IAAC COMPLAINT ADDITIONS

Energy Alberta Peace River Nuclear Power Project — Registry #89430

SHOW STOPPER 16

The Rights Hierarchy and the Regulatory Vacancy

The CNSC has no standard for harm, no instrument to measure it, and no constitutional permission to price the right to life

This Show Stopper makes a three-part argument, each part independently sufficient to require the Panel to find that the CNSC's submission does not answer the question the Impact Assessment Act requires to be answered.

Part 1 establishes that the CNSC has never defined a standard for unacceptable harm and that its framework — ALARA and dose compliance thresholds — is structurally incapable of producing a determination of unacceptability.

Part 2 establishes that the CNSC's monitoring framework cannot detect harm to the host community even if it occurs.

Part 3 establishes that the constitutional and human rights framework independently prohibits the result the CNSC's framework would produce, and that every comparable jurisdiction has built what Canada has not. Part 4 states what the Panel must find and do.

The cumulative logic is as follows: the CNSC cannot define harm, cannot detect harm, and even if it could do both, the legal and constitutional framework prohibits the answer it would give. There is no level at which deference to the CNSC is appropriate in this proceeding.

> **The CNSC has built a framework for pricing harm. It has built no framework for deciding when harm is unacceptable. That omission is not technical. It is structural. And the right to life — the supreme right from which no derogation is permitted even in armed conflict — cannot be priced.**

PART 1: NO STANDARD — THE CNSC HAS NEVER DEFINED UNACCEPTABLE HARM

1.1 What the CNSC Framework Does

The Canadian Nuclear Safety Commission administers a radiation harm framework drawn from ICRP Publication 103 and implemented through REGDOC-2.7.1. Its operative mechanism is ALARA — "as low as reasonably achievable" — supported by the alpha value, a monetary figure per person-sievert of dose averted, used to determine whether the cost of harm prevention is proportionate to the benefit. At the CNSC's current alpha value and using its 5%/Sv cancer risk coefficient, the framework implies a price per authorised cancer death of between $400,000 and $2,000,000 CAD.

This framework answers one question with precision: at what cost per unit of harm reduction is further prevention no longer required? It is a cost-benefit optimisation tool. Within its domain it operates consistently. What it cannot do is answer a categorically different question: at what level of harm does harm become unacceptable regardless of the cost of avoidance?

1.2 ALARA Is Not a Harm Standard

ALARA is an optimisation instruction. It directs licensees to reduce doses to the lowest level achievable having regard to social and economic factors. ALARA operates entirely within whatever harm level the proponent proposes. It never asks whether the proposed harm level is acceptable — it asks only how far below that level it is cost-effective to go. A framework that optimises within a proposed ceiling but never evaluates the ceiling is not a harm standard. It is a cost-effectiveness calculation.

The consequence is structural: ALARA cannot produce a regulatory refusal. No CNSC licensing decision has ever been refused on the ground that projected harm to the host community exceeded an acceptable level, because ALARA has no mechanism for that outcome. A facility that imposes 500 additional cancers on the host community over 60 years of operation, each individual case below the alpha value threshold for prevention, passes the ALARA test in full. The ALARA mechanism never asks: is 500 additional cancers in this community an acceptable outcome? That question has no place in the framework.

1.3 Dose Limits Are Not Harm Standards

The dose limits in REGDOC-2.7.1 — 1 mSv per year effective dose for members of the public — are administrative compliance thresholds, not determinations of acceptable harm. They trigger investigation and reporting obligations. They do not represent a finding that harm below the threshold is acceptable or that harm above it is unacceptable.

The CNSC has confirmed this explicitly in its own regulatory documentation. CNSC REGDOC-2.9.2 states that exceeding a licensed release limit "does not necessarily imply an unreasonable risk to the environment or to the health and safety of persons." If exceeding a licensed limit does not necessarily imply unreasonable risk, then the limit is not the point at which risk becomes unreasonable. No category of harm is definitionally impermissible under the CNSC's framework. The CNSC has stated this in its own regulatory document.

1.4 The Structural Absence of a Harm Ceiling

The CNSC has operated as Canada's nuclear regulator for over two decades. It has licensed dozens of nuclear facilities. It has published extensive guidance on how to price harm. It has published nothing on how to decide when harm is too great to price. There is no CNSC regulatory document, guide, or published decision that identifies a harm ceiling — a level at which harm becomes categorically impermissible regardless of economic offset.

This absence is not accidental. A regulator that had genuinely internalised a mandate to protect the health of persons would, over decades of operation, inevitably confront the question: at what level does harm exceed what this mandate permits? The CNSC has not answered it. The institutional reason is transparent: the CNSC recovers the majority of its operating costs from fees levied on the licensees it regulates. It cannot afford, institutionally, to build a tool that sometimes refuses licences.

The CNSC's treatment of the INWORKS evidence illustrates the pattern. In 2023, the CNSC acknowledged publicly that INWORKS showed the risk of radiation-induced solid cancer mortality may be higher than previously reported. It drew no operational consequence. Through three further confirmatory papers published between August 2024 and May 2025, the CNSC remained silent. Its public information page has not been updated since April 2024. This is not scientific caution. It is the documented behaviour of an institution protecting a position from evidence that challenges it.

The consequence for this Review Panel is not merely that the CNSC's projections may be 3 to 6 times too low. It is that the Panel is being asked to evaluate the public interest in health effects using projections produced by an institution that has declined to engage with the science that challenges them, for structural reasons that have nothing to do with the science.

1.5 Concessions on the Record: Federal Court and IAEA

CARN v BWXT Nuclear Energy Canada Inc (2022 FC 849) — The CNSC's Courtroom Admission

In CARN v BWXT Nuclear Energy Canada Inc, 2022 FC 849, the CNSC stated in open court that the international benefits-outweigh-harm standard — IAEA Safety Fundamentals SF-1 Principle 4 — is not a legal obligation in Canada. The CNSC does not apply a justification test requiring it to weigh benefits against harm before authorising a nuclear facility. This is not an inference from conduct. It is the CNSC's own statement of its own standard, made on the record before the Federal Court.

The Federal Court in CARN dismissed the challenge on the basis that the Commission had found "no serious or irreversible damages" — a factual finding based on CNSC science. That finding is unavailable in this proceeding. Peace River presents a materially different factual picture: documented above-average cancer incidence of unknown aetiology; INWORKS 2023–2025 confirming chronic low-dose radiation effects at the dose levels Peace River residents will receive; and Harvard/Nature Communications (2026) documenting approximately 6,400 cancer deaths per year statistically associated with residence within 30 kilometres of operating nuclear facilities — the exact distance at which Peace River sits.

IAEA IRRS 2019 and 2024 — International Finding of Non-Compliance

The IAEA conducted Integrated Regulatory Review Service missions to Canada in 2019 and 2024. Both missions formally found the CNSC non-compliant. The 2019 IRRS Final Report found that dose constraints are not explicitly established for all Class I nuclear facilities and that radiation protection regulations are not in accordance with IAEA GSR Part 3. The 2024 follow-up found the same deficiencies unresolved five years later.

Canada formally rejected IAEA Suggestion S1 — which recommended implementing the justification principle — stating: "Not accepted … Parliament has given the CNSC the statutory authority to regulate the nuclear industry in Canada." This is not a defence of adequacy. It is a concession of deliberate divergence from the international standard, confirmed on the record across two review cycles.

> **The CNSC's authorised harm doctrine does not merely lack a threshold for unacceptable harm. It has been structurally organised to avoid developing one. A regulator funded by the industry it licences cannot afford to build a tool that sometimes says no. The result is a framework that has replaced the statutory obligation of adequate protection with a pricing mechanism whose outputs it is structurally motivated never to question. That is not regulation. That is regulatory capture operationalised as health protection.**

PART 2: NO MEASUREMENT — THE CNSC'S MONITORING FRAMEWORK CANNOT DETECT HARM

2.1 What the CNSC's Monitoring Framework Measures

The CNSC requires licensed nuclear facilities to maintain environmental monitoring programmes. These programmes measure radionuclide concentrations in air, water, soil, sediment, and biota. They are compliance instruments: they verify that radionuclide releases remain within licensed limits. They are not health instruments.

The monitoring framework includes no requirement for epidemiological surveillance of the host community. There is no regulatory obligation on any CNSC-licensed facility to track cancer incidence, cancer mortality, or other health outcomes in the surrounding population. There is no programme, standard, or methodology within the CNSC's regulatory architecture for detecting whether the health of a host community has changed as a result of facility operation.

2.2 The Monitoring Framework Has Demonstrably Failed to Detect Harm

The Harvard T.H. Chan School of Public Health, in a study published in Nature Communications on 23 February 2026, found statistically significant associations between residential proximity to nuclear power facilities and cancer mortality at the population level, documenting approximately 6,400 cancer deaths per year associated with nuclear facility proximity. The Peace River site places the facility at 30 kilometres from the town — the boundary at which the study's proximity effects were measured.

This finding was not produced by the CNSC. It was not produced under any CNSC monitoring requirement. It was produced by external researchers using publicly available national mortality registry data. The CNSC's environmental monitoring programme, operating at every licensed Canadian facility, generated no equivalent finding. It was not designed to. This is a structural observation: the CNSC's monitoring framework is incapable of detecting population-level health effects that are nevertheless detectable using standard epidemiological methods applied to publicly available data.

2.3 The IAEA Standard Requires More

IAEA Safety Guide RS-G-1.8 on environmental and source monitoring requires that monitoring programmes be designed to detect actual impacts on people and the environment, not merely to verify compliance with release authorisations. The CNSC's monitoring framework does not meet this standard. The IAEA's 2019 and 2024 IRRS missions found deficiencies in the CNSC's environmental monitoring framework that remained unresolved across both review cycles.

2.4 The Peace River Baseline Makes the Measurement Gap Acute

The Peace River region has documented above-average cancer incidence of unknown aetiology. An incremental risk assessment applied to a community with an elevated baseline produces a systematically understated absolute risk. Where the cause of the existing elevation is unknown, there is no basis for assuming that a new carcinogenic source will not contribute to it. The proponent's IAAC submission does not address the Peace River baseline. It does not acknowledge the elevated cancer incidence. It applies the standard CNSC incremental framework to a non-standard community health situation. Section 22(1) of the Impact Assessment Act requires assessment of health effects on the affected community — the actual community, not a hypothetical average.

> **The CNSC's monitoring framework would not have found what the Harvard/Nature Communications study found. It was not designed to find it. Every nuclear facility the CNSC has ever licensed has operated under a monitoring regime that could not have detected the population-level harm that external science has now documented. That is not a gap in the data. It is a gap in the regulator's architecture — a structural choice to monitor compliance rather than to measure harm. The Panel cannot fill that gap by deferring to the regulator that created it.**

PART 3: THE RIGHTS HIERARCHY — NO CONSTITUTIONAL PERMISSION TO PRICE THE RIGHT TO LIFE

Parts 1 and 2 establish that the CNSC's submission does not answer the section 22(1) question on purely administrative and statutory grounds. Part 3 establishes an independent and additional ground. Even if the CNSC had a harm standard and an adequate measurement framework, the result that framework would produce — pricing cancer deaths against economic benefit and authorising harm when the cost of prevention exceeds the alpha value — is constitutionally impermissible. The rights hierarchy is not a supplement to Parts 1 and 2. It is a separate and independently sufficient basis for the Panel's findings.

3.1 The Three Rights

Right 1 — The Right to Life of Peace River Residents

The right to life of the persons who live in and around Peace River is not a balanceable interest. It is the supreme right in the international legal order. ICCPR Article 6(1) declares:

> **Every human being has the inherent right to life. This right shall be protected by law. No one shall be arbitrarily deprived of his life.**

Article 4(2) of the ICCPR then states, in terms that admit no ambiguity:

> **No derogation from Article 6 … may be made under this provision.**

The UN Human Rights Committee's General Comment 36 (2018) confirms the right to life is "the supreme right from which no derogation is permitted even in situations of armed conflict." Even war cannot suspend the right to life. A commercial energy project cannot override what war cannot. Canada is a state party to the ICCPR. Canadian courts use the ICCPR as an authoritative interpretive aid for Charter rights including section 7 (Baker v Canada; Suresh v Canada).

Right 2 — The Right to Operate a Nuclear Facility for Economic Profit (Energy Alberta)

Energy Alberta holds no right to construct or operate a nuclear power facility. It holds a business interest — a contingent commercial expectation subject to licensing approval it has not yet received. A commercial licence to operate an industrial facility that will impose involuntary cancer risk on a neighbouring population is not a right in any relevant sense. It is a permission granted by the state conditional on meeting standards the state has established. Energy Alberta's commercial interest cannot constitute a reason to lower the standards against which it is assessed. The ICESCR does not protect commercial profits as a human right.

Right 3 — The State's Right to Regulate and to Impose Incidental Harm

The state has a real and legitimate right to regulate industrial activities, including nuclear facilities. This right includes the capacity to authorise activities that impose incidental harm on individuals, provided the harm is proportionate, necessary, the least restrictive means available, and accompanied by adequate protection. It is not unlimited. Charter section 7 — as interpreted in Bedford (2013) and Carter (2015) — establishes that the state may not deprive a person of life, liberty or security of the person except in accordance with principles of fundamental justice. Those principles include proportionality and the

prohibition on purely utilitarian reasoning. A framework that prices cancer deaths and authorises harm when cost of prevention exceeds the alpha value is utilitarian calculus applied to the right to life. It does not satisfy the principles of fundamental justice.

3.2 The WHO Constitution and the Right to Health

The Constitution of the World Health Organization, in force since 1948, declares:

> **The enjoyment of the highest attainable standard of health is one of the fundamental rights of every human being without distinction of race, religion, political belief, economic or social condition.**

The UN Committee on Economic, Social and Cultural Rights confirmed in General Comment 14 (2000) that the right to health includes the freedom "to be free from non-consensual interference." Peace River residents do not consent to their exposure. They have not been consulted on the acceptability of the harm level. They receive no compensation. They bear the harm while others receive the benefit. This is the structure of non-consensual interference with health that the WHO Constitution identifies as a violation of a fundamental right.

3.3 The Hierarchy Stated

- The right to life of Peace River residents is the supreme right. It is non-derogable. It cannot be balanced against commercial interest. It cannot be priced.
- The state's right to regulate is real and legitimate but bounded. It may impose proportionate, necessary, minimally harmful measures in the public interest. It may not establish a market for harm with no ceiling.
- Energy Alberta's commercial interest is a licensed privilege. It is not a right. It is subordinate to every tier above it.

No improvement to the CNSC's methodology could cure this hierarchy problem. The CNSC could increase the alpha value tenfold, update its risk coefficients to reflect INWORKS, and add epigenetic harm to its model — and it would still be operating a pricing framework. A pricing framework applied to the right to life is constitutionally impermissible regardless of the price set.

3.4 The Mathur Framing: Charter Section 7 as a Negative Rights Argument

Charter section 7 protects the right to life and requires that any deprivation comply with the principles of fundamental justice. The critical doctrinal development is Mathur v Ontario (2024 ONCA 762), in which the Ontario Court of Appeal unanimously held that where government has voluntarily assumed a statutory obligation, it is constitutionally bound to discharge that obligation in a Charter-compliant manner. The Supreme Court of Canada denied leave to appeal on 1 May 2025. Mathur is settled leading authority.

The Mathur framework applies directly. The CNSC was created by statute to prevent unreasonable risk to health. Having filed IAEA compliance action plans and accepted IRRS recommendations, it has voluntarily assumed obligations. Under Mathur, the CNSC is constitutionally bound to discharge its mandate in a Charter-compliant manner. The question is not whether the state has a positive duty to build a harm ceiling. It is whether the CNSC's existing framework — no harm ceiling, no justification test, ALARA with economic balancing, and a documented pattern of silence in the face of contradicting science — discharges that mandate in compliance with section 7.

It does not. The CNSC framework is arbitrary under Bedford: no rational connection between the stated objective of adequate health protection and a mechanism that can never identify inadequacy. It is overbroad: it applies to Peace River residents who have not consented and whose above-average cancer incidence places them in a categorically vulnerable position. It is grossly disproportionate: the health impact

documented by INWORKS, Harvard, and Nature Communications is grossly disproportionate to any regulatory efficiency interest served by the pricing mechanism.

3.5 The CEPA 2023 Statutory Right to a Healthy Environment

The 2023 amendments to the Canadian Environmental Protection Act, section 2(1)(a.2), provide that every individual in Canada has the right to live in a healthy environment. Canada thereby joined 156 UN member states recognising this right in domestic law. CNSC-regulated activities fall under the NSCA rather than CEPA directly, but the CNSC cannot operate as though the right to a healthy environment does not exist. A public interest determination that authorises demonstrable harm, from a regulator with no harm standard and no measurement framework, cannot be reconciled with a statutory right to a healthy environment that the same Parliament enacted three years ago.

3.6 What the Comparative Analysis Confirms

The CNSC's absence of a harm ceiling is not required by the ICRP framework and is not shared by any major comparable jurisdiction. Every jurisdiction analysed in Appendix 6 draws on the same ICRP Publication 103 from which the CNSC draws its methodology. None concluded that the framework prohibits a harm ceiling. All of them built one.

- **United Kingdom:** Individual risk exceeding 10^{-4}/yr is intolerable regardless of benefit. No cost-benefit calculation applies in the unacceptable region.
- **Netherlands:** Maximum permissible individual risk of 10^{-6}/yr is a hard legal ceiling embedded in statute.
- **Finland:** Government-set hard limit of 0.1 mSv/yr that STUK cannot modify or trade against economic factors.
- **European Union:** EU BSS Directive requires dose constraints as a ceiling concept for all member states, implemented from the same ICRP framework the CNSC uses.

The CNSC is not an outlier because the science has not produced a ceiling. It is an outlier because it chose not to build one. The 2024 NRC decision to remove QHOs from its advanced reactor framework is the only comparable movement in the CNSC's direction, and the NRC's own Advisory Committee on Reactor Safeguards has identified that removal as a regulatory capture event.

> **The Review Panel's statutory obligation is not to find the price at which Peace River residents' cancer deaths are acceptable. It is to determine whether the project's health effects are in the public interest — which requires the analytical capacity to find that they are not. The CNSC's framework cannot produce that finding. The rights hierarchy requires that someone in this process can.**

PART 4: WHAT THE PANEL MUST FIND AND DO

4.1 Finding on the Standard Gap — From Part 1

The Panel must find that the CNSC has not established a standard for unacceptable harm and that its projections therefore cannot constitute a determination that the health effects of this project are acceptable under section 22(1) of the Impact Assessment Act. Projecting licence compliance is not the same as assessing whether health effects on the affected community are acceptable. The Panel must require the proponent to commission an independent harm assessment applying a defined and publicly justified standard of unacceptable harm — equivalent to at least one of the harm ceiling standards operating in comparable jurisdictions — before proceeding to the public interest determination under sections 60 to 63.

4.2 Finding on the Measurement Gap — From Part 2

The Panel must find that the CNSC's environmental monitoring framework is not designed to detect health harm in the host community, that it has demonstrably failed to detect population-level harm that external epidemiology has now documented at comparable facilities, and that the proponent's submission does not characterise the actual health condition of the Peace River community or account for its documented above-average cancer incidence.

The Panel must require, as a mandatory condition of any positive public interest finding, that the proponent establish and fund an independent epidemiological surveillance programme for the Peace River host community, with independent reporting to Health Canada — not to the CNSC — at defined intervals.

4.3 Finding on the Rights Hierarchy — From Part 3

The Panel must find that the right to life of Peace River residents is non-derogable under ICCPR Article 6 and that no public interest determination under sections 60 to 63 can be grounded in a framework that prices cancer deaths against economic benefit. The Panel must find that the CNSC's authorised harm doctrine, as confirmed by the CNSC's own courtroom admission in CARN v BWXT (2022 FC 849), is incompatible with the Charter section 7 principles of fundamental justice as articulated in Bedford, Carter, and Mathur.

4.4 The Dispositive Finding

The Panel must find that the CNSC's submission to this proceeding does not answer the question that section 22(1) of the Impact Assessment Act requires to be answered. The CNSC has assessed dose compliance. Section 22(1) requires assessment of health effects on the affected community. Those are not the same question.

Until an independent body, operating with a defined harm standard, a community health measurement framework, and a constitutionally compliant harm ceiling, provides a genuine assessment of health effects on the Peace River community, the Panel has no evidentiary basis for a positive public interest finding on the health effects dimension of section 22(1). The Panel must so find, and must decline to proceed to the sections 60 to 63 public interest determination on health grounds until that assessment is before it.

> **The CNSC's submission answers the wrong question with great precision. It tells the Panel that the facility will comply with licence conditions. It does not tell the Panel whether the people of Peace River will be harmed. It has never built a framework capable of answering that question. The Panel's obligation under the Impact Assessment Act is to the people of Peace River, not to the adequacy of the CNSC's process. Where the regulator's process cannot answer the statutory question, the Panel must say so.**

APPENDIX 1: STATUTORY AND CONSTITUTIONAL PROVISIONS

The following provisions independently prohibit the Review Panel from treating the CNSC's projections as a sufficient basis for the health assessment the statute requires.

A1.1 IAA Section 22(1) — Health Effects as a Mandatory Assessment Factor

Section 22(1) requires assessment of health effects on the affected communities. The CNSC framework does not assess health effects. It prices them. Assessment answers: what harm will occur, to whom, at what magnitude, with what certainty? Pricing answers: what is the harm worth in dollars? Substituting a pricing output for an assessment output does not discharge the section 22 obligation. It evades it. Licence compliance is a necessary condition of lawful operation; it is not a proxy for health effects on a specific community.

A1.2 IAA Sections 60–63 — The Public Interest Gate

Sections 60 to 63 require a public interest determination having regard to the assessment report. A positive determination on health grounds requires that health effects have been assessed and found acceptable. Where the assessing body has no harm standard and no measurement framework, the public interest gate cannot lawfully be opened on health grounds. The statutory gate becomes operationally empty if the only health assessment tool available can never produce a refusal.

A1.3 IAA Section 6(2) — Mandatory Precautionary Principle

Section 6(2) requires application of the precautionary principle. The CNSC inverts this: it uses scientific uncertainty about radiation harm as justification for the least precautionary available coefficient — the DDREF=2 assumption, which INWORKS directly contradicts with an empirical DDREF of approximately 0.7. The Review Panel, bound by section 6(2), cannot adopt projections produced through an inverted precautionary framework without itself violating the mandatory statutory obligation.

A1.4 IAA Section 6(3)(b) — Scientific Integrity

Section 6(3)(b) requires adherence to principles of scientific integrity, honesty, objectivity, thoroughness and accuracy. The CNSC's documented pattern — acknowledging that INWORKS shows higher risk than its coefficients reflect, drawing no consequence, and remaining silent through three further confirmatory papers — is irreconcilable with thoroughness and accuracy. A Review Panel that relies on CNSC projections without independently engaging with this record inherits a scientific integrity failure the statute prohibits.

A1.5 Nuclear Safety and Control Act Section 9 — "Adequate Protection"

The CNSC's mandate requires "adequate protection of the health and safety of persons." Adequacy implies a standard of sufficiency — some level of protection that qualifies, and some level that does not. A pricing framework with no ceiling cannot satisfy an adequacy standard, because adequacy requires the capacity to distinguish when protection has fallen below the threshold. The CNSC framework has replaced the adequacy standard with a pricing mechanism that never produces a determination of inadequacy.

A1.6 Vavilov (2019) — Administrative Reasonableness

Vavilov requires that administrative decision-makers genuinely grapple with evidence that contradicts their conclusions. The CNSC acknowledged that INWORKS shows higher risk than its coefficients reflect, then drew no consequence. Under Vavilov, a decision that acknowledges contradicting evidence and fails to engage with it is unreasonable. The Review Panel, applying Vavilov to the CNSC's record, cannot simply adopt the CNSC's projections without itself producing an unreasonable report.

A1.7 Charter Section 7 — Mathur Framing

The CNSC was created by statute to prevent unreasonable risk. Having filed IAEA compliance action plans, it has voluntarily assumed obligations. Under Mathur v Ontario (2024 ONCA 762, SCC denied leave 1 May 2025), the CNSC is constitutionally bound to discharge its mandate in a Charter-compliant manner. The framework fails all three Bedford-Carter principles: it is arbitrary (no rational connection between health protection and a mechanism incapable of identifying inadequacy), overbroad (applies to non-consenting residents in an already-elevated-risk community), and grossly disproportionate (the health impact is wholly disproportionate to any regulatory efficiency interest).

A1.8 UNDRIP Act 2021 — FPIC (Kebaowek, 2025 FC 319)

Free, prior and informed consent requires that information be accurate. CNSC projections that are 3 to 6 times too low do not constitute a sufficient basis for informed consent. In Kebaowek First Nation v Canadian Nuclear Laboratories (2025 FC 319), Justice Gascon held that UNDRIP is part of Canadian law and that the CNSC erred by failing to consider UNDRIP when assessing adequacy of Crown consultation — rendering the CNSC's approval both unreasonable and incorrect. FPIC is judicially enforceable. Any consultation conducted without the INWORKS 2023–2025 data and the Harvard/Nature Communications 2026 population-level data must be regarded as legally deficient. Kebaowek is on appeal to the Federal Court of Appeal (argued October 2025).

A1.9 Canadian Environmental Protection Act 2023 — Right to a Healthy Environment

CEPA 2023, section 2(1)(a.2), provides that every individual in Canada has the right to live in a healthy environment. While CNSC-regulated activities fall under the NSCA rather than CEPA directly, where the IAA precautionary obligation, the Charter principles of fundamental justice, the ICCPR non-derogable right to life, and CEPA's statutory right to a healthy environment all converge on the same conclusion — that a framework with no harm ceiling is legally deficient — the Panel is not confronting a contested legal position. It is confronting a convergence of statutory, constitutional, and international legal obligations.

A1.10 Baker v Canada and Suresh v Canada — ICCPR as Charter Interpretive Aid

Baker [1999] 2 SCR 817 and Suresh 2002 SCC 1 establish that the ICCPR is available as an authoritative interpretive aid when construing Charter section 7. The values underlying the Charter are presumed consistent with Canada's international human rights obligations. ICCPR Article 6's non-derogable right to life, including the positive obligation to protect life from foreseeable risk, informs the content of section 7.

APPENDIX 2: LEGAL MECHANISMS FOR IMPOSING HARM — AND WHAT THE CNSC FRAMEWORK FAILS

Law permits harm to be imposed through recognised mechanisms, each containing structural constraints the CNSC framework systematically omits. Three constraints appear in every mechanism: consent or compensation for the person bearing harm; a ceiling — a concept of "too much harm"; and proportionality. The CNSC framework contains none of these.

A2.1 Charter Section 1 — The Oakes Test

A Charter infringement can be justified if the means are proportionate: rationally connected, minimally impairing, and proportionate between effect and objective. The CNSC framework fails minimal impairment because it prices harm rather than minimising it — it does not require the least harmful technically feasible approach, only the approach whose marginal cost does not exceed the alpha value. It fails the proportionality balance because, with no ceiling, there is no mechanism for finding that the health cost is excessive relative to the energy policy objective.

A2.2 Expropriation

Lawful expropriation requires public purpose, legal authority, and fair compensation. The CNSC authorises a taking of health security from Peace River residents — involuntary imposition of elevated cancer risk on people who will receive no compensation. The expropriation framework requires compensation. The CNSC framework provides none.

A2.3 Necessity

The necessity doctrine permits harm when there is no reasonable alternative, the harm caused is less than the harm avoided, and the response is proportionate. The CNSC framework never assesses necessity. It does not require the proponent to demonstrate that nuclear generation is the only means of achieving the energy objective, or that the least harmful nuclear siting option has been selected.

A2.4 Strict Liability in Tort: Rylands v Fletcher

At common law, an operator who brings dangerous material onto land in a non-natural use, and who causes damage when that material escapes, is strictly liable to those harmed — whether or not the operator was negligent: Rylands v Fletcher (1868) LR 3 HL 330. Canadian courts have applied this rule. All four elements are present: radioactive materials brought onto site in non-natural quantities; non-natural land use; planned escape via licensed atmospheric and aqueous discharges into the Peace and Smoky River systems; and damage documented by Harvard/Nature Communications (2026) at exactly the 30km proximity of the proposed site.

A CNSC licence converts strict common law liability into regulatory permission, extinguishing Peace River residents' Rylands action rights. A regulatory permission that provides no equivalent to the strict liability regime it displaces — no harm ceiling, no justification requirement, no mechanism for refusal — is not a legally coherent substitution. The residents bear the harm; the regulator provides no redress; the operator bears no tortious liability.

A2.5 The Precautionary Principle

Where harm is potentially serious and irreversible, the precautionary principle requires that uncertainty trigger precaution rather than permission. The CNSC inverts this: uncertainty about low-dose radiation harm is used to justify the least precautionary available coefficient. Under IAA s.6(2) and the PCO Framework for the Application of Precaution (2003), the burden of proof shifts to those proposing the

activity. The CNSC's silence on the INWORKS evidence is not a neutral regulatory posture. It is a breach of the mandatory statutory obligation.

A2.6 European Court of Human Rights — Positive State Duty to Regulate Environmental Risk

The ECtHR's jurisprudence under Articles 2 and 8 is highly persuasive authority in Canadian courts interpreting Charter provisions. In Guerra v Italy (1998), the Court found a violation of Article 8 where the state failed to provide communities near an industrial facility with information about health risks. In López Ostra v Spain (1994), the Court held severe environmental pollution could constitute an Article 8 violation and that the state had a positive obligation to take reasonable measures to secure the right. In Fadeyeva v Russia (2005), the Court found a violation where the state failed to regulate emissions to a level compatible with residents' health. In Taşkin v Turkey (2004), the Court required that environmental decisions affecting communities be preceded by an adequate assessment process genuinely weighing the interests of those at risk.

The common principle: the right to life and the right to private life impose on states a positive duty to put in place a regulatory framework that effectively protects those rights from interference by third parties. A state that licences nuclear facilities under a framework with no harm ceiling and no mechanism for refusal has not fulfilled its positive obligation.

The Three Missing Constraints

- **Consent or compensation:** The person bearing the harm must either consent or be compensated. The CNSC framework provides neither for Peace River residents.
- **A ceiling:** Every legal mechanism has a concept of harm that is "too much" — a level above which the mechanism no longer applies. The CNSC framework has no ceiling.
- **Proportionality:** The harm imposed must be the least available means of achieving the legitimate objective. The CNSC framework requires only that harm not exceed what can be optimised within the ALARA cost-benefit structure.

The absence of all three constraints in a single regulatory framework is the structural signature of a framework designed to produce licensing outcomes, not to protect health.

APPENDIX 3: SUPPLEMENTARY LEGAL AND REGULATORY MATTERS

A3.1 REGDOC-2.9.2 — The CNSC's Own Structural Admission

CNSC REGDOC-2.9.2 states that exceeding a licensed release limit "does not necessarily imply an unreasonable risk to the environment or to the health and safety of persons." This is the structural absence of a harm ceiling confirmed in the CNSC's own primary regulatory documentation.

A3.2 Canada's Formal Rejection of the IAEA Justification Principle

When the IAEA recommended through Suggestion S1 that Canada implement the justification principle, Canada formally rejected it: "Not accepted … Parliament has given the CNSC the statutory authority to regulate the nuclear industry in Canada." The divergence from the international standard is not inadvertent. It is a deliberate policy choice, made explicitly on the record, to apply a standard the IAEA has identified as non-compliant.

A3.3 Standing: Energy Probe v Canada (AG) (1989 ONCA)

The Ontario Court of Appeal confirmed that an organisation representing persons affected by nuclear risk has standing to raise Charter section 7 arguments without requiring proof of actual injury. The risk itself — the imposition of involuntary cancer risk on a non-consenting population — is sufficient for standing. Rights-based arguments in this submission are properly before the Panel without the Panel being required to find that harm has already occurred.

A3.4 Operation Dismantle v The Queen (1985 SCC) — Obiter on Unacceptable Risk

In Operation Dismantle, Justice Wilson acknowledged in obiter that government action creating an unacceptable risk to the public could in principle constitute a Charter violation. The challenge failed on speculativeness. The present case is distinguishable: the causal chain between operating a CANDU reactor at 30 kilometres from a community of 30,000 people and increased cancer incidence in that community is not speculative. It is documented in peer-reviewed literature applying standard epidemiological methods to national registry data.

A3.5 ODWAC 2009 Tritium Recommendation and CNSC Non-Implementation

In 2009, ODWAC recommended reducing the Canadian tritium drinking water guideline from 7,000 Bq/L to 20 Bq/L — a reduction of 350 times. The CNSC has not implemented the recommendation over fifteen years. CANDU reactors are the primary source of tritium in Canadian waterways. The CNSC's non-implementation is a specific documented instance of the broader pattern: the CNSC declines to update its standards in response to evidence that those standards are inadequate.

A3.6 Suresh v Canada (AG) — ICCPR as Charter Interpretive Aid

In Suresh [2002] 1 SCR 3, the Supreme Court of Canada confirmed that the ICCPR is available as an authoritative interpretive aid for Charter section 7. ICCPR Article 6's non-derogable right to life — including the obligation to protect life from foreseeable risk — informs the content of section 7. A framework that authorises involuntary cancer risk without consent, without compensation, without a harm ceiling, and in the face of science showing material underestimation does not satisfy a section 7 obligation interpreted in light of the ICCPR's non-derogable standard.

APPENDIX 4: THE ALPHA VALUE MECHANISM — ALARA AS PRICING

A4.1 What the Alpha Value Is

The alpha value is a monetary figure representing the cost per person-sievert of collective dose that a licensee is expected to incur in order to achieve dose reduction. If the cost of a dose-reduction measure exceeds the alpha value multiplied by the collective dose reduction achievable, the measure is deemed not reasonably achievable and is not required. The alpha value in the Canadian nuclear regulatory context is in the range of CAD $1 million to $2 million per person-sievert. At a nominal cancer risk coefficient of approximately 5% per sievert, one person-sievert implies approximately 0.05 statistical cancers. The alpha value therefore implies a willingness to pay of approximately $20 million to $40 million per statistical cancer avoided. This is the price at which a cancer is deemed too expensive to prevent. That is not a protection standard. It is a pricing mechanism.

A4.2 Why It Cannot Produce a Refusal

The alpha value mechanism evaluates whether individual dose-reduction measures are cost-effective. It does not evaluate whether the aggregate harm of the proposed facility — the total cancer burden on the host community over the facility's lifetime — is acceptable. Those are categorically different questions. A facility that imposes 500 additional cancers over 60 years of operation, each individual case below the alpha value threshold for prevention, passes the ALARA test in full. The mechanism would never ask: is 500 additional cancers in this community an acceptable outcome?

A4.3 The Alpha Value Is Set Without Community Consent or Independent Review

The alpha value was not set by Parliament, by an independent tribunal, or through a process involving affected communities. It is an administratively determined figure drawn from ICRP guidance and applied by the CNSC, which is funded by the industry it licences. The affected community at Peace River has had no role in setting the figure, no mechanism for challenging it, and no right of appeal against a licensing decision made on its basis.

A4.4 The 3 to 6 Times Underestimate Compounds the Pricing Problem

The CNSC's implied chronic excess relative risk is approximately 0.185 per gray (the ICRP LSS acute coefficient of 0.37/Gy divided by DDREF 2). The INWORKS 2023 central chronic ERR is 0.52 per gray — a ratio of approximately 3 to 1. At the low-dose slope reported in the 2025 American Journal of Epidemiology paper, the ratio approaches 6 to 1. The alpha value pricing mechanism is therefore operating on a systematically understated harm estimate: the actual cost per cancer of the proposed facility is 3 to 6 times higher than the CNSC's calculations reflect. A pricing mechanism that underprices the harm it authorises by a factor of 3 to 6 is not performing the function it claims to perform.

APPENDIX 5: THE PEACE RIVER CANCER BASELINE

A5.1 Documented Above-Average Cancer Incidence

The Peace River region of northern Alberta has documented cancer incidence rates that exceed provincial and national averages across multiple cancer types. Alberta Health Services' cancer registry data and the Canadian Cancer Society's provincial reporting have identified elevated rates in the Peace Country health zone for cancers including colorectal, lung, and certain haematological malignancies. The elevation is statistically significant and has been noted in provincial health planning documents. The cause is unknown. No environmental exposure, lifestyle factor, or demographic characteristic has been identified as a sufficient explanation for the observed elevation.

A5.2 Why Unknown Aetiology Requires Precaution, Not Indifference

The standard regulatory response to an above-average cancer baseline of unknown aetiology, when a new carcinogenic exposure is proposed for the same community, is heightened scrutiny. Where the cause of the existing elevation is unknown, there is no basis for assuming that the new exposure will not contribute to it, will not interact with whatever is causing it, or will not tip a community already at elevated risk further into harm. IAA section 6(2) and the PCO Precaution Framework (2003) require that scientific uncertainty trigger precaution, not permission.

A5.3 The Proponent's IAAC Submission Does Not Address the Baseline

The proponent's submission applies a standard incremental risk assessment framework. It projects the incremental dose against a reference population and estimates the incremental cancer risk. It does not characterise the actual health status of the Peace River community. It does not acknowledge the documented above-average cancer incidence. It does not adjust the risk assessment to account for a host community already carrying an elevated cancer burden. Section 22(1) requires assessment of health effects on the actual affected community — not a hypothetical average.

A5.4 The 30-Kilometre Proximity Effect

The Harvard/Nature Communications February 2026 study identified statistically significant population-level cancer mortality effects associated with residential proximity to nuclear power facilities, measurable at the 30-kilometre boundary — the exact distance between the proposed facility site and the town of Peace River. The study population of approximately 30,000 residents within that radius is squarely within the proximity effect documented in the literature. The proximity effect is an observation of what has actually happened to populations living near comparable facilities. Applying it to Peace River does not require extrapolation. The proponent's submission does not address the Harvard study. The CNSC's framework has no mechanism for incorporating population-level observational epidemiology of this kind into a licensing assessment.

APPENDIX 6: COMPARATIVE HARM CEILING STANDARDS

The following comparative analysis establishes that the CNSC's absence of a harm ceiling is not required by the ICRP framework and is not shared by any major comparable jurisdiction. All jurisdictions below draw on the same ICRP Publication 103 from which the CNSC draws its methodology. None concluded the framework prohibits a harm ceiling. All of them built one.

A6.1 United Kingdom — Three-Tier Tolerability Framework

The UK Health and Safety Executive's Tolerability of Risk framework (TOR 1988, revised 1992; R2P2 2001) defines three regions. The Unacceptable Region: individual risk of death exceeding 10^{-4}/yr is intolerable regardless of benefit. No cost-benefit analysis applies. The Tolerable-if-ALARP Region: risk between 10^{-4} and 10^{-6}/yr is tolerable only if reduced as low as reasonably practicable. The Broadly Acceptable Region: below 10^{-6}/yr, no further reduction is required. The critical feature is that the unacceptable ceiling is absolute: no economic argument overrides it, and no ALARP calculation applies above it.

A6.2 The Netherlands — Maximum Permissible Risk as Legal Requirement

The Dutch Premises for Risk Management (1989), embedded in legislation, sets a maximum permissible individual risk of 10^{-6}/yr as a hard legal ceiling. This is not a target or guideline. Facilities that cannot demonstrate compliance cannot be authorised. The framework explicitly distinguishes between risks that are categorically impermissible and risks subject to further optimisation. The CNSC makes no equivalent distinction.

A6.3 Finland — Government-Set Hard Limit, Regulator Independence Preserved

The Finnish Government, not STUK, sets the radiation dose limit for members of the public: 0.1 mSv/yr effective dose. STUK cannot override it and cannot trade it against economic factors. This is the structural answer to the capture problem: the government sets the ceiling, and the regulator operates within it. The CNSC, by contrast, sets its own risk acceptability criteria, administers them, and is funded by the industry it licences. There is no external check on the CNSC's determination of acceptable harm.

A6.4 European Union — Dose Constraints as a Ceiling Concept

The EU Basic Safety Standards Directive (2013/59/Euratom) requires dose constraints for all planned exposure situations across all 27 member states. Dose constraints are source-related restrictions established before optimisation begins. ALARA-equivalent optimisation occurs below the constraint, not in lieu of it. The Directive implements the dose constraint concept from ICRP Publication 103 — the same framework from which the CNSC draws its methodology. The IAEA's 2019 and 2024 IRRS missions to Canada found the CNSC non-compliant specifically on this point.

A6.5 The United States — A Cautionary Example

The US Nuclear Regulatory Commission established Quantitative Health Objectives (QHOs) in 1986, limiting individual risk of latent cancer fatality to approximately 2×10^{-6}/yr. In 2024, the NRC removed QHOs from its proposed Part 53 advanced reactor rule following explicit industry lobbying, creating a framework that now shares the CNSC's structural deficiency. The NRC's own Advisory Committee on Reactor Safeguards identified this removal as a regression. It demonstrates the institutional dynamic: when regulators are under industry pressure to accelerate licensing, the harm ceiling is the element systematically weakened first, because it is the element most capable of producing a refusal.

APPENDIX 7: INWORKS 2023–2025 — WHAT THE STUDIES FOUND AND WHAT THE CNSC HAS NOT UPDATED

A7.1 The INWORKS Cohort

The INWORKS study is a pooled international cohort of approximately 308,000 nuclear industry workers from France, the United Kingdom, and the United States, monitored for radiation dose and followed for mortality outcomes. It is the largest and most comprehensive study of chronic low-dose radiation exposure and health outcomes in existence. The cohort is uniquely relevant to civilian population exposures because it documents the effects of protracted low-dose exposure over years and decades — the exposure profile that members of the public near a nuclear facility receive — rather than the acute high-dose exposures documented in the Life Span Study on which most regulatory risk coefficients are based.

A7.2 INWORKS 2023 (BMJ) — The Primary Finding

The primary INWORKS publication in the British Medical Journal (Leuraud et al., 2023, doi: 10.1136/bmj-2022-074520) reported strong evidence of positive associations between cumulative protracted low-dose radiation exposure and risk of death from solid cancers and leukaemia. The excess relative risk for solid cancer mortality was approximately 0.52 per gray. The CNSC's implied chronic ERR is approximately 0.185 per gray (ICRP LSS acute coefficient 0.37/Gy divided by DDREF 2). The ratio is approximately 3 to 1.

The CNSC acknowledged the 2023 INWORKS findings on its website, describing them as showing "strong evidence of positive associations between chronic low-dose radiation exposure and risk of death from leukaemia, all solid cancers combined." It simultaneously stated that "there is no immediate action needed." The CNSC has not updated its risk projection methodology in response.

A7.3 INWORKS Haematological Cancers (Lancet Haematology, August 2024)

The August 2024 Lancet Haematology publication (doi: 10.1016/S2352-3026(24)00240-0) reported an excess relative risk for leukaemia mortality of 2.68 per gray, and documented for the first time a statistically significant dose-response association for myelodysplastic syndrome (MDS) — a haematological precursor condition not previously captured in occupational radiation risk assessments. The CNSC has not acknowledged the August 2024 Lancet Haematology publication in its public communications as of the date of this submission.

A7.4 INWORKS Temporal Variation (European Journal of Epidemiology, November 2024)

The November 2024 EJE publication (doi: 10.1007/s10654-024-01178-6) reported that excess cancer risk in the INWORKS cohort persists for decades after the period of occupational exposure ends. The proposed facility would operate for 60 years. The temporal INWORKS finding indicates that cancer risk attributable to those doses would continue to manifest for decades after closure. The total lifetime cancer burden on the Peace River community therefore extends substantially beyond the facility's operating period. No CNSC assessment before this Panel accounts for the post-operational cancer manifestation period identified in the 2024 temporal analysis.

A7.5 INWORKS Low-Dose Slope (American Journal of Epidemiology, May 2025)

The May 2025 AJE publication (doi: 10.1093/aje/kwae256) found that the cancer risk slope in the 0 to 100 mGy range — the range most relevant to long-term community exposure — is approximately twice the slope observed at higher doses. The CNSC's application of DDREF=2 embeds the assumption that chronic low-dose exposures are less harmful per unit of dose than acute high-dose exposures. The 2025 AJE finding

indicates the opposite: in the dose range relevant to community exposure, risk per unit of dose is higher. The CNSC's projections for Peace River residents are therefore between 3 and 6 times too low.

A7.6 The CNSC's Non-Response

The CNSC has not updated its risk projection methodology in response to any of the four INWORKS publications between 2023 and 2025. Its INWORKS webpage, last modified April 2024, reflects only the 2023 BMJ finding. Its submission to this Panel applies risk coefficients derived from the pre-INWORKS evidence base. It does not acknowledge the 2024 or 2025 INWORKS publications. Under Vavilov, an administrative decision-maker that acknowledges evidence contradicting its conclusions and draws no consequence from it produces an unreasonable decision. The CNSC has acknowledged in its own words that INWORKS 2023 provides strong evidence of associations between chronic low-dose exposure and cancer mortality. Its methodology is unchanged. That is the Vavilov problem stated in primary regulatory documentation.

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