Natural Resources Committee Members

My name is Chris Rouse and I represent New Clear Free Solutions. The purpose of New Clear Free Solutions is to provide energy oversight to the public and official decision makers using scientifically objective regulatory and financial information. The objective of New Clear Free Solutions is to help ensure safe, affordable, and sustainable energy solutions for the Canadian public and environment.

We would like to thank the Committee for asking the President of the Canadian Nuclear Safety Commission for the clause by clause definitions of "Safety", "Nuclear Safety", and "Risk". We are very happy to find that there is common ground from all parties on safety.

We would however like to set the record straight by responding to the information related to myself that the President gave to the committee. This information was regarding the definitions and the CNSC communications with myself and our group. We feel that when the President stated, "In fact I think we publicly replied to Mr. Rouse", that the President might not have read our latest Pickering Intervention. If he had, he would have known that although we did get a reply from the CNSC regarding our request for these definitions, we have not received the definitions of safety, nuclear safety, or risk, and as such, ask that the President respond to the committee's request to have them tabled before next Tuesday. In Appendix A1 and A2 is our up to date email correspondence with the CNSC on this matter.

The other concern we have is the inaccuracy of the content of what the President stated when he responded that "The definition of safety is in the Act". This is not the case although we believe it should be. It concerns us that the President thinks that it already is. The definitions contained in the Nuclear Safety and Control Act are in Article 2 of the Interpretation section. This is a link to the Act where you can see these words are not defined in the Nuclear Safety and Control Act like the President stated was the case at the June 5, 2014, meeting.

http://laws-lois.justice.gc.ca/PDF/N-28.3.pdf

The definitions are not in the Nuclear Liability Act either as you can see.

http://laws-lois.justice.gc.ca/PDF/N-28.pdf

The definitions are found in the International Atomic Energy Agency (IAEA) Safety Glossary which we have provided in Appendix B of this letter. The glossary states:

> *"Definitions of the type used in legal texts such as the Convention on Nuclear Safety [4] or the Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management [5], or in regulations such as the Transport Regulations [2], are intended primarily for purpose (c) and, in some cases, do not serve the other purposes at all."*
>
> And
>
> *"(c) To define precisely how terms — whose general meaning may be clear to readers — are used in a particular publication or set of publications, in order to avoid ambiguity concerning some important aspect(s) of their meaning;"*

It is in Article 3, the Purpose of the NSCA, is where the legal definitions of these words are bound to the Nuclear Safety and Control Act, which states:

> **"**PURPOSE OF ACT
>
> ***3.*** *The purpose of this Act is to provide for*

(a) the limitation, to a reasonable level and ***in a manner that is consistent with Canada's international obligations****, of the risks to national security, the health and safety of persons and the environment that are associated with the development, production and use of nuclear energy and the production, possession and use of nuclear substances, prescribed equipment and prescribed information;*

and

(b) the implementation in Canada of measures to which Canada has agreed respecting international control of the development, production and use of nuclear energy, including the non-proliferation of nuclear weapons and nuclear explosive devices."

It is the phrase "*in a manner that is consistent with Canada's international obligations***"** that makes the IAEA definitions the legal definitions for the Nuclear Safety and Control Act. The Convention on Nuclear Safety is one of Canada's international obligations, and is actually the backbone and reason for the Nuclear Safety and Control Act.

This is all described in detail in our recent Pickering intervention found at the link below, in which we hope the committee will take a few minutes to read.

https://newclearfreesolutions.files.wordpress.com/2014/06/new-clear-free-solutions-pickering-hold-point-request-for-ruling-supplemental-may-19-2014-rev1.pdf

As these definitions are not contained in the NSCA it is possible that the new president was not given them when the last president was replaced. We do look forward to the President of the Canadian Nuclear Safety Commission tabling clause by clause these definitions before the meeting next Tuesday, as his understanding of these definitions is paramount to nuclear safety.

We would like the committee to consider a consequential amendment to the Nuclear Safety and Control Act as part of Bill C-22. This consequential amendment should include the international legal definitions of "Safety", "Nuclear Safety" and "Risk" to Article 2 the Interpretation section of the NSCA.

Regards

Chris Rouse

New Clear Free Solutions

Appendix A1 Correspondence Asking For Definition of Safety

Date: Tue, 20 May 2014 15:39:12 -0300
Subject: Re: Nuclear Safety
From: chris_r_31@hotmail.com
To: Info@cnsc-ccsn.gc.ca

Sorry I hit the send button by accident before I was done. Can I please have a response that starts off "Dear Mr Rouse the CNSC definition of safety is" then proceeds to give the definition.

From: Chris R

Sent: Tuesday, May 20, 2014 3:34 PM

To: Info

Subject: Re: Nuclear Safety

I never asked if safety was the guiding principle. I want the DEFINITION of safety please. Can I please have a response that starts of with "Dear Mr rou

From: Info

Sent: Tuesday, May 20, 2014 3:26 PM

To: 'Chris R'; Rzentkowski, Greg; Info

Cc: Info

Subject: RE: Nuclear Safety

Hello Mr. Rouse,

Yes, this is what the CNSC uses as a guiding principle.

Thank you,

Karianne Larocque

From: Chris R [mailto:chris_r_31@hotmail.com]
Sent: Friday, May 16, 2014 5:28 PM
To: Rzentkowski, Greg; Info
Cc: Info
Subject: Re: Nuclear Safety

But is it the definition of safety?

From: Rzentkowski, Greg

Sent: Friday, May 16, 2014 5:52 PM

To: 'Chris R'; Info

Cc: Info

Subject: RE: Nuclear Safety

This is what we consider as an overarching principle guiding implementation of fundamental regulatory functions such as, for example, licensing, compliance and regulatory framework develooment.

From: Chris R [mailto:chris_r_31@hotmail.com]
Sent: Friday, May 16, 2014 1:46 PM
To: Info; Rzentkowski, Greg
Cc: Info
Subject: Re: Nuclear Safety

Greg

Do you agree with this definition of "safety"

From: Info

Sent: Friday, May 16, 2014 2:15 PM

To: 'Chris R'

Cc: Info

Subject: RE: Nuclear Safety

Hello Mr. Rouse,

Thank you for your question. When speaking of “nuclear safety” the CNSC is referring to Section 9a of the *Nuclear Safety and Control Act* which speaks to “preventing unreasonable risk, to the environment and to the health and safety of persons, associated with that development, production, possession or use”.

Please let me know if you have any additional questions.

Thank you,

Karianne Larocque

Media Relations Officer | Agente des relations avec les médias

Canadian Nuclear Safety Commission | Commission Canadienne de sûreté nuléaire

From: Chris R [mailto:chris_r_31@hotmail.com]
Sent: Friday, May 16, 2014 11:34 AM
To: Info
Subject: Re: Nuclear Safety

Hi can I get a response on this today?

From: Chris R

Sent: Wednesday, May 14, 2014 7:27 PM

To: Info CNSC

Subject: Nuclear Safety

Hi

Can I get the definition of safety in reference to nuclear safety please.

Regards

Chris Rouse

Appendix A2 Correspondence asking for definition of Safety, Nuclear Safety, and Risk

From: chris_r_31@hotmail.com
To: atip-aiprp@hc-sc.gc.ca
Subject: Definitions
Date: Thu, 29 May 2014 21:34:10 +0000

Hi

I am writing in regards to some legal definitions of a few words and phrases that Canada has an international obligation under the Convention of Nuclear
Safety. I would like the following definitions:

1. Safety

2. Nuclear Safety

3. Risk

Do I have to go through the formal channels of ATIP to get these definitions, or can I get them unofficially?

Regards

Chris Rouse

Appendix B Definitions

Definitions are from IAEA Safety Glossary.

http://www-pub.iaea.org/MTCD/publications/PDF/Pub1290_web.pdf

"Safety
In the Fundamental Safety Principles (Safety Fundamentals), the generalized usage in this particular text of the term safety (i.e. to mean protection and safety) is explained as follows (Ref. [22], paras 3.1 and 3.2):

3.1. ***For the purposes of this publication, 'safety' means the protection of people and the environment against radiation risks, and the safety of facilities and activities that give rise to radiation risks.*** *'Safety' as used here and in the IAEA safety standards includes the safety of nuclear installations, radiation safety, the safety of radioactive waste management and safety in the transport of radioactive material; it does not include non-radiation-related aspects of safety.*

3.2. "Safety is concerned with both radiation risks under normal circumstances and radiation risks as a consequence of ***incidents***[4]*, as well as with other possible direct consequences of a loss of control over a nuclear reactor core, nuclear chain reaction, radioactive source or any other source of radiation. Safety measures include actions to prevent incidents and arrangements put in place to mitigate their consequences if they were to occur."*

"Risk

 Depending on the context, the term *risk* may be used to represent a quantitative measure (as, for example, in definitions (1) and (2)) or as a qualitative concept (as often for definition (3)).

1. A multiattribute quantity expressing hazard, danger or chance of harmful or injurious consequences associated with actual or *potential exposures*. It relates to quantities such as the probability that specific deleterious consequences may arise and the magnitude and character of such consequences. (From Ref. [1].)

 In mathematical terms, this can be expressed generally as a set of triplets, $R = \{\langle S_i, p_i, X_i \rangle\}$, where S_i is an identification or description of a *scenario* i, p_i is the probability of that *scenario* and X_i is a measure of the consequence of the *scenario*. The concept of *risk* is sometimes also considered to include uncertainty in the probabilities p_i of the *scenarios*.

2. The mathematical mean (expectation value) of an appropriate measure of a specified (usually unwelcome) consequence:

$$R = \sum_i p_i C_i$$

where p_i is the probability of occurrence of *scenario* or *event sequence* i and C_i is a measure of the consequence of that *scenario* or *event sequence*.

 Typical consequence measures *C*i include core damage frequency, the estimated number or probability of *health effects*, etc.

 If the number of *scenarios* or *event sequences* is large, the summation is replaced by an integral.

 The summing of *risks* associated with *scenarios* or *event sequences* with widely differing values of *C*i is controversial. In such cases the use of the term 'expectation value', although mathematically correct, is misleading and should be avoided if possible.

 Methods for treating uncertainty in the values of *p*i and *C*i, and in particular whether such uncertainty is represented as an element of *risk* itself or as uncertainty in estimates of *risk*, vary.

1. The probability of a specified *health effect* occurring in a person or group as a result of *exposure* to *radiation*.

 The *health effect(s)* in question must be stated — e.g. *risk* of fatal cancer, *risk* of serious *hereditary effects* or overall *radiation detriment* — as there is no generally accepted 'default'.

 Commonly expressed as the product of the probability that *exposure* will occur and the probability that the *exposure*, assuming that it occurs, will cause the specified *health effect*. The latter probability is sometimes termed the ***conditional risk***."

"(nuclear) safety

The achievement of proper operating conditions, prevention of accidents or mitigation of accident consequences, resulting in protection of workers, the public and the environment from undue radiation hazards.

 Often abbreviated to safety in IAEA publications on nuclear safety. Safety means nuclear safety unless otherwise stated, in particular when other types of safety (e.g. fire safety, conventional industrial safety) are also being discussed.

 See protection and safety for a discussion of the relationship between nuclear safety and radiation protection."