analysis shall be relevant to this objective. It is not intended that the Proponent undertake new research for this purpose, but its analysis must be supported by sound evidence and account for all relevant information including aboriginal knowledge, local perspectives and appropriate scientific literature. Boundaries and scale shall be appropriate to those elements of the Environment discussed, e.g., biological, socio-economic, cultural.

The Proponent shall indicate the source of all information and analysis in this section, e.g. literature review, its own research (or Proponent-funded research), or aboriginal knowledge and expertise.

### **8.1 Physical Environment: Baseline Description**

The Proponent shall describe the components, processes, and interrelations of the existing physical environment. This description shall include (with particular emphasis on the spatial boundaries identified in section 6.1.(a) for items (a) to (d) listed below and identified in section 6.1(b) for items (e) to (k) listed below):

- a) bedrock geology, hydrogeology and geomorphology;
- b) surface geology and soils, including chemistry and structure, with particular reference to their permeability in relation to tailings and waste rock ponds;
- c) permafrost conditions, including areas of discontinuous permafrost, high ice content soils, thaw sensitive slopes, and stream-banks;
- d) areas of ground instability such as slumping or landslides;
- e) climate and meteorology, including magnitude and frequency of extreme events;
- f) marine conditions including bathymetry, tides, currents;
- g) sea ice conditions and regime, and their relation to (e) and (f);
- h) fresh water and estuarine features and regimes, on a watershed basis, including hydrological characteristics, water chemistry and turbidity, surface water flow, ground water regime (including aquifer recharge zones) and chemistry, flood zones, and ice formation and melt patterns;
- i) pertinent physical and chemical properties of sediment, including sediment profiles;
- j) current levels of and trends in any environmental contaminants such as, but not limited to, heavy metals, organochlorines, or nutrients, in air, water, soil or sediments; and,
- k) ambient air quality and noise levels.

### **8.2 Biological Environment: Baseline Description**

Without limiting the range of considerations, the Proponent shall consider the following components, the interactions between these components, and their interactions with the physical and biological environment, primarily at the geographical scale indicated in section 6.1(b) and 6.1(c):

- a) regional occurrence and distribution, range, abundance, and population status, including seasonal variation and variability over multiple years;
- b) habitat and life cycle requirements;
- c) migratory patterns and routes and the corresponding sensitive periods where these routes cross habitat affected by the Undertaking;
- d) status and productivity of habitat;
- e) current condition and health of the species, including
  - i) contaminant loading and its relationship to section 8.1(j), including relation to toxicity thresholds for key organisms,
  - ii) observable indicators of health such as body condition, parasites, disease or other indicators used by aboriginal people or biologists, and
  - iii) qualities relating to taste, texture, or other indicators used by aboriginal people of the species that they harvest;
- f) existence of any rare species or populations or those with federal, provincial, regional or local designated status (i.e., vulnerable, threatened, endangered or extirpated), and their habitats; and,
- g) any other issues identified through public consultations.

The Proponent shall consider the status of lower trophic levels as these relate to ecosystem health and productivity, to biodiversity and to valued species. The Proponent shall indicate how its biodiversity studies were carried out.

The Proponent shall also consider plant and vegetation communities of ecological, economic or other human importance, including wetlands such as bogs, fens, marshes, swamps and shallow waters, and coastal and intertidal zones, and their productivity and health.

### **8.3 Socio-economic Environment: Baseline Description**

In describing the socio-economic environment, the Proponent shall take a holistic approach that takes full account of the distinctive ways of life of the local communities, the critical requirements for their maintenance and enhancement, and the aspirations and plans of the communities. The Proponent shall have due regard for the distinctive economic and social role of subsistence and commercial harvesting at the household, community and regional levels, and other uses of lands and resources for traditional purposes by aboriginal and settler persons and shall consider the status, health, persistence, and resilience of those features of the local economy.

The profile of the existing socio-economic environment shall describe conditions at the community, regional (Labrador) and provincial levels, in such a way that the potential effects on the functioning and health of the socio-economic environment and the significance of these effects can be assessed. The profile shall employ, as appropriate, socio-economic indicators to help define the features of the system, and these shall be relevant to the valued components of the environment, and to public concerns identified during scoping sessions. Socio-economic indicators shall include, but not be limited to, demographics, employment, income,

education and skills, use of land (including water and ice) and resources, including fish and wildlife harvesting, housing, quality of life, health, morbidity and mortality, diet including country food, and substance abuse, and the interrelations of these indicators. The Proponent shall identify and justify the indicators and measures of personal and community health and well-being it uses. Socio-economic information provided shall be broken down where possible by age, gender, and aboriginal status, by community.

The Proponent shall identify, to the best of its understanding, the various perspectives and aspirations for the future within the region. In this context, the Proponent shall consider the relationship between the Undertaking and any land claims respecting the general area.

The Panel is aware that information on socio-economic matters must be obtained from a combination of the following sources: existing literature; existing administrative and monitoring data held chiefly by responsible governments and agencies; social surveys; and aboriginal knowledge. Ethical social research standards require that the last two can only be obtained with the consent and cooperation of local residents. The Panel requires the Proponent to demonstrate that it has made best efforts either to obtain this information itself, where appropriate, or to assist the Innu Nation, the LIA, or other appropriate organizations and persons, to provide it for inclusion in the EIS, or to present it directly to the Panel during the course of the review.

The description shall address the following elements as well as any other issues identified through public consultations.

- a) Demographics, i.e. population at the regional and community level, including trends in births, deaths, fertility, and migration.
- b) Regional and community economies, including:
  - i) employment (including participation rates) and income by industry and occupation;
  - ii) community economic profiles showing the relative balance of income from all sources, including subsistence activities, to the extent that such data are available or can be estimated. This information shall be presented on both a household and per capita basis;
  - iii) local consumer prices and cost of living, particularly with respect to food, shelter, utilities and transportation;
  - iv) current status of fisheries, other forms of harvesting, and the factors affecting them; and,
  - v) current and projected land-based enterprises and economic activities including tourism, outfitting, commercial harvesting and recreation.
- c) Education, training, and skill levels, as these relate to existing employment patterns and opportunities.
- e) Land and resource use:
  - i) harvesting activities and other traditional uses, including cultural and spiritual, of aboriginal and settler persons and communities within the local impact area of the Undertaking and their viability, and the relation of harvesting to the household and community economy. Particular attention shall be given to current (pre-Undertaking) resource accessibility and quality; harvesting activities and customary aspects of tenure; recent and current encroachment on and restriction of harvesting activities by competing or incompatible uses of land and resources or consequent regulations; and,
  - ii) recreational and hunting and fishing activities by other residents.
- f) Human health and well-being:

i) the physical and mental health of residents of the area most directly impacted by the Undertaking, based on local perceptions of health and well-being and on quantitative indicators such as mortality, morbidity, and social pathology or dysfunction; and,

ii) diet and the relation of country food to physical, social, and cultural health and well-being.

g) Social and cultural patterns, including:

i) cultural and spiritual life of the communities, including language;

ii) patterns of family and community life, such as community and household social organization, including the organization of work, both paid and unpaid and its distribution between men and women, and the patterns of sharing and mutual aid; and,

iii) social relations between residents and non-residents, between men and women, among generations and between aboriginal and non-aboriginal persons.

h) Cultural sites, including:

i) archaeological, paleontological, burial, cultural, spiritual and heritage sites; and,

ii) protected areas such as parks, sanctuaries or preserves, whether established or proposed.

i) Housing, infrastructure, and services in adjacent communities and the Upper Lake Melville area, including:

i) cost and availability of housing and land;

ii) current levels of use of existing social, institutional, family, health and community services including emergency response and law enforcement services, transportation facilities and services, waste disposal and management, and infrastructure and the capacity of these to meet additional and new needs; and,

iii) status of community and local government organizations and institutions, including their powers, responsibility, and financing.

## **9.0 IMPACT ASSESSMENT, MITIGATION MEASURES, RESIDUAL EFFECTS, AND CUMULATIVE ENVIRONMENTAL EFFECTS**

The purpose of this section is to indicate what will happen as a result of the Undertaking, in what ways the Environment may be changed, where, and for how long, and whether residents will be better or worse off during the Undertaking, and after its termination.

This section shall:

a) identify what changes may be expected to occur as a result of the Undertaking including accidents, malfunctions and unplanned events. The effects of worst case scenarios shall be addressed as appropriate;

b) assess these effects and their significance;

c) describe and justify the Proponent's plans to mitigate the adverse effects of the Undertaking and enhance its beneficial effects and assess the likely effectiveness of those plans;

d) identify any residual effects of the Undertaking, and the Proponent's plans to compensate for these; and,

e) assess cumulative environmental effects of the Undertaking.

The impact assessment shall be based on the assumption that management plans, commitments and policies (described in sections 7.3 - Environmental Protection Plan and 7.4 - Commitments and Policies) have been put into place.

### **9.0.1 Environmental Effects**

In predicting and evaluating the effects of the Undertaking, the Proponent shall provide substantial detail and state clearly what elements and functions of the Environment may be lost, where, how much, for how long, and with what overall effect.

The Proponent shall indicate the degree of uncertainty in predicting the effects identified. The EIS shall provide a comprehensive analysis of the short and long-term effects of the Undertaking on the physical, biological and socio-economic environments and on the interactions among these environments, and indicate the sensitivity of the function, integrity, and health of these environments to these predicted effects. With respect to the biological environment, while consideration of species-specific impacts is essential, due consideration shall also be given to impacts on biological processes and ecosystem health and integrity.

The prediction of effects shall be based on clearly stated hypotheses of causal relations. The Proponent shall specify the indicators used and how these indicators would measure and verify these effects in subsequent monitoring, especially to distinguish the effects of the Undertaking from those of other activities or processes.

### **9.0.2 Significance**

The EIS shall contain an analysis of the significance of the effects it predicts. It shall contain sufficient information to enable the Panel and participants to understand and review the Proponent's judgment of the significance of effects. The Proponent shall define the terms used to describe the level of significance. The Proponent shall assess the significance of predicted effects according to the following categories:

- a) magnitude;
- b) geographic extent;
- c) timing, duration and frequency;
- d) degree to which effects are reversible or mitigable;
- e) ecological and social/cultural context;
- f) probability of occurrence; and,
- g) the capacity of renewable resources to meet the needs of the present and those of the future.

The analysis shall also clarify the effects of the Undertaking on matters of public concern as identified in the Proponent's consultation process and as raised in the public scoping sessions.

### **9.0.3 Geographic Scale**

The EIS shall pay particular attention to the geographical scale of anticipated impacts, by characterizing them as appropriate in or at the:

- a) regional and provincial levels as in section 6.1(d);
- b) traditional use areas as in section 6.1(c);



c) ecosystem level (e.g., key watersheds, streams, estuaries such as Reid Brook, with particular emphasis on critical habitat and seasons); and,

d) local harvesting/use areas (e.g., Voisey's Bay area, Anaktalak Bay area), and indicating the relation of each to (a) and (b) above, (e.g., proportion of habitat or population in specified area in relation to these larger areas, with particular attention to what is critical to ecosystem health).

#### **9.0.4 Mitigation**

The Proponent shall describe general and specific measures intended to mitigate the potentially adverse effects of the Undertaking. Mitigation as defined in the MOU includes the elimination, reduction, or control of adverse environmental effects, and restitution for damage through replacement, restoration, compensation or other means. The Panel expects that these different components of mitigation may be described in different parts of the EIS. More specifically, plans to prevent impacts will probably be included in section 7, and plans to compensate for environmental damage that cannot be avoided or minimized will be dealt with in section 9.3. Mitigation procedures introduced here for the first time shall be discussed in greater detail. Mitigation measures described elsewhere in the EIS shall be listed and referenced. The Proponent shall indicate which measures respond to statutory or regulatory requirements or to bilateral agreements, and which go beyond these.

Proposed mitigation measures shall be described by phase, timing and duration. Information must be provided on methods, equipment, procedures, policies and training associated with the proposed mitigation. The Proponent shall discuss and evaluate the effectiveness of the proposed measures and assess the risk of mitigation failure and the potential severity of the consequences

The Proponent shall indicate what other mitigation measures were considered and explain why they were rejected. Trade-offs between cost savings and effectiveness of the mitigation measures shall be justified. The Proponent shall identify who is responsible for the implementation of these measures and the system of accountability, including the obligations of all its contractors and subcontractors. The Proponent shall also document mitigation measures employed at similar mining projects where this will provide useful information on effectiveness and reliability.

The EIS shall to the extent possible avoid repetition by identifying the impact and the proposed mitigation measure in the same discussion, and do this by specific impact, first with respect to effects of the Undertaking on the physical and biological environment and, secondly with respect to the socio-economic, including cultural, environment.

#### **9.1 Physical and Biological Impacts and Mitigation**

The impacts of the Undertaking on the existing physical and biological environment, as characterized by sections 8.1 and 8.2 shall be identified and assessed, and the proposed mitigation measures described. Particular attention shall be paid to effects related to the following:

- a) proposed shipping and the sea ice regime, particularly the stability and duration of shore-fast ice;
- b) contaminant or pollution releases, including chronic releases, that may be associated with the Undertaking, including but not limited to heavy metals and organochlorines that may bioaccumulate or biomagnify in the food chain;
- c) water quality including groundwater;
- d) hydrological cycle;
- e) fish and fish habitat, especially Reid Brook and its estuary;

- f) terrestrial or aquatic habitat loss, impairment of ecosystem function, or changes in productivity;
- g) loss of biodiversity;
- h) marine mammals, including noise of ship traffic;
- i) caribou, including migration timing and routes;
- j) waterfowl, including staging and feeding areas; and,
- k) edible quality of country food, including contaminant loading, and other factors such as taste and texture as measured by local residents.

The discussion of these effects and their proposed mitigation shall give full consideration to aboriginal knowledge of the Environment and of appropriate and effective mitigation measures.

## **9.2 Socio-economic Impacts and Mitigation**

The Proponent shall assess the beneficial and adverse effects on the social, economic, and cultural environment by the proposed Undertaking. In doing so, the Proponent shall identify and take into account the particular needs and interests of various segments of the local populations (e.g. youth, elders, women, harvesters), and consider how the Undertaking may affect each of them. The Proponent shall indicate to the best of its ability and within available knowledge, how the Undertaking will enhance and/or impair both the current social, cultural, and economic ways of life in the communities, and community aspirations for the future, including other economic opportunities. In considering the local social and economic effects of the Undertaking, the Proponent shall have due regard for the attitudes and perceptions of local residents, and how these are grounded in their culture, social organization, and historical experience. The assessment shall consider the capacity of the people, communities and institutions to respond to the Undertaking.

Where beneficial impacts are predicted, but depend in part on actions to be taken by parties other than the Proponent (e.g., where local access to certain jobs requires that a training program be offered by an outside agency) information shall be provided about these required actions and about any agreements reached.

The analysis shall pay particular attention to the distinctive benefits and problems associated with a fly-in, fly-out operation. In assessing the effects of the Undertaking on people's lives particular attention shall be given to the comparative adverse and beneficial effects for workers, their spouses and families, and other residents, of a major employment base away from the communities, rotational work schedules and the presence of large numbers of transient employees and contractors in the region. The Proponent shall describe its plans to mitigate the identified adverse effects.

The Panel is aware that the Proponent has entered into impact benefit agreement (IBA) negotiations with the LIA and Innu Nation. The Proponent shall describe its consultation process with these groups and identify and describe, within the confines of confidentiality agreements, the key elements of any IBA and compensation packages being negotiated, and how these relate to the environmental protection plan, commitments, and policies described in sections 7.3 and 7.4. The Proponent shall indicate how it intends to continue working with the LIA, Innu Nation, and more generally, band and community councils, and other organizations if the Undertaking goes ahead.

The Proponent shall also present its understanding of how proceeding with the Undertaking in advance of land claim settlements might adversely affect settlement negotiations and aboriginal rights and interests.

With respect to mitigation measures to reduce or offset adverse effects on the lives and well-being of individuals, families and communities most directly affected by the Undertaking, the Proponent shall indicate how mitigation will address impacts experienced by residents by age group and gender where appropriate and

shall describe how the Innu Nation, the LIA and community organizations will be involved in the development, application and ongoing evaluation of these measures.

The assessment of impacts and the proposed mitigation measures shall include, but not be limited to, effects of the Undertaking on the following matters.

- a) Regional and community demographics, in particular, intra-regional migration and residence patterns.
- b) The local, regional, and provincial economies, whether direct, indirect or induced with respect to:
  - i) employment and income, with particular reference to wage and salary employment by skills category, gender and age over the life of the Undertaking. This shall include estimates of provincial, regional, local, aboriginal and female participation, and opportunities for participation, in wage and salary employment, considering such factors as the extent to which the skills of the available workers match job requirements, the level of interest in mining work, commuting arrangements to allow these workers to reach the site, and the role of unions in hiring and employment;
  - ii) community income and household economics, including subsistence activities;
  - iii) local consumer prices and cost of living, particularly with respect to food, shelter, utilities and transportation;
  - iv) fisheries and other forms of harvesting, whether commercial or subsistence;
  - v) activities such as tourism, outfitting, commercial harvesting and recreation, including foregone or precluded opportunities foregone or precluded as a result of the Undertaking;
  - vi) opportunities for local, regional and provincial businesses to supply goods and services both directly to the Undertaking and to meet the demand created by the expenditure of new income by employees of, and suppliers to, the Undertaking;
  - vii) opportunities to diversify the northern economic base to produce and to supply new goods and services; and,
  - viii) competition for labour between the Undertaking and existing businesses, institutions and traditional activities.
- c) Education, training, and skills, including appropriate local and regional training opportunities available to local people to take advantage of jobs created by the Undertaking, including training by the Proponent.
- d) Subsistence and commercial harvesting activities by community residents, in particular:
  - i) disruption of harvesting and travel by shipping and icebreaking during the period of ice cover;
  - ii) disruption of fishing and other harvesting activities by shipping during the open water period;
  - iii) measures to ensure continued unrestricted and safe access and passage on land and sea for harvesting and travel by local residents, and alternatives to be provided in the event of disruption;
  - iv) changes in the abundance and distribution of harvested species, especially caribou, fish, and marine mammals, as identified in section 9.1, that would adversely affect harvesting; changes in the quality of harvested species, including contamination, as identified in section 9.1, that would adversely affect their consumption or sale;
  - v) measures to avoid or minimize changes in the abundance, distribution, or quality of harvested species, or

mitigate the consequences of such changes; and,

vi) measures to control hunting, fishing, or harassment of animals by on-site personnel, while respecting the harvesting rights of aboriginal persons and/or land claims beneficiaries.

e) Human health and well-being in adjacent communities, as indicated by:

i) local perceptions of physical and mental health;

ii) measures of mortality and morbidity, and of social pathology and dysfunction such as unwanted pregnancies, sexually transmitted diseases, substance abuse, violence (both physical and sexual), and crime; and,

iii) changes in diet and the use of country food.

f) Social and cultural patterns, including:

i) cultural and spiritual life of the communities, including language loss or retention;

ii) patterns of social organization at the household and community level, including the organization of work, mutual aid, and sharing; and,

iii) social relations between residents and non-residents, between men and women, among generations, and between aboriginal and non-aboriginal persons.

g) Cultural and natural heritage, including:

i) mitigation measures to be applied for the protection and documentation of historic resources;

ii) protected areas such as parks, sanctuaries or preserves, whether established or proposed; and,

iii) visual and aesthetic impacts of the Undertaking on the landscape during all phases.

h) Housing, infrastructure and services, including:

i) changes in shelter availability, quality and affordability in adjacent communities and the Upper Lake Melville area and measures to mitigate adverse effects,

ii) any permanent changes to infrastructure and services caused by the Undertaking, and

iii) compensation arrangements for local, public or private service providers whose burdens and costs are increased as a result of the Undertaking.

i) Revenues accruing to federal, provincial and local government through taxation and royalties.

### **9.3 Residual Effects and Compensation**

The Proponent shall describe and assess residual effects and outline its compensation plans and policies for addressing adverse residual effects.

#### **9.3.1 Residual Effects**

The Proponent shall describe and assess residual effects using the categories for significance set out in section 9.0.2. Residual effects include:

- a) those beneficial or adverse effects that may remain at each stage of the Undertaking after proposed mitigation or enhancement measures are implemented, including emergency response and contingency plans; and,
- b) those effects that may remain after decommissioning activities are completed.

### **9.3.2 Compensation**

The Proponent shall outline its compensation plans and policies for addressing adverse residual effects, including compensation for:

- a) loss of fish habitat in accordance with DFO's policy for the Management of Fish Habitat; and,
- b) damage caused by the Proponent's activities to the environment, to property, or to the land and resource use of others. Regarding losses relating to property, use, access, harvests, added harvesting effort and costs, the Proponent shall describe any existing or proposed programs including administrative procedures, criteria for eligibility, onus of proof, and criteria for loss evaluation.

The Proponent shall also provide a comparison of existing compensation programs for mining and other resource development activities. It shall indicate its financial basis and security for providing compensation funds and any limitations on liability that it or its insurers may impose.

### **9.4 Cumulative Environmental Effects**

The proponent shall identify and assess the cumulative environmental effects of the Undertaking in combination with other projects or activities that have been, or will be, carried out in Labrador or within the areas specified in 6.1(b) and 6.1(c), as appropriate. The approach and methodologies used to identify and assess cumulative impacts shall be explained.

The assessment of cumulative environmental effects of the Undertaking shall include, but not be limited to:

- a) future development scenarios at the site or on other Voisey's Bay Nickel Company properties in the region as identified in section 7.5 Future Developments;
- b) exploration activities by the Proponent or others within the impact areas identified in 6.1(b) and 6.1(c);
- c) the development of other mineral deposits that may now appear feasible because of the proximity of the Undertakings infrastructure; and,
- d) hydro power developments.

In assessing the impacts of cumulative environmental effects, the Proponent shall identify any changes in the predictions of environmental effects and the assessment of their significance; the effectiveness of proposed mitigation and compensation measures, and the response to such changes; and, the implications for monitoring and follow up programs as described in section 10.

## **10.0 MONITORING AND FOLLOW UP PROGRAMS**

This section of the EIS will provide information on proposed monitoring programs and actions to be taken to respond to monitoring results, including plans for a formal follow-up program to verify the predictions contained in the EIS.

### **10.1 Monitoring**

The Proponent shall describe the environmental and socio-economic monitoring programs to be incorporated into all phases of the Undertaking in order to ensure that regulatory requirements are met, sustainable development objectives are advanced and that adverse impacts are avoided or minimized and beneficial impacts maximized as predicted in the EIS. The Proponent shall describe how the results of monitoring programs will be used to refine or modify the design and implementation of management plans, mitigation measures and Undertaking operations. This section shall also discuss the ways in which holders of aboriginal knowledge and area residents will be involved in monitoring programs which shall be designed to ensure that the input of all appropriate interest groups is received, including women and youth. The Proponent shall distinguish as appropriate between compliance and effects monitoring programs.

The proposed approach for monitoring shall be described. The Proponent shall explain the reasons for any cases where it is not possible to specify the details of a monitoring program in the complete EIS that is submitted to the Panel. The Proponent shall explain when and how the program will be defined, and whether it will be reviewed by public and regulatory agencies. This description shall include:

- a) the objectives of the monitoring program and a schedule for collection of the monitoring data required to meet these objectives;
- b) the relationship of the various components of the monitoring program to specific regulatory requirements;
- c) the selection of the subjects and indicators to be monitored, and the criteria used in their selection including the role played by ecological risk monitoring in determining subjects and indicators;
- d) the frequency, duration and geographic extent of monitoring, and the justification for these decisions;
- e) approaches and methods used to Analyse monitoring data, including the use of on-site and off-site facilities and services, the time required to obtain results and the implications for swift and effective response;
- f) reporting and response mechanisms, including criteria, quantified when appropriate, for initiating a response, and the procedures to be followed. The reasons for selecting these criteria should be explained;
- g) the approaches and methods for monitoring the cumulative environmental effects of the Undertaking in combination with other Undertakings and activities in the area as identified in section 9.4 Cumulative Environmental Effects;
- h) integration of monitoring results with other aspects of the Undertaking including adjustments to operating procedures and refinement of mitigation measures;
- i) experience gained from previous and present monitoring programs;
- j) procedures to assess the effectiveness of monitoring programs, mitigation measures, and recovery programs for areas disturbed by the Undertaking;
- k) plans and programs to involve independent experts, government agencies, the LIA, the Innu Nation, communities, holders of aboriginal knowledge and renewable resource users in monitoring programs, and any joint monitoring programs established with communities;
- l) sources of funding for all monitoring programs; and,
- m) quality assurance and quality control measures to be applied to monitoring programs.

The Proponent shall provide a table showing all environmental components discussed in sections 8.1 to 8.3 and indicating where monitoring is proposed.

## 10.2 Follow-Up Program

The MOU requires the Panel to consider the need for and requirements of a follow-up program. A follow-up program is a formal, ongoing process to verify the accuracy of the environmental assessment of the Undertaking and determine the effectiveness of mitigation measures. If either of these two steps identify unforeseen adverse impacts, then the existing mitigation measures should be adjusted or, if necessary, new mitigation or compensation measures should be developed.

The Proponent shall identify from their perspective:

- a) the need for such a program and its objectives;
- b) how it would be structured;
- c) which elements of the monitoring program described in 10.1 it would incorporate;
- d) the roles to be played by the Proponent, regulatory agencies, the LIA, Innu Nation and others in such a program;
- e) possible involvement of independent researchers;
- f) the sources of funding for the program; and,
- g) reporting.

The Proponent shall also provide information, when relevant, on formal follow-up programs associated with other mining or northern projects.

## APPENDIX 1

### Definitions Provided From the MOU

"Agency" means the Canadian Environmental Assessment Agency;

"Canada" means the Government of Canada;

"Contingency Plan" means a program intended to address malfunctions, accidents or unplanned events that may occur in connection with the Undertaking;

"CEAA" means the Canadian Environmental Assessment Act;

"Cumulative Environmental Effect" means the additive and interactive effects of an undertaking in combination with other Undertakings or activities that have been or will be carried out;

"Day" means a calendar day;

"EIS Guidelines" mean the direction provided to the Proponent by the Panel on matters which must be addressed in the Proponent's Environmental Impact Statement;

"Environment" means the components of the earth and includes

- (a) land, water and air, including all layers of the atmosphere,
- (b) all organic and inorganic matter and living organisms,
- (c) the social, economic, recreational, cultural, spiritual and aesthetic conditions and factors that influence the life of humans and communities, and
- (d) a part or combination of those things referred to in paragraphs (a) to (c) and the interrelationships between two or more of them;

"Environmental Assessment" ("EA") means an assessment of the Environmental Effects of the Undertaking that is conducted in accordance with this Memorandum of Understanding;

"Environmental Effect" means, in respect of an undertaking

- (a) any change that the undertaking may cause in the Environment, including any change on health and socio-economic conditions, on physical and cultural heritage, on the current use of lands and resources for traditional purposes by aboriginal persons, or on any structure, site or thing that is of historical, archaeological,

paleontological or architectural significance, and

(b) any change to the undertaking that may be caused by the Environment, whether any such change occurs within or outside Canada;

"Environmental Impact Statement" ("EIS") means the report that presents the results of the EA conducted by the Proponent;

"Federal Ministers" mean the Minister of the Environment of Canada and the Minister of Fisheries and Oceans of Canada;

"Follow-up Program" means a program for

(a) verifying the accuracy of the EA of the Undertaking,

(b) determining the effectiveness of any measures taken to Mitigate the adverse Environmental Effects of the Undertaking, and

(c) implementing measures to Mitigate adverse Environmental Effects identified in (a) and/or (b);

"Innu Nation" means the Innu Nation of Labrador;

"LIA" means the Labrador Inuit Association;

"Memorandum of Understanding



**Appendix IV**  
**MEMORANDUM OF UNDERSTANDING**  
**ON**  
**ENVIRONMENTAL ASSESSMENT**  
**OF**  
**THE PROPOSED VOISEY'S BAY MINING DEVELOPMENT**

This MEMORANDUM OF UNDERSTANDING

BETWEEN:

THE GOVERNMENT OF NEWFOUNDLAND AND LABRADOR, as represented by the Minister of Environment and Labour and the Premier as Minister Responsible for Intergovernmental Affairs;

THE GOVERNMENT OF CANADA, as represented by the Minister of the Environment and the Minister of Fisheries and Oceans;

THE LABRADOR INUIT ASSOCIATION, as represented by the President; AND:

THE INNU NATION, as represented by the President.(The "Parties")

WHEREAS:

•Voisey's Bay Nickel Company Limited is proposing an undertaking in connection with nickel-copper-cobalt deposits at a place known to the Inuit of Labrador as Tasiujatsoak, to the Innu of Labrador as Kapukuanipant-kauashat, which is also known as Voisey's Bay;

•The Undertaking would be carried out in land and water areas that are subject to comprehensive claims negotiations currently underway pursuant to Framework Agreements signed respectively by LIA, Canada and Newfoundland & Labrador, and the Innu Nation, Canada and Newfoundland & Labrador;

•The Parties wish to ensure that the Environmental Effects of the Undertaking are assessed through the establishment of a single, effective and efficient process;

•Both the Newfoundland Environmental Assessment Act, RSN 1990, cE-14 ("NEAA") and the Canadian Environmental Assessment Act, S.C. 1992, c.37 ("CEAA") are applicable to the Undertaking and to this Memorandum of Understanding;

•The Premier as Minister Responsible for Intergovernmental Affairs of Newfoundland & Labrador has responsibilities pursuant to the Intergovernmental Affairs Act, RSN 1990, cl-13;

•The Minister of Environment and Labour of Newfoundland & Labrador has responsibilities pursuant to NEAA;

•The Minister of the Environment of Canada has responsibilities pursuant to CEAA;

•The Minister of Fisheries and Oceans of Canada has responsibilities pursuant to the Fisheries Act, R.S.C. 1985, c.F-14, the Navigable Waters Protection Act, R.S.C. 1985, c.N-22, and CEAA and is the lead Responsible Authority for the purposes of CEAA;

•Section 37 of NEAA enables the Minister of Environment and Labour of Newfoundland & Labrador, when he is of the opinion that it is in the public interest, with the approval of the Lieutenant-Governor in Council, to exempt, by order, an undertaking from the application of NEAA subject to terms and conditions;

- Under the authority of Section 37 of NEAA, the Exemption Order with respect to the Undertaking will, on approval of the Lieutenant-Governor in Council, establish an alternative process to that set out in NEAA, which process will be comprised of the terms and conditions of the Exemption Order, one of which includes the performance of an environmental assessment in accordance with this Memorandum of Understanding;
- Sections 40 to 42 of CEEA enable the Minister of the Environment of Canada to enter into an agreement with other jurisdictions respecting the joint establishment of a review panel and the process by which the panel conducts an assessment of the environmental effects of a proposed undertaking;
- The President of the Innu Nation has responsibilities on behalf of the Innu of Labrador to ensure that the Undertaking is fully assessed, and has been given authority by the Innu Nation Board to enter into this Memorandum of Understanding;
- The Board of Directors of LIA has responsibilities on behalf of the Inuit of Labrador to ensure that the Undertaking is fully assessed and the Board of Directors has authorized the President of LIA to enter into this Memorandum of Understanding; and
- The Parties wish to describe the process that will be followed in the conduct of an Environmental Assessment of the Undertaking.

THEREFORE, the Parties agree that:

#### 1. DEFINITIONS

In this Memorandum of Understanding including the Recitals, Schedule 1 and the Annex thereto, but excluding Schedule 2:

"Agency" means the Canadian Environmental Assessment Agency;

"Canada" means the Government of Canada;

"Contingency Plan" means a program intended to address malfunctions, accidents or unplanned events that may occur in connection with the Undertaking;

"CEEA" means the Canadian Environmental Assessment Act;

"Cumulative Environmental Effect" means the additive and interactive effects of an undertaking in combination with other projects or activities that have been or will be carried out;

"Day" means a calendar day;

"EIS Guidelines" mean the direction provided to the Proponent by the Panel on matters which must be addressed in the Proponent's Environmental Impact Statement;

"Environment" means the components of the earth and includes

- a)land, water and air, including all layers of the atmosphere, b)all organic and inorganic matter and living organisms, c)the social, economic, recreational, cultural, spiritual and aesthetic conditions and factors that influence the life of humans and communities, and d)a part or combination of those things referred to in paragraphs (a) to (c) and the interrelationships between two or more of them;

"Environmental Assessment" (hereinafter "EA") means an assessment of the Environmental Effects of the Undertaking that is conducted in accordance with this Memorandum of Understanding;

"Environmental Effect" means, in respect of an undertaking

a) any change that the undertaking may cause in the Environment, including any change on health and socio-economic conditions, on physical and cultural heritage, on the current use of lands and resources for traditional purposes by aboriginal persons, or on any structure, site or thing that is of historical, archaeological, paleontological or architectural significance, and b) any change to the undertaking that may be caused by the Environment,

whether any such change occurs within or outside Canada;

"Environmental Impact Statement (hereinafter "EIS") means the report that presents the results of the EA conducted by the Proponent;

"Federal Ministers" mean the Minister of the Environment of Canada and the Minister of Fisheries and Oceans of Canada;

"Follow-up Program" means a program for

a) verifying the accuracy of the EA of the Undertaking,

b) determining the effectiveness of any measures taken to Mitigate the adverse Environmental Effects of the Undertaking, and

c) implementing measures to Mitigate adverse Environmental Effects identified in (a) and/or (b);

"Innu Nation" means the Innu Nation of Labrador;

"LIA" means the Labrador Inuit Association;

"Memorandum of Understanding" (hereinafter "MOU") means this Memorandum of Understanding including Schedules 1 and 2 and the Annex to Schedule 1 attached hereto;

"Mitigation" means in respect of the Undertaking, the elimination, reduction or control of the adverse Environmental Effects of the Undertaking, and includes restitution for any damage to the Environment caused by such effects through replacement, restoration, compensation or any other means, and "Mitigate" has a corresponding meaning;

"NEAA" means the Newfoundland Environmental Assessment Act;

"Newfoundland & Labrador" means the Government of Newfoundland and Labrador;

"Panel" means the review panel which is appointed pursuant to Section 3 of this MOU;

"Participant Funding Program" means the program which is referred to in Section 2.5 of this MOU;

"Parties" mean signatories to this MOU;

"Proponent" means Voisey's Bay Nickel Company Limited;

"Provincial Ministers" mean the Minister of Environment and Labour of Newfoundland & Labrador and the Premier as Minister Responsible for Intergovernmental Affairs of Newfoundland & Labrador;

"Residual Effect" means an Environmental Effect remaining after all mitigative measures have been applied;

"Responsible Authority" means a federal body that is required under CEAA to ensure that an environmental assessment of the Undertaking is conducted;

"Review" means the joint public review to be conducted by the Panel in accordance with this MOU;

"Secretariat" means the Secretariat which is established pursuant to Section 2.6 of this MOU;

"Terms of Reference" mean the Terms of Reference for the Panel, as set out in Schedule 1;

"Undertaking" means the proposed construction, operation, demolition, decommissioning, rehabilitation and effective surrender of any leases by the Proponent of a mining development and associated activities as described in Schedule 2.

## 2. GENERAL

2.1 Purpose: The purpose of this MOU is to establish a single, effective and efficient process for assessing the Environmental Effects of the Undertaking, including provision for comprehensive public involvement.

2.2 Land Claim Agreements and Self-Government Agreements: The Parties will enter into negotiations to consider appropriate amendments to the MOU to reflect agreements-in-principle, interim measures agreements or final agreements reached in the two sets of comprehensive land claims negotiations now proceeding among Canada, Newfoundland & Labrador and LIA, and among Canada, Newfoundland & Labrador and Innu Nation.

2.3 Panel Review: A Panel will be appointed to conduct the Review of the Undertaking.

2.4 Panel Budget: The Parties will consult with each other to ensure the Panel has adequate financial resources to conduct the Review of the Undertaking.

2.5 Participant Funding: Persons who wish to participate in the Review of the Undertaking may apply for funding from the Agency in accordance with its Participant Funding Program.

2.6 Panel Secretariat: A Secretariat, including the public information function, will be established by Canada on behalf of the Parties after taking into account their recommendations, to assist the Panel in its duties. The Panel office will be established at Nain.

2.7 Public Information Centres: Public information centres will be established by the Panel at Utshimasits and Nain and other locations in the Province as deemed appropriate by the Panel. These public information centres will be administered by the Panel Secretariat.

2.8 Public Registry: A registry that provides ongoing public access to information relating to the Review of the Undertaking will be established at the Panel office for purposes of compliance with Section 55 of CEAA.

2.9 Publication of MOU: This MOU will be published upon Panel appointment.

2.10 Participation by Officials of the Parties: Nothing in this MOU will be construed as restricting participation in the Review of the Undertaking by representatives of departments and agencies of Newfoundland &

Labrador and Canada and representatives of LIA and Innu Nation.

2.11 Announcements: The Parties or their designates will coordinate any announcements regarding the matters addressed in this MOU.

### 3. APPOINTMENT OF A PUBLIC REVIEW PANEL

3.1 Membership of Panel: The Panel will consist of up to five persons. Panel members will not be employed by the Public Service of Canada, the Public Service of Newfoundland & Labrador, LIA or the Innu Nation.

3.2 Criteria for Panel Members: Each Panel member will be unbiased and free of any conflict of interest relative to the Undertaking and have knowledge or experience relevant to the anticipated Environmental Effects of the Undertaking.

3.3 Selection and Appointment of Panel Members: The Panel members including the Chair will be appointed by Canada from a list of nominees selected by the Parties. Each of the Parties will select three nominees and at least one nominee selected by each of the Parties will be appointed members of the Panel.

3.4 Timing of Panel Appointment: Following the selection of nominees, the members of the Panel will be appointed concurrently with the execution of the MOU.

3.5 Public Notice: Upon the appointment of the Panel, the Parties will give public notice of the appointment.

3.6 Panel Review: Upon appointment, the Panel will conduct its Review of the Undertaking in accordance with the Terms of Reference.

3.7 Powers: The Panel will have the powers set out in Section 35 of CEEA. 4. PANEL REPORT

4.1 Reporting: Upon completion of the Review of the Undertaking, the Panel will concurrently convey its Panel report to the Provincial Ministers, Federal Ministers, the President of the LIA and the President of the Innu Nation.

4.2 Reporting to the Public: The Panel report will be published and, prior to the announcement of its release to the public, the Secretariat will place embargoed copies of the report in the communities of Nain, Utshimasits, Sheshatshui, Hopedale, Makkovik, Rigolet, Postville and in other locations as appropriate to ensure timely availability on public release. The Panel report will be made available to the residents of the named communities immediately following the announcement of the public release of the Panel report. Copies will be available to the general public on request. Panel announcements will originate in Nain and other locations as appropriate.

### 5. AMENDMENTS

5.1 Amendments: This MOU may be amended only with the written consent of all the Parties. Unless another day is agreed, an amendment will become effective upon its execution by the Parties.

### 6. FINAL PROVISIONS

6.1 Without Prejudice This MOU is made without prejudice to the positions taken by the Parties in any other forum. This MOU is not to be construed as conferring on, recognizing, denying or derogating from any aboriginal, treaty, constitutional or other rights, benefits, claims or privileges that may be claimed by any of the Parties, person, or group of persons. This MOU will not be interpreted to be an agreement or treaty within the meaning of Section 35 of the Constitution Act, 1982. Nothing in this MOU is to be construed as providing any consent, approval or authorization whatsoever by LIA and the Innu Nation, in connection with the Undertaking or any part thereof.

6.2 Change to the Undertaking: If the Proponent proposes to change the Undertaking, the Parties will reconsider and may amend this MOU and may redirect the Panel as to changes to the review process.

6.3 Consultation: The Parties will consult on the implementation of this MOU as required.

6.4 Translation: The MOU will be translated into Inuktitut and Innu-Eimun before its execution by the Parties.

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IN WITNESS WHEREOF our signatures are hereunto inscribed.

Original signed by:  
William Barbour  
President  
Labrador Inuit Association 31/01/97  
Date Original signed by  
Peter Penashue  
President  
Innu Nation 31/01/97  
Date Original signed by:  
Kevin Aylward  
Minister of Environment and Labour  
Government of Newfoundland  
and Labrador 31/01/97  
Date Original signed by:  
Sergio Marchi  
Minister of the Environment  
Government of Canada 31/01/97  
Date Original signed by:  
Brian Tobin  
Approved pursuant to the  
Intergovernmental Affairs Act by the  
Premier, as Minister Responsible for  
Intergovernmental Affairs, or the  
Secretary to Cabinet for  
for Intergovernmental Affairs  
Government of Newfoundland and  
Labrador 31/01/97  
Date Original signed by:  
Fred Mifflin  
Minister of Fisheries and Oceans  
Government of Canada 31/01/97  
Date

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SCHEDULE 1

TERMS OF REFERENCE

PANEL REVIEW OF THE PROPOSED VOISEY'S BAY MINING DEVELOPMENT

## INTRODUCTION

Pursuant to the Memorandum of Understanding on Environmental Assessment of the Proposed Voisey's Bay Mining Development, a public review Panel is appointed to conduct a Review of the Environmental Effects associated with the Undertaking proposed by Voisey's Bay Nickel Company Limited.

These Terms of Reference are developed by the Parties and are approved by the Minister of the Environment.

The Undertaking may change as further studies and work are conducted. If, during the Review process, the Panel becomes aware of a proposal by the Proponent to change the Undertaking, the Panel will, if it considers the change significant, advise the Parties forthwith.

For purposes of this Review, the Department of Environment and Labour of Newfoundland and Labrador is the lead Provincial department, the Department of Fisheries and Oceans of Canada is the lead Responsible Authority pursuant to CEAA, and Voisey's Bay Nickel Company Limited is the Proponent of the Undertaking.

## DEFINITIONS

The definitions within Section 1 of the Memorandum of Understanding on Environmental Assessment of the Proposed Voisey's Bay Mining Development will apply to this Schedule.

## SCOPE OF THE REVIEW

In carrying out the Review, the Panel will address the factors outlined in the Annex to Schedule 1 and will give full consideration to traditional ecological knowledge whether presented orally or in writing. Although a review of the substance or definition of aboriginal rights or a determination of the scope or substance of land claims negotiations are not within the Panel's Terms of Reference, the Panel may consider submissions regarding the relationship between the Undertaking and land claims negotiations.

## STEPS IN THE REVIEW PROCESS

The main steps in the Review by the Panel will be as follows:

1. Provision of Documents: Upon appointment, the Panel will be provided the Description of the Undertaking and a copy of the document prepared by the Proponent entitled "The Voisey's Bay Mine/Mill Project - Project Description Report" dated September 26, 1996 and any revisions thereto which the Parties may receive from the Proponent. 2. Conduct of the Review: The Panel will prepare and issue operational procedures for the conduct of the Review. 3. Development of Draft EIS Guidelines: The Panel will develop Draft EIS Guidelines and will distribute them for public comment. Widely disseminated notices will be given to ensure the public is fully aware of the Draft EIS Guidelines, and copies of the Draft EIS Guidelines will be made available to the public. In developing the Draft EIS Guidelines, the Panel will review the report of the Innu Nation dated March 15, 1996, and an LIA report dated July 4, 1996. 4. Scoping Exercise: The Panel will carry out a comprehensive scoping exercise to explain the Review process, to help identify priority issues to be addressed during the Review, and to receive comments on the Panel's Draft EIS Guidelines. The scoping exercise must include seeking Innu and Inuit views about traditional ecological knowledge to be used for EA purposes, how traditional ecological knowledge should be obtained and how it should be evaluated.

The scoping exercise will be carried out through public meetings in the communities of Nain, Utshimasits, Sheshatshiu, Hopedale, Makkovik, Rigolet, Postville and in other locations in the Province as may be determined by the Panel. Oral comments received at public meetings will be considered by the Panel as fully as written comments.

The Panel will determine what documentation is necessary to support the scoping exercise.

The Panel may require the Proponent to attend the Panel's public scoping meetings. In addition, the Panel may require the Proponent to hold separate meetings to permit interested persons to gain an understanding of the Undertaking and identify issues of concern. The Panel or the Secretariat may audit the Proponent's meetings.

The Panel will visit the proposed site and fly over the proposed alternative shipping routes during the scoping exercise to gain a first-hand understanding of the Undertaking and its surroundings. Representatives of the LIA, the Innu Nation, the general public, and the Proponent may join the Panel during the site visit.

5. Issuance of EIS Guidelines to Proponent: The Panel will complete the EIS Guidelines within 120 days of its appointment, taking into account the consultation with the public and public comment received. The EIS Guidelines will address all factors identified in Annex I to these Terms of Reference. The Panel will forward the EIS Guidelines to the Proponent, and at the same time copies of the EIS Guidelines will be distributed to the public registry and public information centres. Widely disseminated notices will be given to ensure the public is fully aware of the EIS Guidelines, and copies of the EIS Guidelines will be made available to the public.

6. EIS Preparation: The Panel will require the Proponent to prepare the EIS in accordance with the EIS Guidelines and submit the EIS to the Panel.

7. Public Review of the EIS: The EIS will be placed in the public registry and the public information centres, and will be available for public review and comment. The comments are to be provided to the Panel either in writing or verbally by submitting quality recordings. Comments are to be provided to the Panel within 75 days from public release of the EIS. Comments given verbally are to be considered by the Panel as fully as written comments.

8. EIS Sufficiency: (a) On completion of public review of the EIS, the Panel, taking into consideration the comments received and its own review of the EIS, will determine if the EIS is sufficient to proceed to public hearings. (b) If the Panel determines that the EIS is sufficient to proceed to public hearings, it will schedule and announce public hearings as provided by step 9. (c) If the Panel determines that there are significant deficiencies, such that the EIS is not sufficient to proceed to public hearings, the Panel will issue a deficiency statement requesting additional information from the Proponent, which the Proponent will provide. At the same time the Panel issues the deficiency statement to the Proponent, the deficiency statement will be placed in the public registry, the public information centres, and made available to the public. (d) The Panel's determinations in Steps 8 (a), (b) and (c), including the issuance of a deficiency statement, will be made within 30 days of completion of Step 7. (e) Upon receipt of the additional information, the Panel will place it in the public registry and the public information centres, and will make it available for public review and comment for 45 days from the Panel's receipt of the additional information. (f) On completion of public review of the additional information, the Panel, taking into consideration the comments received and its own review of the additional information, will determine within 15 days if the EIS, supplemented by the additional information, is sufficient to proceed to public hearings and paragraphs (b) to (f) will apply.

9. Announcement of Public Hearings: Once the Panel determines that the EIS is sufficient to proceed to public hearings, it will schedule and announce the public hearings within 7 days. The Panel will attempt to schedule the public hearings to maximize the attendance and participation of the public, taking into account the seasonal activities and traditional practices of the Innu and Inuit. The public hearings will begin no earlier than 30 days and no later than 45 days after the schedule is announced. The Panel will issue detailed procedures for the conduct of the public hearings. The public hearings will be conducted in a manner that ensures a thorough examination of matters relevant to the Panel's mandate and in particular the examination of technical evidence.

10. Public Hearings: The Panel will hold its public hearings in the communities of Nain, Utshimasits, Sheshatshiu, Hopedale, Makkovik, Rigolet, Postville and in other locations in the Province as may be determined by the Panel. Technical hearings will be held in Nain, Utshimasits and in other locations in the Province as may be determined by the Panel based on its assessment of the interest demonstrated in the communities.

The Panel will use best efforts to complete the public hearings within 45 days.

11. Reporting: The Panel will prepare and submit to the Parties a report including, but not limited to, the following:

- description of the public review process,
- summary of any comments and recommendations received from the public, and



•rationale, conclusions and recommendations of the Panel.

The Panel will submit its report at the earliest possible date, but in no event later than 90 days following completion of the public hearings.

#### PUBLIC PARTICIPATION

The Panel will conduct its Review in a manner which will promote and facilitate public participation.

#### SPECIALIST ADVISORS TO PANEL

The Panel may secure the services of independent experts to provide information on and help interpret technical and scientific issues and issues relative to traditional ecological knowledge.

The names of any specialists retained and their advice to the Panel will be made public. Independent specialists hired by the Panel may be requested to appear before the Panel at the public hearing sessions.

#### TRANSLATION AND INTERPRETATION REQUIREMENTS

Translation:

Dissemination: All translated materials will be placed in the public registry and in the appropriate public information centres.

Panel's Documents: The Panel's operational procedures, public notices pertaining to the Panel's meetings and hearings, detailed procedures for the conduct of the public hearings, Draft EIS Guidelines, EIS Guidelines and any deficiency statement issued by the Panel will be translated into Innu-Eimun and Inuktitut. The translations will be made available as a video tape or in written form at the same time as the English version is publicly released by the Panel and will be provided on request to individuals and organizations. Issuance of these documents will not be delayed more than one week for translation purposes.

The Panel report will be translated into Innu-Eimun and Inuktitut. The translation of the conclusions and recommendations of the Panel report and summaries of key sections will be available at the same time as the English version of the report is conveyed to the Provincial Ministers, the Federal Ministers, the President of LIA and the President of the Innu Nation. Conveyance of the Panel report will not be delayed more than one week for translation of the conclusions, recommendations and summaries mentioned above.

Proponent's Documents: The key sections of the EIS will be translated. Following consultation with the Innu Nation and LIA, the Panel will determine which parts of the EIS will be translated by the Proponent into Innu-Eimun and Inuktitut. The Panel may require that the translation of these parts of the EIS be made available either as a video tape or in written form. The Proponent will take all reasonable measures to ensure that the translation of these documents will be available at the same time as the English version is publicly released by the Panel and will be provided to individuals and organizations upon request. The same procedure will apply to the translation of any additional information provided by the Proponent in response to any deficiency statement issued by the Panel.

Following consultation with the Innu Nation and LIA, the Panel will determine which other documents will be translated into Innu-Eimun and Inuktitut, whether the translation will be provided as a video tape or in written form and when the translation will be provided.

**Interpretation:**

Following consultation with the Innu Nation and LIA, the Panel will determine interpretation requirements from English to Innu-Eimun and Inuktitut and from Innu-Eimun and Inuktitut into English for the public meetings hosted by the Panel, the site visit and the public hearings, including the technical and general hearings, and any other interpretation requirements, and appropriate interpretation services will be provided by the Panel.

**Assistance of LIA and Innu Nation:**

LIA and the Innu Nation will collaborate and take necessary measures to assist the Panel and the Proponent in identifying translation and interpretation requirements for the Review and in producing translation of the documents in a timely fashion. Nothing in this paragraph imposes financial obligations on the LIA or the Innu Nation.

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**ANNEX TO SCHEDULE 1  
FACTORS TO BE CONSIDERED DURING PUBLIC REVIEW**

The definitions within Section 1 of the Memorandum of Understanding on Environmental Assessment of the Proposed Voisey's Bay Mining Development will apply to this Annex. The Review will include consideration of the following factors as they relate to all phases of the Undertaking:

1. Description of the Undertaking, including its temporal and spatial boundaries; 2. Need for the Undertaking; 3. Purpose of and rationale for the Undertaking; 4. Analysis of alternatives including: (a) alternatives to the Undertaking, and (b) alternative means of carrying out the Undertaking which are technically and (c) economically feasible and the Environmental Effects of any such alternatives; 5. Temporal and spatial boundaries of the study areas; 6. Extent to which biological diversity is affected by the Undertaking; 7. Description of the present Environment which may reasonably be expected to be affected, directly or indirectly, by the Undertaking, including adequate baseline characterization; 8. Description of the likely future condition of the Environment within the expected life span of the Undertaking if the Undertaking were not approved; 9. Environmental Effects of the Undertaking including the Environmental Effects arising from malfunctions, accidents or unplanned events that may occur in connection with the Undertaking; 10. Potential Cumulative Environmental Effects of the Undertaking; 11. The significance of the effects as described in items 9 and 10; 12. Proposed Mitigation measures that are technically and economically feasible and that would Mitigate any significant adverse Environmental Effects of the Undertaking, including the interaction of these measures with existing management plans; 13. Proposals for environmental compliance monitoring; 14. Measures to enhance any beneficial Environmental Effects; 15. Proposals for Contingency Plans; 16. Residual Effects associated with the Undertaking and their significance; 17. Need for and requirements of any Follow-up Program in respect of the Undertaking; 18. Capacity of renewable resources that are likely to be significantly affected by the Undertaking to meet the needs of present and future generations; 19. Extent of application of the precautionary principle to the Undertaking; and 20. Comments received by the Panel during the Review.

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**SCHEDULE 2****DESCRIPTION OF THE UNDERTAKING**

Voisey's Bay Nickel Company Ltd. (the "Proponent") is proposing to develop a nickel-copper-cobalt mine and mill in the vicinity of a place known to the Inuit of Labrador as Tasiujatsoak, to the Innu of Labrador as

Kapukuanipant-kauashat, which is also known as Voisey's Bay. The indicated mineral resource is estimated to be 150 million tonnes. The deposit consists of three ore bodies known as the Ovoid, the Eastern Deeps, and the Western Extension. The Ovoid would be mined using open pit techniques. The Western Extension and Eastern Deeps would be mined by underground techniques. The ore would be processed to nickel-cobalt and copper concentrates using conventional milling processes. The concentrates would be shipped to a smelter off-site. This proposed development is hereinafter referred to as the "undertaking".

The proposed mine/mill would be located in northern Labrador, 35 km southwest of Nain and 79 km northwest of Utshimasits (Davis Inlet). The climate is subarctic with short summers and long winters. The surrounding terrain is rugged, with elevations ranging to 400 m above sea level. Most of the undertaking would be located in a sheltered valley connecting Anaktalak Bay, to the north, with Voisey's Bay to the south (Figure 1). Disposal of tailings and waste rock would take place in valleys to the east of the mine. Valleys are largely forested, while upland areas consist predominantly of barren rock. The area drains to several watersheds which include watercourses supporting Arctic char and other fish populations. The undertaking would be carried out in an area subject to on-going aboriginal land rights negotiations involving Newfoundland & Labrador, LIA and Canada and Newfoundland & Labrador, Innu Nation and Canada.

The undertaking, through its life cycle, includes open pit and underground mining facilities and operations, the construction and operation of storage and deposition areas for waste rock and overburden, mine site roads, borrow pits and quarries and their road access, an airstrip, a concentrator, a tailings impoundment area, an accommodations and services complex, a port site with shipping dock and concentrate storage building, maintenance and storage areas including equipment laydown and fuel storage areas, explosives storage and manufacturing facilities, a sewage treatment system, a power supply and distribution system, a water supply and distribution system, water diversion and drainage systems and communications system. The undertaking includes the activities associated with the above operations and infrastructure such as the transportation of personnel and supplies and the shipping of concentrates.

The open pit would be mined using conventional methods. The waste rock would be stored near the open pit, or under a water cover, depending on its potential to generate acid. An estimated 13.7 million tonnes of overburden would be removed and stored near the open pit. Approximately 20.5 million tonnes of non-acid generating waste rock would be stored in surface facilities. One million tonnes of waste rock is categorized as potentially acid generating and would be placed under a water cover. Discharge water from the mineralized waste rock disposal pond may need treatment.

Underground deposits would be mined by sinking shafts followed by blasting and load-haul-dump operations. Approximately 15.5 million tonnes of waste rock from the underground mine would be produced. Fifteen million tonnes is considered potentially acid generating and would be placed under water cover; the remaining 0.5 million tonnes would be stored above ground. Water from the open pit and underground mining sites, as well as drainage from waste rock and overburden piles would be collected and, if necessary, treated before discharge.

Ore would be transported to the concentrator, and processed into nickel-cobalt and copper concentrates using crushing, grinding and flotation processes. The concentrator would be designed based on an initial production rate of 15,000 tonnes per day of ore. Concentrates would be trucked to storage facilities at the port site at Anaktalak Bay and shipped for smelting.

The tailings produced during the concentrating process are potentially acid-generating and would be placed under a permanent water cover to inhibit acid generation and leaching of metals. The Proponent's preferred tailings basin site is a pond approximately 12 km northeast of the plant site. The Proponent maintains it has sufficient capacity to accommodate the tailings associated with the projected mineral resource. Site development would include perimeter dams, control gates, access roads, surface water diversion and, if necessary, polishing pond. Decant water would be reclaimed and recycled, with any excess water treated if necessary before discharge.

Potable and fire-fighting water would be obtained from groundwater wells in the Reid Brook basin. Power would be supplied by diesel power generation units. The airstrip would be located north of Camp Pond.

To date, three shipping routes (northern, eastern and southern) are being considered by the Proponent for the passage of bulk carriers containing the concentrate between the outer islands of the Labrador coast and the proposed port site at Kakiak (Edward's Cove). The potential northern route following a portion of "Strathcona Run", the existing shipping route to Nain, is currently the Proponent's preferred option (Figure 2). Three shipping season options are being considered. Seasonal shipping would consist of shipping during the ice-free season. Extended shipping would enable shipping to continue during early ice formation and during ice break-up. Year-round shipping would involve uninterrupted service throughout the year. The Proponent would prefer to ship concentrate during the greatest number of months possible, however, because of the importance of ice for winter travel, habitat and harvesting, the Proponent states that it will continue to consult with local residents and government regulators regarding an appropriate shipping season.

Approximately 700 persons would be employed during construction of the undertaking, and during operations, an estimated 500 persons would be employed plus additional contract personnel. The expected life of the undertaking is longer than 20 years and depends on the mineral resource and production rate. Workers would be transported to the site by air. Living accommodations would be provided on-site. No town site is planned.

Upon mine closure, the site would be decommissioned and rehabilitated to approach pre-development conditions. Progressive decommissioning and rehabilitation would commence at an early stage during mine development and would continue throughout the life of the mine until the effective surrender of any leases by the Proponent.

Map of Voisey's Bay Mine/Mill -- Conceptual Layout  
Map of Voisey's Bay Nickel Company Limited

APPENDIX V  
BCEAA, ENVIRONMENTAL ASSESSMENT REVIEWABLE PROJECTS  
REGULATION  
B.C. REG. 276/95, ss. 18-24

PART 2 - MINE PROJECTS

*Definitions*

18. In this part:

“mine” has the same meaning as in the *Mines Act*;

“clean coal” means coal which has been processed in a coal preparation plant;

“mineral mine” means a mine at which a mineral, as defined in the *Mineral Tenure Act*, is being or could be mined;

“pay-dirt” means mined placer gravel which is processed in a sluice box, wash plant or other device for the extracting of precious metals;

“placer mineral mine” means a mine at which a placer mineral, as defined in the *Mineral Tenure Act*, is being or could be mined;

“quarry” means a mine at which an industrial mineral, construction stone or other substance is being or could be mined, but which is not a mineral mine, placer mine, coal mine or sand or gravel pit;

“raw coal” means coal which is transported from the mine site without having been processed in a coal preparation plant.

*Coal mines*

19. (1) The construction of a new facility constitutes a reviewable project for the purposes of the Act if

(a) the facility is within SIC code 063 - Coal Mines, and

(b) the facility has, or when the construction phase is completed will have, a production capacity of 100,000 tonnes or more per year of clean coal or raw coal or a combination of both clean coal and raw coal.

(2) The modification of an existing facility constitutes a reviewable project for the purposes of the Act if

(a) the facility meets the criteria described in subsection (1) for a new facility, and

(b) the modification results in, or when construction of the modification is completed will result in,

(i) the disturbance of 250 hectares or more of land not previously disturbed by mining activity, or

(ii) the disturbance of an area of land not previously disturbed by mining activity that is 35% or more of the area of land already disturbed by mining activity at the facility.

*Mineral mines*

20. (1) The construction of a new facility constitutes a reviewable project for the purposes of the Act if

(a) the facility is a mineral mine, and  
(b) the facility has, or when the construction phase is completed will have, a production capacity of 25,000 tonnes or more of mineral ore per year.

(2) The modification of an existing facility constitutes a reviewable project for the purposes of the Act if

(a) the facility meets the criteria described in subsection (1) for a new facility, and  
(b) the modification results in, or when construction of the modification is completed will result in,

(i) the disturbance of 250 hectares or more of land not previously disturbed by mining activity, or

(ii) the disturbance of an area of land not previously disturbed by mining activity that is 35% or more of the area of land already disturbed by mining activity at the facility.

#### *Sand and gravel operations*

21. (1) The construction of a new facility constitutes a reviewable project for the purposes of the Act if

(a) the facility is within SIC code 082 - Sand and Gravel Pits, and  
(b) the facility has, or when the construction phase is completed will have, a production capacity of

(i) 500,000 tonnes or more of sand or gravel or both sand and gravel per year, or

(ii) 1,000,000 tonnes or more of sand or gravel or both sand and gravel over a period not exceeding 4 years.

(2) The modification of an existing facility constitutes a reviewable project for the purposes of the Act if

(a) the facility meets the criteria described in subsection (1) for a new facility, and  
(b) the modification results in, or when construction of the modification is completed will result in, the disturbance of an area of land not previously disturbed by mining activity that is 35% or more of the area of land already disturbed by mining activity at the facility.

#### *Placer mines*

22. (1) The construction of a new facility constitutes a reviewable project for the purposes of the Act if

(a) the facility is a placer mineral mine, and  
(b) the facility has, or when the construction phase is completed will have, a production capacity of 500,000 tonnes or more of pay-dirt per year.

(2) The modification of an existing facility constitutes a reviewable project for the purposes of the Act if

(a) the facility meets the criteria described in subsection (1) for a new facility, and

(b) the modification results in, or when construction of the modification is completed will result in, the disturbance of an area of land not previously disturbed by mining activity that is 35% or more of the area of land already disturbed by mining activity at the facility.

*Construction stone and industrial mineral quarries*

23. (1) The construction of a new facility constitutes a reviewable project for the purposes of the Act if

(a) the facility is a quarry, and

(b) the facility has, or when the construction phase is completed will have, a production capacity of 250,000 tonnes or more per year.

(2) The modification of an existing facility constitutes a reviewable project for the purposes of the Act if

(a) the facility meets the criteria described in subsection (1) for a new facility, and

(b) the modification results in, or when construction of the modification is completed will result in, the disturbance of an area of land not previously disturbed by mining activity that is 35% or more of the area of land already disturbed by mining activity at the facility.

*Off-shore mines*

24. (1) The construction of a new facility constitutes a reviewable project for the purposes of the Act if the facility is a platform, artificial island or other physical work, including any associated facilities, that is intended for the purpose of exploration for, or production of, a mineable substance from the foreshore or submerged land along a marine coastline or from an off-shore site located in salt water.

(2) The modification of an existing facility constitutes a reviewable project for the purposes of the Act if the facility meets the criteria described in subsection (1) for a new facility.

