Occupational Health and Safety Tribunal Canada

Tribunal de santé et sécurité au travail Canada

Ottawa, Canada K1A 0J2

Citation: Atomic Energy of Canada Limited, 2013 OHSTC 21

Date: 2013-07-24
Case Nos.: 2012-04
Rendered at: Ottawa

Between:

Atomic Energy of Canada Limited, Appellant

Matter:	Appeal under subsection 146(1) of the *Canada Labour Code* against a direction issued by a health and safety officer.
Decision:	The direction is rescinded
Decision rendered by:	Mr. Jean-Pierre Aubre, Appeals Officer
Language of decision:	English
For the appellant:	Cheryl A. Edwards, Counsel, Heenan Blaikie LLP

REASONS

[1] This appeal has been brought by Atomic Energy of Canada Limited (AECL) pursuant to subsection 146(1) of the *Canada Labour Code* (the Code) against a direction issued by Health and Safety Officer (HSO) Suzanne Arsenault on December 15, 2011. That direction was issued pursuant to subsection 145(1) of the Code for contravention by the appellant employer to paragraph 125(1)(*l*) of the Code and its necessary regulatory adjunct, subsection 12.7(1) of the *Canada Occupational Health and Safety Regulations* (the Regulations).

[2] The direction states that the employer, at the various work places it operates and thus controls, has failed to comply with its obligation to provide its employees, although the more generic terminology of the legislation "every person granted access to the work place" was used, with the prescribed safety materials, equipment, devices and clothing. The needed specificity of the said contravened obligation is found at subsection 12.7(1) of the Regulations, which states:

> Where there is a hazard of an airborne hazardous substance or an oxygen deficient atmosphere in a work place, the employer shall provide a respiratory protective device that is listed in the *NIOSH Certified Equipment List* published on February 13, 1998 by the National Institute for Occupational Safety and Health[1], as amended from time to time, and that protects against the hazardous substance or oxygen deficiency, as the case may be.

[3] On the basis of the preceding text of the Regulations as well as that of paragraph 125(1)(*l*) of the Code, one notes that HSO Arsenault, in her direction, did not claim that the employer had failed to provide any respiratory protective devices to the persons granted access to the work place(s), nor that it had failed to comply with subsection 12.7(2) of the Regulations, which needs to be read together with subsection 12.7(1) to gain a complete understanding of the obligation at subsection 12.7(1) and deals with the selection, fitting, use and maintenance of said respiratory protective devices in accordance with Canadian Standard Association (CSA) Standard Z94.4-M1982 as amended.

[4] The HSO simply stated concisely and precisely the contravention by the appellant as being that "the employer has failed to provide respiratory protective devices that are listed in the *NIOSH Certified Equipment List*", and thus the contravention, in essence, can be more precisely described, for ease of understanding, as being to subsection 12.7(1) of the Regulations, although it cannot stand on its own and needs to be related to a provision of the Code to be complete.

[1] The National Institute for Occupational Safety and Health is a USA organization.

Background

[5] Upon filing its appeal on January 13, 2012, the appellant employer indicated to the Occupational Health and Safety Tribunal Canada (Tribunal) that the fact that an appeal was being filed against the said direction had been brought to the attention of the Management and Employee co-chairs of the local (work place) health and safety committees and of the employer's policy health and safety committee, as well as to the attention of all thirteen trade unions representing employees at the laboratory operations at AECL. In the days that followed the filing of the appeal by AECL, the registrar of the Tribunal contacted all those trade unions to determine whether they or any one of those would participate in the hearing of the appeal to oppose, as respondent, the said appeal by AECL. None indicated any intention to participate as respondent in the hearing or demonstrated any opposition to the said appeal.

[6] In point of fact, a letter that was adduced in evidence (E-15) at the hearing, dated May 9, 2012, which was sent to the AECL director of occupational health and safety under signature of both co-chairs of the policy health and safety committee, serves to clarify why no party may have chosen to act as respondent in the present proceeding. It reads in part as follows:

> The AECL Health and Safety Policy Committee (HSPC) held a teleconference meeting on 2012 May 4 (…). Also discussed was the upcoming Health and Safety Tribunal hearings where the issue of use at AECL of respirators certified by the National Institute for Occupational Safety and Health (NIOSH) will be addressed.
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> (…)
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> Based on the information reviewed at the meeting, the position of the AECL HSPC with respect to the upcoming Health and Safety Tribunal hearing on the issue of use of NIOSH-certified respirators at AECL, is as follows:
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> a) The AECL HSPC would welcome a tribunal ruling to rescind the direction to AECL to "use only respirators that are on the NIOSH-certified equipment list". Furthermore AECL HSPC supports AECL's continued efforts to amend Part XII, section 12.7 of the Canada Occupational Health and Safety Regulations to ensure the ability to select appropriate, recognized respirators for their intended use.
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> b) In view of the fact that NIOSH does not have certification processes for respirators intended for use against radiological gases and vapour hazards routinely managed at AECL, the AECL HSPC would view with concern a tribunal ruling that directs AECL to use only NIOSH-certified respirators. Also, committee members noted that "supplied air" alternates to air purifying respirators are not suitable for routine work at AECL and that the "C4" respirator in use at AECL for many years fully meets its intended use and has many safety advantages including excellent fit due to the wide range of available sizes.

(…)

The hearing of this appeal has thus proceeded without respondent and thus, with the exception of testimony by the HSO as well as that of Industrial Hygiene Engineer Eva Karpinski in the employ of Human Resources and Skills Development Canada (HRSDC) Labour Program who was instrumental in the HSO's decision to issue the direction under appeal, the appeal, while a *de novo* process, will be decided solely on the basis of the evidence and submissions by the appellant.

[7] Upon filing its appeal against HSO Arsenault's direction, the appellant also applied for a stay of the operation of the direction pending resolution of the appeal. In support of the said application, the appellant formulated arguments that, in the opinion of the undersigned, satisfied all three elements of the test applied by the Tribunal in considering such an application. In essence, the appellant satisfied the undersigned that the present appeal involves a serious matter that is neither frivolous nor vexatious, that it has in place and would continue to have in place, if a stay was granted, extensive respiratory protection policies and procedures that have prevented workers over the years from suffering ill health effects from the use of currently used respirators, and finally that failing a stay being granted, that it would suffer significant harm and prejudice if required to incur the effort and expense of replacing respirators with either no increase to safety or the introduction of safety hazards that do not currently exist and possibly compromise its licence granted by the Canadian Nuclear Safety Commission (CNSC). The undersigned considered the arguments presented by the appellant and on January 25, 2012, stayed the application of the direction pending final resolution of the matter at appeal.

[8] Upon this appeal being filed, the registrar of the Tribunal contacted HSO Arsenault to obtain from the latter a "copy of (her) report and all other documents/materials used and or consulted in reference to (her) investigation in this case (…)". In answer to this request, on January 16, 2012, HSO Arsenault transmitted to the Tribunal only a collection of electronic communications (emails with some attachments) spanning the period between December 5, 2011, and December 15, 2011, this last date being the one on which the direction under appeal was issued. These communications, for the most part, were between HSO Arsenault, HRSDC (Labour Program) Engineer Karpinski and personnel from the CNSC, most notably Kimberley Campbell, Senior Regulatory Program Officer. These communications appear to have been in preparation for a meeting that was to occur with personnel from AECL on the eve of what turned out to be the date of issuance of the direction, and where the matter of AECL's use of an air purifying respirator (C-4) that was not NIOSH certified and the issue of AECL's compliance with subsection 12.7(1) of the Regulations were to be discussed.

[9] What can be generally derived from these communications is the following:

[10] AECL was claiming that there existed no NIOSH certified air purifying respirator for the intended use at its sites, to wit protection against radiological gases and vapours.

[11] Engineer Karpinski had obtained and provided a list of the CBRN (Chemical-Biological-Radiological-Nuclear) NIOSH approved air purifying respirators, but did not know and could not tell whether those provided adequate protection against iodines, methyliodines, radioiodines and other radiological gases, which are the ones against which protection is required at AECL. She did indicate that failing confirmation of their adequacy, to be obtained from either NIOSH approval department or individual manufacturers, AECL would need to seek an exemption to continue using the C4 respirators it had been using for years or any other non-NIOSH approved respirators. She would later come to be informed however, as indicated in a later communication, that the Code does not provide for such an exemption process, and that for a party to avoid being in contravention of a general regulatory provision such as subsection 12.7(1) where compliance could prove to be impossible due to the lack of a NIOSH certified air purifying respirator for radiological gases and vapours, one would have to seek an amendment to the actual regulatory provision.

[12] CNSC personnel (K. Campbell) also could not tell whether there existed NIOSH approved equipment that could be used by AECL in place of its C4 non-NIOSH approved respirators for the intended use and also expressed the opinion that it was not the place of CNSC, but that of HRSDC, to communicate with NIOSH to clarify the point. The email of December 6, 2011, to Engineer Karpinski, is rather enlightening in this respect:

> "I am a bit concerned that HRSDC may communicate to AECL to stop using C4s as they are not listed as NIOSH approved equipment and we do not fully understand whether there are NIOSH approved equipment on the market for AECL to use to protect workers against radio-iodines, or radio-gases. I realize and understand that the Code requires federally regulated institutions to use NIOSH approved equipment but we need to be very clear that there is an alternative out there that they can use to become compliant, or be very clear that there is not and therefore an exemption needs to be pursued by AECL.
>
> Also I don't feel it's our place as the CNSC to contact NIOSH to find out this information. Since respiratory protection falls within the mandate of the HRSDC, I believe it is on HRSDC to verify this information before we meet with AECL on the 14th. I know AECL (R. Kwan) will be prepared to defend the use of C4s. AECL has written a letter to the CNSC stating that NIOSH does not list any approved equipment for respiratory protection against radio-iodines or radio-gases. Therefore AECL continues to use C4s as the protection of choice to safeguard persons within the AECL work environment for these types of hazards."

[13] Engineer Karpinski did not acknowledge that HRSDC needed to verify said information, but indicated that it was AECL's responsibility, through its qualified person (R. Kwan) as part of the selection process to proceed with such verification and that "from the legal point of view", AECL had failed to communicate with HRSDC that there was no NIOSH approved respirator for its intended uses.

[14] In a December 8, 2011, communication to HSO Arsenault, Engineer Karpinski offered the surprising comment that AECL did not have to demonstrate the absence of NIOSH approved respirators to protect against radio gases to HRSDC, since the mere fact that they were using non-NIOSH certified respirators while the Regulations required that they use NIOSH-certified respirators was sufficient for the issuance of the direction, and that if AECL was correct that there were no such respirators for its intended use(s), they could simply appeal the direction. She also commented that if AECL had availed itself of the regulatory review process in place at HRSDC, it essentially would not find itself in such a predicament. Once again, the wording used is quite enlightening:

> "At this stage, they do not even have to provide us with the prove (sic) that there are no NIOSH approved respirators to protect against those radio gases. The directions will have to be issued based on the fact that they use the respirators that are not approved by NIOSH. What makes me mad is that if they had brought the matter to our attention as the DND or RCMP did, during our recent revision of Part XII, we would be able to amend our regulations to address this issue. Otherwise, it becomes very difficult because if I understand correctly, there is no mechanism under Part II of the Canada Labour Code presently allowing our Department to grant an exemption from the requirements of the COSH Regulations with respect to the respiratory protection device in issue. Of course, the Regulations to make the use of the respiratory protection device permissible, either generally or for civilian personnel could be amended as per subsection 157(4) of the Code, which allows for regulations to apply generally, to classes of employment or to work places. In this case, the employer should bring the matter to the Regulatory Review Committee's attention through the Treasury Board representative.
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> If there is no NIOSH approved respirator against indicated radio gases, they will have to appeal our direction with regard to the use of C4. Once they do that, the full research would have to be done and if there is no NIOSH approved equivalent to C4, they will have to look for some sort of permit allowing them to use it."
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> […]

[15] It bears noting here that a regulatory review process (Regulatory Review Committee) exists at HRSDC as regards regulations made under Part II of the Code and is relevant to the comments made above regarding the failure by AECL to avail itself of such in order to avoid non-compliance with the Regulations as regards the use of non-NIOSH approved respirators. Evidence in this respect was adduced by AECL, through an affidavit sworn on March 23, 2012, by Julie-Anne Claudine Lise Cardinal, an Associate with Heenan Blaikie LLP, that on March 1 and 8, 2012, AECL through its counsel, was informed that a regulatory review process had been underway for two years and had been considering amendments to Part XII of the Regulations, which encompasses subsection 12.7(1), but also that no formal notice had been sent to employers advising them of the Regulatory Review Committee's existence, its efforts or that any changes to Part XII of the Regulations were being considered by HRSDC who only informed FETCO (Federally Regulated Employers Transportation and Communications Association) of

such and expected the association to notify its member-employers, of which AECL is not, of the potential amendments.

[16] The evidence is thus, through the same affidavit, that AECL did not receive notice of the regulatory review process nor of the existence and activities of the Regulatory Review Committee. Furthermore, from the same evidentiary source, it has been established that AECL has since managed to obtain that the Committee reopen its then completed review process to allow AECL to make submissions regarding needed adjustments to subsection 12.7(1) of the Regulations to take into account AECL's impossibility to comply with that provision, which is the issue central to the present appeal. The Policy Analyst with HRSDC-Occupational Health and Safety Policy Unit (S. Kendall), acknowledged being aware of AECL's situation vis-à-vis subsection 12.7(1) and also the Committee, during its process that predates the present case, had specifically asked HRSDC whether the requirement for NIOSH certification in section 12.7(1) remained applicable to all work places in Canada, and whether there were any instances in which requiring NIOSH certification was unworkable. Again from that same evidentiary source, it would appear that only one specific such instance was brought to the attention of the Committee by HRSDC, and it dealt with the impossible use of NIOSH certified respirators in circumstances of the release in the air of chemical, biological, radiological or nuclear hazards in a war zone or terrorist attack, with the Committee then proposing the necessary amendment to section 12.7 of the Regulations.

[17] As part of the communications between the HSO, Engineer Karpinski and personnel from the CNSC, an email to HSO Arsenault from Engineer Karpinski, dated December 12, 2011, thus 3 days prior to issuance of the direction, indicated that contrarily to the position held by AECL, a NIOSH approved respirator that would protect against iodine and methyliodine existed. It also indicated that Engineer Karpinski had "made some language adjustments to the up-coming regulations that wait to be sent to the drafters so that the future regulations on respiratory protection ("possibly in effect in 2013") would cover AECL." This presumably was in reference to the then closed Regulatory Review Committee process mentioned above, of which AECL was not aware, and relative to which it was allowed to make submissions, also as noted above, some time after the direction had been issued.

[18] This email did conclude that nonetheless, HSO Arsenault would "have to issue a direction or directions since they are not in compliance with the present regulations (…)". This particular communication takes on particular importance because it precedes a communication (dated December 14, 2011) from the manufacturer (MSA) of this respirator that Engineer Karpinski described in her correspondence with the HSO as NIOSH-approved for organic vapours and particulates as well as methyl iodide, wherein it is stated that "The MSA GMI-P100 twin cartridges are NIOSH approved for organic vapors and particulates and are **effective** against methyl iodide. Similarly the industrial chin canister Organic Vapor/P100 is NIOSH-approved for OV/P100 and is **effective** against methyl iodide. We do not recommend using MSA CBRN canisters for methyl iodide protection". That is distinct from NIOSH approval.

[19] The comment by Engineer Karpinski to HSO Arsenault that she had learned of the existence of a NIOSH-approved respirator quite possibly refers to a communication from a Simon Smith representing the 3M Canada company, which seems to have been interpreted by Engineer Karpinski as evidencing the existence of such a respirator. Because of its importance, this communication is reproduced below in large part. A careful reading however leads to a conclusion different than the one reached by Engineer Karpinski, in that while it indicates that 3M offers a NIOSH-approved face piece/filter combination that may be NIOSH –approved, the approval is for gases other than radioactive iodine and methyl iodide, although the filter can achieve protection against said gases:

> 3M makes a number of respiratory protection systems which are NIOSH approved for industrial gases or to the "CBRN" range of standards. Although there are not specific NIOSH approvals tests against radioactive iodine and methyl iodide, we have conducted internal testing to verify performance for some of our CBRN and industrial products and can confirm filter capability.(…)
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> We are not aware that NIOSH approval on a system incorporating the C4 (face piece) has been undertaken independently by any other company, and so it appears that there is not a respirator system incorporating the C4 mask which could be claimed to be NIOSH approved.
>
> As for solutions:
>
> If NIOSH approval is mandatory: you could use a NIOSH-approved 3M face piece/filter combination with a filter approved for other gases but which also removes radioactive iodine and methyl iodide. Systems incorporating the 60928 filter (full face with twin cartridges) or any of our "FR" or "RBE" CBRN systems will provide such protection. (…)
>
> As an alternative, it can be demonstrated by comparison of the C4 specification and performance data with NIOSH requirements that the performance of the C4 mask exceeds that required of NIOSH approved respirators in most key areas .We know from the carbon formulation used in the C7A canister that it is capable of removing radioactive iodine and methyl iodide. Therefore, information could be provided to the user group to demonstrate capability of the C4/C7A for this application, even without formal NIOSH approval.

[20] The testimony at the hearing by HSO Arsenault and Engineer Karpinski confirmed in great part the background information that can be derived from the various communications mentioned above. In the case of HSO Arsenault, she confirmed that she became involved in this matter, contacted AECL and met with their director of occupational health and safety (R. Belair) and members of the health and safety committee as a result of a telephone communication from K. Campbell from the CNSC to the effect that AECL was using C4 air purifying respirators that were not NIOSH-approved or certified. Her basic purpose was to determine what research had been done by AECL regarding the existence of NIOSH-approved respirators before they adopted non-NIOSH certified respirators.

[21] She indicated also that all through the process, because of her lack of familiarity with this particular subject, she was accompanied, assisted and advised throughout all meetings and communications by Engineer Karpinski who she describes as an expert on respirators. These meetings and communications were in essence directed at determining the existence of said respirators and at preparing the meeting that was held with AECL on December 14, 2011, which had as its main purpose to obtain from the latter evidence of the research it may have conducted and justify their decision to use non-NIOSH certified respirators.

[22] Of the various emails between her, Engineer Karpinski and K. Campbell, HSO Arsenault recognizes that they were unsure of whether there existed such NIOSH certified respirators that would answer AECL's needs, but that the onus was not on her or Engineer Karpinski to establish that such respirators existed. This explains why she had asked AECL to assemble information from NIOSH regarding the certification of respirators and evidence of the efforts by AECL to ascertain the existence of respirators that could satisfy the requirements of subsection 12.7(1) of the Regulations.

[23] She was informed by Engineer Karpinski on December 12, 2011, that she had received information from 3M manufacturer that such a respiratory protection system existed, described as "effective" by the sender. HSO Arsenault confirmed that the Minutes of the December 14, 2011, meeting with AECL (E-3) properly reflect the discussions that occurred. AECL still maintained that there existed no NIOSH-approved respirators for the particular conditions existing at their site, in that "any of the respirators on the NIOSH approved listings (would) cover radiation particulates but none are approved for (radiological) vapours and gases.

[24] AECL again claimed that in 1977, it had been exempted from the obligation to use NIOSH approved respirators, although neither AECL nor CNSC could locate a letter to that effect. HSO Arsenault had indicated at the meeting that it would vet HRSDC archives for such exemption letter. AECL was informed by Engineer Karpinski of the communication by manufacturer 3M that a proper respirator system existed and AECL was to contact the manufacturer to ascertain whether such existed with NIOSH approval that would satisfy AECL's particular requirements, as well as other respirator manufacturers to ascertain the same thing. It was understood by HSO Arsenault that on the one hand, Engineer Karpinski was suggesting to AECL that they use a respiratory system evaluated as "effective" (even with no NIOSH approval) while AECL was of the view that it could not because of the lacking NIOSH approval.

[25] At the meeting, the process by which AECL could inform the proper authorities of their concerns of not being capable of meeting the Code requirements was discussed, and the HSO indicated to the appellant that it should send an official letter to HRSDC before January 23, 2012, stating the lack of NIOSH-approved respirators that could address their particular needs and thus the necessity to use non-NIOSH approved respirators for that purpose. AECL was to append to said letter all letters and proof received from manufacturers in that regard.

[26] While the AECL director of occupational health and safety undertook to provide HRSDC with that letter before that stated date, the HSO issued the direction under review to AECL on December 15, 2011. Furthermore, HSO Arsenault stated that although the various communications between Engineer Karpinski and her prior to December 15, 2011, repeatedly alluded to an upcoming direction, the decision to issue said direction was solely hers.

[27] Engineer Karpinski, employed at HRSDC, is a graduate of the Wroclaw University of Technology (Poland) with a Master's degree in chemical engineering and is certified as an Industrial Hygienist from the Lublin (Poland) Institute of Occupational Medicine. She has also completed the University of Manitoba Occupational Health and Safety Certificate Program and has been a member of the Ontario Order of Professional Engineers since 1991. She is also a member of numerous technical committees of the CSA of which the more salient ones for the purpose of this case are committees on standard Z94.4 (selection, use and care of respirators), Z180.1 (compressed breathing air and systems) and Z1610 (protection of first responders from CBRN events).

[28] While the status of "expert" was not sought for this witness at the hearing, the undersigned recognized that the latter has considerable knowledge and experience on the subject matter of the case at hand. She testified to often advising health and safety officers on the application of the respiratory protection standards mentioned above and has been involved in the regulatory review process concerning Part XII of the Regulations which applies, among other subjects, to respiratory protection. In order to provide assistance, she offered to research NIOSH certification of respiratory systems. She was aware that NIOSH had certified a number of CBRN respiratory systems and that a list of those, initially prepared in 1970, had since been lengthened. Given the position taken by AECL, she wanted to know whether the appellant had recently examined that list and whether in the 70s, AECL had gone through a process of selection for those respirators. She could find no documentation that would evidence such process having been followed or any recent effort at possibly satisfying the requirements of the Regulations.

[29] As an exemption is not possible under the Code, AECL could avoid having to adhere to the NIOSH certification requirement only through a regulatory amendment. The C4 masks used by AECL as part of their air purifying respirators/systems are not NIOSH certified equipment. AECL knew this and once the HSO had been informed that the C4 mask was not certified, she had no choice but to issue the direction she did, according to Engineer Karpinski. She herself had contacted a number of manufacturers and found that at least two, 3M and MSA, did offer respiratory systems that would satisfy the requirements of AECL, although not NIOSH-certified, but considered "effective".

[30] As for the December 14, 2011, meeting that she attended at AECL with the HSO, Engineer Karpinski was expecting proof that there was no NIOSH approval for the C4 masks and the C2A1 canister that make up the air purifying respirators or systems in use at AECL. However, they were not presented with any documentation that would have

established that AECL had gone through a selection process, although she acknowledged that it was possible that the appellant may not have been asked to produce actual documentation on this.

[31] While some respirator systems, such as those from 3M and MSA, may be considered "effective" for AECL's intended uses, Engineer Karpinski did confirm that NIOSH does not certify CBRN respirators that protect against radiological gases and vapours. She also confirmed that the regulatory review process that would deal with Part XII had been going on for two years, that they were still some time away from completion and that there had been no publicity of such process having been undertaken. When informed that the appellant would be calling Dr. Eva Frances Gudgin Dickson from the Department of Chemistry and Chemical Engineering, Royal Military College of Canada, as an expert witness on the subject at hand, Engineer Karpinski did acknowledge the expertise of the witness.

[32] That being said, and considering that what precedes does represent generally the extent of information that could be derived from the material provided to the undersigned by HSO Arsenault, the appellant did provide the appeals officer with considerable information that can also be described as background information. While this was provided in writing and uncontested given the absence of opposing respondent, and thus forms part of the record and needs not to be recounted at length, there are nonetheless a number of elements that need to be enunciated for a better and proper understanding of the issue at hand.

[33] AECL is a nuclear science and technology laboratory that develops peaceful and innovative applications for nuclear technology through its expertise in physics, metallurgy, chemistry, biology and engineering. It has been Canada's leading nuclear science and technology laboratory for over 50 years. In this capacity, it employs approximately 3100 workers, including 700 scientists and engineers at two facilities where approximately 3000 air purifying respirators of the type that has given rise to the actual direction are being used. The first of these facilities, and easily the one mainly focused on by the direction, is Chalk River Laboratories (CRL) located in Chalk River, Ontario. This site has over 100 buildings. The activities conducted at CRL include isotope production, fuel fabrication and research and development, tritium processing, waste management and waste treatment. It houses two nuclear reactors and numerous "radioactive" laboratories.

[34] A second site that could be affected by the decision to be rendered in this appeal is CRL's sister site, Whiteshell Laboratories. This facility is located 100 km northeast of Winnipeg, Manitoba and while it operated from 1961 to 1997, it is presently being decommissioned, a process that is expected to take decades. AECL employs 400 workers at that site.

[35] AECL is licensed by the CNSC which regulates the use of nuclear energy and materials in Canada pursuant to the *Nuclear Safety and Control Act* (S.C. 1997, c.9). As Canada's nuclear regulator, CNSC issues operating licenses to corporations and facilities

such as AECL and conducts safety inspections to ensure compliance with applicable federal statutes and regulations. CNSC staff monitors the conventional health and safety program at CRL, although the actual administration and enforcement of safety is left to appropriate occupational health and safety authorities. AECL is required to comply at all times with its license and with the *Nuclear Safety and Control Act* and *Regulations.*

[36] There are a number of contaminants creating potential respiratory and other hazards to workers at AECL operations, the most significant and important being radiological contaminants. The nuclear materials encountered in AECL's operations are radioactive. When airborne, they can pose a severe respiratory hazard to personnel. Nuclear materials include uranium and neutron activation products as well as fission products of uranium and plutonium. Radioiodines and tritium or tritiated water vapour are also among the significant respiratory hazards encountered during daily routine operations in AECL laboratory's nuclear environment. In performing hazard assessments for respiratory protection, radioiodines are presumed to be present in the nuclear environment.

[37] There are a number of programs in place at AECL for the control of respiratory hazards and the prevention of personal exposure to CBRN hazards, and respirators are not resorted to automatically as a means of protection. Firstly, where feasible, respiratory hazards are controlled at source using engineered designs and methods, such as isolation of certain hazardous operations with enclosures, and provision of local exhaust ventilation and dilution ventilation. However, where engineering controls are impractical or potentially ineffective, respirators are used.

[38] AECL has extensive respiratory protection procedures applicable to all nuclear facility operations. The procedures contain practices, processes and procedures, including standard operating procedures that provide instructions on respirator use, processes for surveillance of the work environment and assessment of respiratory hazards to which workers are potentially exposed, fit-test methodologies, details respecting training frequency and content, processes for inspecting, testing, maintaining and repairing respiratory equipment, and a detailed listing of AECL-approved respirators. Employees are health assessed, fit-tested and fully trained prior to utilizing respirators, and re-fit testing, instruction and training for all employees identified as requiring respiratory protection is conducted every twelve months. Those employees are required to use only listed AECL-approved respirators and adhere to the instructions provided pertaining to their use and limitations. Many criteria guide the selection of suitable and adequate respirators. Those range from the nature of the task performed, the location of the employee within the laboratory environment, the type and concentration of airborne radiological hazards one can be exposed to as well as the length or frequency of the task to be performed, to the accessibility of the respiratory equipment into confined spaces and ergonomic factors such as the ability for a worker to perform work utilizing a particular respirator type and weight over a work day.

[39] Two general types of respirators are used in the AECL nuclear environment. The first are air-supplied respirators, which include self-contained breathing apparatus

(SCBA) respirators with independent supplied air tanks, and air-line respirators with fixed breathing air-lines and piping systems. The other are air-purifying respirators, which filter particulates or that may absorb gases and vapours, or both. Generally speaking, air-purifying respirators have been chosen as appropriate for work tasks where supplied breathing air is not available and/or job activities require a high degree of mobility. Air-purifying respirators are the respirator of choice for many operations and are used in particular during nuclear material transfer operations and handling of materials from one location to another within the facility, or from one facility to another in the nuclear environment including waste management areas.

[40] Air-supplied respirators provide protection against radiological contaminants and they are routinely utilized where breathing air is available at the job location. Their use requires design and provision of breathing air headers and distribution piping systems. They are appropriate where operations are localized because the air lines required restrict mobility. Selection of such air-supplied respirators is also generally limited to localized operations due to the tripping risk caused by long air supply hoses, noise and ergonomic issues associated with ongoing use of such apparatus. There is also a greater risk of contamination to the employee should a sudden loss of air occur. SCBA type air-supplied respirators are used for very limited operations, primarily for emergencies or unusual operations given the limited supply of breathing air in SCBA cylinders and the physical demands associated with the wearing of heavy SCBA equipment.

[41] The appellant has selected a series of air-purifying respirators for specific operations where there are airborne radiological gases and vapours. Of those, it appears from the material supplied by HSO Arsenault that she and Engineer Karpinski have taken issue with one particular type of air-purifying respirator selected by the appellant, this respirator system consisting of an Army C4 mask or face piece equipped with a 3M C2A1 canister, the whole being described as “Army C4”. From the description provided by the appellant, the “Army C4” (C4) is utilized in a number of operations where the radiological hazard has been determined to be high or potentially high, and eye and face protection is required. It is a full-face piece air-purifying respirator system which has been determined to provide eye protection from beta radiation, eye and face protection from nuclear contaminants, respiratory protection against radiological hazards in particulate form, as well as radioactive hazards in vapour or gaseous form.

[42] The C4 was selected in the 1990s as effective for multiple aspects of the highest levels of potential radiological risk to workers at AECL and has continued in use since that time as the respirator of choice for the operations identified by the appellant as it is considered as providing the most relevant protection and the greatest approved protection factor amongst known and examined air-purifying respirators, as it is tested pursuant to military standards which are more stringent in that higher concentrations of test agents than the test agents utilized by NIOSH are used. For purposes of precision, the C4 contains activated charcoal impregnated with “triethylenediamine” (TEDA) and is known to have the highest TEDA content, is carcinogen-free and has an appropriate strong metal housing. The appellant freely recognizes that the C4 is not NIOSH-certified for protection against radiological and nuclear gases and vapours. HSO Arsenault’s

documents do not evidence any known or perceived safety concern or problem with the C4 respirator, apart from the fact that it is not NIOSH-certified, and thus should be replaced.

[43] There are two other types of air-purifying respirator or respirator system in use at AECL. Those do not appear, from the documents provided by HSO Arsenault, to have specifically attracted the attention of the HSO or of Engineer Karpinski. It is nonetheless important that they be described here.

[44] The first one consists of a MSA face piece or mask equipped with tritium cartridges manufactured by Unitec Services Group. This is utilized in circumstances where airborne tritium contamination levels are determined to be low and specifically where respiratory protection is required to protect against tritium and tritiated water vapour. This respirator with tritium canister is used solely in reactor fuel handling bays where there is a chronic low level tritium atmosphere as a result of light water in the fuel storage pools becoming tritium contaminated. This particular respirator system has a NIOSH approved face piece and cartridges that are not NIOSH-certified, making for "combo" that is not NIOSH-certified. It has been in use at AECL for four years as providing the most relevant protection against risks associated with tritium atmospheres.

[45] The other type consists of a MSA face piece or mask equipped with two GM1-P100 cartridges manufactured by MSA and it is utilized in AECL nuclear laboratory operations. It is also utilized for specific operations such as tests where particulates and radioiodines exist or potentially exist in the nuclear research and isotope production reactor, waste management outdoors, the waste treatment center, examinations of nuclear fuel assemblies, decommissioning activities and research as well as development laboratory activities. This respirator is NIOSH-certified for chemical, biological and radiological particulates and nuclear contaminants particulate, but with the exception of radiological gases and vapours.

[46] AECL has a Radiation Protection Program that includes processes for surveillance of employee exposure to radionuclides at the work place. As part of those processes, bioassay tests have been developed consistent with the reference hazards identified for each facility. Sampling protocols have been put in place and employees are required to provide bioassay samples which can include urine samples, nasal swabs and other samples. This testing is supplemented with work area air sampling to confirm where airborne contaminants exist and their nature. This biossay testing is carried out at established frequencies and results are analyzed and reported annually. According to the appellant, a review of annual reports indicates no ongoing difficulties with employee exposure to radionuclides.

[47] Central to the issue at hand is the NIOSH certified equipment list. As background to determination of the issue raised by this appeal, a brief outlook as to the development and establishment of such list is appropriate.

[48] NIOSH approves respirators or respirator products as a system, meaning a specific combination of mask and filter. It develops respiratory standards in concert with various private sector and government stakeholders, and in accordance with Title 42 of the USA *Code of Federal Regulations*. Specifically, appropriate standards and test procedures for all classes of respirators providing respiratory protection from CBRN agent particulate inhalation hazards are developed through testing of respirators in conjunction with the U.S. Army Soldier Biological and Chemical Command and other parties.

[49] Public consultation also plays a role in the standard setting process. Stakeholders from the private sector are invited to comment on proposed standards, and public meetings are held to facilitate that effort. Once the respiratory standards are approved, NIOSH reviews applications for the approval of respirators made by various manufacturers. These applications contain detailed technical specifications, drawings and other critical information for each model apparatus. NIOSH then inspects, examines and tests the individual respirators to determine whether the applicable requirements described in the *Regulations* have been met. A Certified Equipment List which is publicly available includes respirators approved through this process.

[50] When one reads subsection 12.7(1) of the Regulations, the requirement is specific to the effect that it is a respirator pursuant to the Code and the Regulations that is required to be used, a respirator viewed as a respiratory system of tandem functioning elements, as in the case of air purifying respirators, it would appear difficult to consider a canister/filter on its own, or a face mask on its own, to constitute a working effective respirator. The obligation stemming from such Regulation needs a premise as a basis, that of the presence of such respirator on the NIOSH-certified list.

[51] As will be argued below by the appellant, there are no air purifying respirators for radiological vapours and gases on the NIOSH certification list and manufacturers of air purifying respirators that could apply to such radiological vapours and gases, and in particular radio iodides and methyl iodides, indicate nothing beyond the fact that such respirators are “effective” for use to protect against such hazards. It would be possible for AECL to change its approximately 3000 Army C4 respirators in use to that which is described as “effective” by manufacturers, due to lack of NIOSH certification. This would cause the appellant considerable difficulties and expenditure, not to mention the necessity to fit-test and train its workers in the use of such new system, a process that AECL estimates would require one year, and this to achieve a result that would be no more in compliance with the Regulations and potentially not offer the same degree of protection as that which is presently in use.

[52] In providing the undersigned with what may be described as background information, the appellant has made a point of noting that HRSDC and its predecessor Labour Canada have been aware since the 1970s that AECL utilizes non-NIOSH approved air-purifying respiratory equipment as a result of the impossibility that NIOSH certification can occur for radiological gases and vapours. On visits by Labour Canada Officers, AECL has been regularly complimented in the past on its respiratory program

and has never been advised that any reason could be found to prevent AECL from continuing to use the non-NIOSH specific certified air-purifying respirators it uses to protect workers from radiological gases and vapours. It is apparent from documentation adduced in evidence that Labour Canada was aware in the 1970s of the situation about respiratory equipment at AECL and that there may have been mention of a possible exemption to allow for the use of such non-NIOSH approved respiratory equipment. However, as appears from exhibit E13, which is a collection of correspondence involving then Labour Canada representatives in 1977 and 1978, the less than clear situation relative to jurisdiction over nuclear facilities at the time may have prevented bringing this question to a resolution.

[53] AECL has undertaken efforts to determine from peers operating nuclear generating facilities and handling nuclear wastes, including the CNSC, whether air-purifying respirators are used in similar circumstances to those of its operations and where risks of employee exposure or contamination from radiological vapours or gases exist. It would appear from all available information that peers utilize respirators that are similar if not identical and that are not NIOSH-certified for radiological gases and vapours, given the impossibility of obtaining NIOSH certification on the equipment. Like AECL, these peers have operated in this manner for decades.

[54] It has been mentioned previously that AECL is licensed under the *Nuclear Safety and Control Act* and pursuant to that statute, nuclear facilities are to operate in accordance with their licence, which may impose conditions. In the case of the licence granted AECL for the operation of CRL, it is required to implement and maintain a Radiation Protection Program and ensure, as a requirement of the Radiation Protection Regulations, that radiation to employees are as low as reasonably achievable (ALARA). AECL could not simply replace current respirators used for decades without any indication of difficulties without further careful assessment and testing to fully satisfy itself that any respirator-related changes satisfy the principle of ensuring ALARA radiation exposure. Furthermore, stopping the use of the existing respirators would require many operations at CRL to be shut down and maintained in a safe condition pending the putting in use of new respirators, and this could not be done without the use of the current respirators.

Issue(s)

[55] In issuing her direction to the appellant employer, HSO Arsenault opted to define very narrowly the contravention by AECL by stating that the employer, in providing its employees with a certain type of air purifying respirator, had failed “to provide respiratory protective devices that are listed in the NIOSH Certified Equipment List”. It needs to be noted here that there is a considerable variety of respirators in use at AECL for a number of intended uses, and that they are all NIOSH-certified, except for the one type central to this case which is the Army C4 face piece used with a C2A1 canister for the intended use of protection against radiological gases and vapours.

[56] It is also important here to underline the fact that while the HSO was obviously aware of the type of protective respiratory equipment in use at AECL, she did not in any manner formulate the opinion or conclusion that the said equipment, essentially the Army C4/C2A1 air purifying respirator/system, was not effectively providing its users with the necessary protection.

[57] The appellant, on the other hand, recognizes that the said respiratory protective equipment it is providing to its employees is not NIOSH-certified, or to use the language of the Regulations, is not "listed in the NIOSH Certified Equipment List". Its claim is that it cannot be found in contravention of the Code, more specifically paragraph 125(1)(*l*) of the Code and subsection 12.7(1) of the Regulations, because the said NIOSH equipment list referred to in the Regulations does not mention or list air purifying respirators protecting against radiological vapours and gases which are needed and used at AECL/CRL. The basic issue to be determined therefore is whether the appellant is contravening those particular provisions of the Code and Regulations by providing its employees with that protective equipment.

[58] There is however an underlying issue that may need to be addressed in light of the recognition by the appellant that the equipment provided is not NIOSH-certified. Section 125 of the Code lists a number of specific employer obligations, one of which being the one being considered in the present case. The provision is introduced by the words "without restricting the generality of section 124", which therefore makes that general employer protection obligation an underlying element of every specific obligation at section 125. In the particular instances of this case, should the undersigned find in favour of the position taken by AECL at appeal, there may be need to examine whether in providing its employees with the protective equipment it does, AECL is satisfying its general obligation to ensure that the health and safety at work of every person it employs is protected.

Appellant's Submissions

[59] The position taken by the appellant in the present case can be expressed in a nutshell as follows. There is no contravention by AECL because the regulatory provision that the HSO is claiming the appellant to have contravened, and more specifically the NIOSH-certified equipment list that it refers to, does not list air-purifying respirators of the type that the appellant needs to use to protect against radiological vapours and gases. Consequently, the obligation to use listed equipment cannot have been contravened when the list of equipment does not include the equipment of the kind that is required to be used.

[60] The appellant has structured its submissions around the testimony of four witnesses. For the most part, their testimony replicates what has been recounted at some length in the above background section. There are however some elements that can be usefully noted, particularly as concerns the expert testimony offered by Dr. Dickson.

[61] Brent Wolfgram is Director of radiation protection and environmental protection at AECL. In that capacity, he is responsible for the management of radiation protection as concerns all staff as well as all civilians who are involved in all AECL activities, from research to waste management, and this at whichever site where such persons may be at work for the appellant (Chalk River or Whiteshell Laboratories, Port Hope) or where AECL may be involved in other activities, such as support to SNC Lavalin who has acquired CANDU Industry and is operating as Candu Energy Inc..

[62] Of the 3000+ AECL employees, approximately 1000 work daily in close proximity to reactive materials and thus are directly exposed on an ongoing basis to a potential risk of radiological respiratory hazards. The other 2000 workers work in contact with radiological and radioactive materials on a less than daily basis. In addition to the radiation protection program in place, there also exists a conventional occupational health and safety program in place at AECL and Roger Belair is its director. The selection of respirators is done through the occupational health and safety program, but the evaluation as to whether what has been selected offers appropriate radiation protection is done by personnel of the radiation protection program with the assistance of the respiratory protection program coordinator, R. Kwan.

[63] There is a company-wide respiratory protection procedure in place at AECL and its significant features are intended to meet the Code and its Regulations requirements as well as the CSA standards and radiation protection Regulations administered by the CNSC under the *Nuclear Safety and Control Act.* Significant features of that procedure include a facial hair policy to ensure a closer respirator fit on a clean shaven face, policies and practices related to fit testing of employees with 1100 to 1200 employees fit tested every year, annual training and retraining of the same number of employees in respirator use, approval of respirators by the respiratory protection program coordinator (R. Kwan), selection of respirators on the basis of respiratory hazards as well as procedures for cleaning, sanitizing and disposing of respiratory protective equipment and maintenance at a respirator lab on site.

[64] Extensive practices are engaged in to maintain, decontaminate, clean and check the very large volume of respiratory protective equipment used within the respiratory protection procedure and processes in place at AECL. While the numbers for all AECL installations were not provided, by way of example, the numbers concerning the CRL operations were provided. On the basis of 1100 to 1200 employees regularly using respirators in those operations, the evidence by the director of radiation protection is to the effect that a single employee may replace the respirator being utilized four to five times daily, this stemming from the fact that each time an employee or worker takes a break, the respirator utilized before the break is replaced with a new respirator after said break. As a result, each respirator at the Chalk River operation is cycled through the respirator laboratory, being tested, decontaminated, cleaned and refurbished prior to use, every two to three days. Where APRs are concerned, this translates into approximately 3000 C-4 respirators with C2A1 cartridges (the APR central to the matter at hand), and approximately 2000 Comfo respirators used with different cartridges for radiological and conventional hazards. Given the evidence on testing, decontamination, cleaning and

refurbishing of respirators, there would be a total of between 3500 and 4500 APRs constantly cycling through the system at Chalk River. An APR is described as a system made up of a face piece and a cartridge for filtering respiratory contaminants.

[65] In addition to APRs, AECL also uses other respirators. Those are of the air-supplying category (ASR) and include both the air line as well as the SCBA kind. The types used at AECL are NIOSH certified and thus are not part of the contentious issue. However, because of their construction and weight, there are areas at AECL where those cannot be utilized safely, mostly because of accident risks. The waste management areas (outdoor work) and the NRU fuel handling bays (work performed on gantrys) were examples given to support the position that even if a NIOSH-certified ASR would theoretically be available, for the intended use of work in those areas just mentioned, such ASR would not be selected as appropriate pursuant to AECL's Respiratory Protection Procedure and processes as potentially creating another hazard, particularly where an effective APR may be available.

[66] The AECL respirator selection process, coordinated by R. Kwan, takes into account the type of hazard (whether conventional or radiological), whether it is in gas, vapour or particulate form, whether there is a combined potential radiological and conventional hazard present (where a respirator appropriate against both hazards would be used) and whether the respiratory protection is for short term emergency use (where an ASR such as an SCBA would be appropriate solely for emergency as it is heavy and provides air only for a short period of time). The selections also take into account the matter of whether the work requires a high degree of movement and mobility or is outdoor (an APR would be used) or whether the work is in a confined area, where an air line respirator may be better indicated due to oxygen deficiency potential. In this respect, R. Kwan, who is a certified industrial hygienist and a member of both the Z94.4 technical committee on selection, use and care of respirators and the Z180.1 technical committee for compressed breathing air and systems of the Canadian Standards Association Standards Committees, explained at length the respirator choices made at AECL under his coordination. This can be summarized as follows:

> -For all conventional hazards and radiological particulates, AECL ensures that respiratory protective devices listed in the NIOSH Certified Equipment List (CEL) for the intended uses are selected on the basis of respiratory hazards.
>
> -There is a gap in the NIOSH-CEL relating to respiratory protection against radiological gases and vapours and consequently, extensive research was conducted by R. Kwan, in seeking an APR system that would effectively protect against radiological vapours and gases.

The witness confirmed to the undersigned that AECL selects only NIOSH-CEL respirators except for the narrow category of respirators which protect workers from hazards from radiological gases and vapours. In fact, concerning the respirator selection policy he follows, he stated that if there was a possible selection not on the NIOSH-CEL for the intended use that was even safer for protection against conventional hazards or

radiological particulate, he would nonetheless comply with the Regulations and the Code and would select a NIOSH-CEL respirator. That being said however, it is only in those instances where no NIOSH-CEL APR respirator for the intended use of protecting workers from radiological gases and vapours exists that AECL uses non-NIOSH-Certified respirators, including the C-4 for radiological hazards and the tritium respirator for the radiological hazard tritium.

[67] Given the gap in NIOSH-CEL listing for the intended use of protection against radiological gases and vapours at AECL, the extensive research that was conducted led to the selection of three non-NIOSH certified respirators that could provide the needed protection. Those were the Army C-4 respirator with C2A1 canister, the MSA Comfo Tritium Respirator and the MSA Comfo respirator with GMI-P100 cartridge, the first (C-4) being researched, developed and owned by the Department of National Defence, and the other two being commercially developed and tested.

[68] The MSA Comfo respirator with the GMI-P100 cartridge is NIOSH-certified for organic vapours and gases and particulates, thus conventional hazards, and tested "effective" (but not NIOSH-certified) for radiological gas and radioiodine vapour. It is used for conventional hazards as well as for protection against radiological gases and vapours.

[69] The MSA Comfo Tritium Respirator, while not NIOSH-certified, has been tested regularly since 2000 and found to provide "effective" protection against the radiological gas Tritium. In fact, it was confirmed by expert witness Dr. Dickson as the only APR respirator for Tritium as a potentially hazardous radiological gas or vapour.

[70] In the case of the Army C-4 respirator, it has been researched and developed by the Department of National Defence (DND) which has proprietary rights on it. As a result of the development by DND, it has not been submitted to any other external testing and thus has not received the "effective" qualification given to other commercially manufactured respirators. It is used for a combination of radiological gas and vapour hazards for which there is no NIOSH certification protocol as well as for protection against conventional hazards.

[71] Witness R. Kwan explained that the AECL selection requirements include the need for tight-fitting respirator face pieces, and face piece materials compatible with a nuclear environment so that they do not suffer contamination and so they can be readily decontaminated and can be used with canisters capable of protecting against a multitude of airborne contaminants. R. Kwan indicated that through his years of service at AECL, particularly between June 1997 and October 2011, he has collected information and conducted independent research into possible alternative respirators to the respirators presently in use and has identified no reason to discontinue favouring the C4 and C2A1 respirator (and the two others mentioned above). His contacts with separate respirator manufacturers have confirmed R. Kwan's searches that no APR respirator on the NIOSH-CEL exists from any known manufacturer to protect workers from the hazard of radiological gases and vapours. He explained that his rationale for advocating the

continued use of the C-4 and C2A1 respirator combination is significantly influenced by the fact that it must be effective for radiological particulate, radiological gases and vapours, and effective in emergency situations.

[72] The chart adduced as exhibit E-11 shows that the C-4 and C2A1 combination is used in multiple situations including moderate protection for radiological gases and vapours (radioiodines, tritium, tritiated water vapour), for radiological particules (uranium, plutonium, fission products of uranium and plutonium) as well as for personal use emergency duties where the emergency involves a "stay-in" at the facility. Also, based on all the information he has gathered, R. Kwan remains of the opinion that there is simply nothing else as good as the C-4 mask, which has been determined as essentially more effective than commercial (certified) respirators, among other reasons because its composition makes it better attuned to the AECL environment, and its four available sizes provide a better fit-test scale. In short, R. Kwan has not found a more effective APR for worker protection against radiological gases and vapours, and this conclusion is reinforced by the confirming testimony of expert-witness Dr. Dickson, who was the sole witness recognized in the present case as an expert in respiratory protection from traditional hazards in the workplace such as chemical and biological agents, asbestos, but also in respiratory hazards such as radiological hazards.

[73] Dr. Dickson (PHD in chemistry) is a Defence scientist at Defence Research and Development Canada (a DND agency) and adjunct Associate Professor at the Royal Military College of Canada. Part of her research has been on CBRN and testing on respirators and she leads a research group on CBRN. Her C.V., under Professional Expertise and Experience, notes expertise in CBRN protection, standards and toxicological implications, particularly for military and civilian agencies and includes the design, evaluation, performance modelling as well as the requirements and standards for respiratory and clothing systems and materials, the development of novel absorptive material and modelling and simulation platforms. She chairs the CAN/CGSB/CSA Z1610 standard committee on Protection of First Responders from CBRN events (respirators and clothing in response to a terrorist CBRN release). She also is chair/member of the Canadian Advisory Committees for ISO Technical Committee 94 and subcommittees 15 and 13 on Respirators/Protective Clothing and the CSA committee on Chemical Protective Clothing. Of the literally hundreds of writings she has authored or participated in one capacity or another, she has authored the following peer-reviewed book directly relevant to the case at hand: <u>Personal Protective Equipment for chemical, biological, radiological hazards: design, evaluation and selection.</u>

[74] Dr. Dickson testified at length regarding respiratory protection relative to the environment at AECL. She also provided the appeals officer with a comprehensive report formulating conclusions regarding the selection of the Army C-4 face piece with use of the C2A1 canister or cartridge. She explained at the outset that the NIOSH-CEL consists of respirators that have been submitted by the manufacturer for, and have passed, NIOSH certified requirements against one or more particular respiratory hazard, what has been referred throughout this decision as "intended uses". It has been previously noted that the C-4 respirator has been developed by DND and thus has not been developed and/or

submitted to NIOSH for certification as DND is not a manufacturer in the accepted sense of the word, and as such, was not required to do so. Her conclusion, in a nutshell, is that the C-4 is a superior face piece and "provides the best available APR style of protection for workers in a radiological environment exposed to gases and vapours, when combined with an appropriate cartridge such as the C2A1." Below are the more salient parts of her explanations and conclusions, both at the hearing and in her report.

[75] Noting that the NIOSH list provides explicit options for APR protection, Dr. Dickson pointed out that the intent, in the Canadian regulations (s. 12.7) of directing the employer to the certified equipment list was a well intended effort to assure that equipment provided by the employer would maintain effective protection for the work force since the products on the list met a number of protection and use performance standards and quality assurance requirements, and since at the time no other set of products could be easily referred to in regulations.

[76] Her report notes however that at this time, equipment exists and is available that is certified in some manner against other reputable standards, and in some cases this equipment is potentially equally technically appropriate for the intended use, e.g. equipment meeting European or NATO standards. It bears noting here that the C-4 respirator used by the Canadian armed forces satisfies NATO requirements.

[77] That being said, of the NIOSH list offering explicit options for air purifying respirators, she notes first that there are a few on that list of respirators that might be relevant for protective use in a radiological hazard environment within AECL against a specific hazard. However, the certification for none of those options mentions iodine, hydrogen and water. Furthermore, she pointed to the particular situation at AECL where in most cases, a mixed hazard (radiological and conventional) exists. She thus noted that if an APR is to be provided, as is the case at AECL, the mixed hazard environment results in requirement for combination cartridges/canisters that are either "certified" or "effective" for the applicable use or application, with the impossibility for an employer to find on the NIOSH list an explicitly certified item for protection against radioiodines, tritium or tritiated water vapour (radiological hazards in the form of gases or vapours).

[78] Dr. Dickson thus directly addressed the issue in this case by first noting that the concept of "intended use" or application is important in that respirators are certified to protect against a particular type or class of hazard, and thus selection of a respirator from the CEL assumes that the user knows the intended use. The absence of a proper respirator on the CEL claimed by the appellant, what Dr. Dickson referred to as the "gap" in the CEL being a long standing issue in the NIOSH certification process, means that NIOSH does not have in place any system or process for approving APR respiratory protection for these specific radiological respiratory hazards and substances and adding them to the CEL. It is therefore not possible, according to Dr. Dickson, to select an APR from the NIOSH-CEL that is approved for the specific use or application for radiological gases or vapours.

[79] On the fact that the Regulations, subsection 12.7(2), require that a respiratory protective device referred to in subsection 12.7(1) satisfy the requirements of CSA Standard Z94.4-M1982 on the selection, care and use of respirators, Dr. Dickson also pointed to section 1.2 of said Standard which states that it "is not intended to address the selection of (c)-respirators for protection against radiological contaminants". She commented that this CSA Standard provides a flowchart for selection in conjunction with the CEL. However the combination of CEL and gap in NIOSH certification means that the said flowchart cannot be of assistance in the selection process for protection against radiological gases and vapours and as a consequence, an employer cannot use CSA Standard Z94.4 for selection of protective equipment against radiological hazards in general. The result of this is that an employer requiring protection for its workers against respiratory hazards (where engineering controls would not suffice) that is outside of the intended use/scope for application of the NIOSH-CEL and CSA Z94.4 only has the following four options: an airline respirator or a SCBA, which are ASRs, an APR on the CEL that is not certified for the intended use or application for a particular hazard or an APR that is not on the list.

[80] Dr. Dickson commented that in the latter two cases, the respirator would not be NIOSH certified for the intended use or application and the employer would have to find a means of assurance from the supplier on an ongoing basis to ensure that the air-purifying respirator selected provided adequate and effective protection against the specified hazard. Simply choosing a NIOSH certified respirator for one intended use and applying it in a different use could introduce additional risks to workers if the employer has not done very careful research with ongoing detailed technical support from the supplier.

[81] On the specific effectiveness of the combination C4/C2A1 respiratory protection in use at AECL, the expert witness commented at length on each element of the combination and in comparison to other respirators. Her general comments were that the C4 respirator meets NATO protection and performance standards when worn with a C7A canister (the C2A1 canister is similar, also meets NATO standards and is manufactured by 3M Canada like the C7A canister), which is the Canadian military configuration. NATO standards are designed to ensure effective protection even in harsh battlefield CBRN environments.

[82] The general opinion of the expert witness is that the C4 is a superior facepiece and provides the best available APR style of protection to workers in a radiological environment exposed to gases and vapours, when combined with an appropriate cartridge such as the C2A1. In a more specific manner, Dr Dickson commented on each part of the combination. First, as regards the C4 facepiece, she pointed out that it comes in four sizes and is constructed of a particular non-silicone rubber that is highly resistant to chemical permeation and degradation by solvents, making it both protective and robust against degradation during decontamination for re-use. It is thus capable of fitting the large majority of the population to a very high protection factor (PF) obtained under realistic conditions of use. In point of fact, where the standards would normally assign a PF of 50 to an APR, should the C4/C2A1 respirator be qualified relative to CSA CRL Standard

Z1610-11 (Protection of first responders from CBRN events), it would be assumed to provide, when worn by itself, a PF in use of at least 10,000, thus making it vastly superior.

[83] Second, on the C2A1 canister itself, Dr Dickson noted that based on details of its construction, it should even be more effective against radioiodine vapour than the C7A canister used by the Canadian Forces. She also added that there may be other CBRN canister options that could be chosen from the CEL and that would offer equivalent protection. However, this would not confer NIOSH certification for the intended use against radiological gases and vapours, nor would choosing such a canister to use with the C4 facepiece confer NIOSH certification to the C4.

[84] In her comparison with NIOSH standards and other respirators, the expert witness considered three aspects. First, as to the fit and protection factor, she noted that where NIOSH CBRN APR standards (more rigorous that industrial APR standards) demonstrate a PF of 2000, it is her experience and knowledge that the C4's capabilities well exceed these PF values because the C4's fitting characteristics are superior to any respirator of any type that she may have evaluated, due to an excellent sealing locus, seal design, pliable materials as well as an extremely user-friendly harness design. As a result, the C4 face piece, when worn with the C2A1 canister, well exceeds performance requirements for the PF performance of a NIOSH approved full facepiece negative air-purifying respirator meeting either industrial P100 or CBRN requirements and, in her opinion, probably exceeds the actual capabilities of any such respirator.

[85] Second, on particulate filtration, Dr Dickson stated that the C2A1 canister worn in combination with the C4 facepiece exceeds the performance filtration requirements of the NIOSH P100 standard of 99.97% (0.3 micron particles). Third, on radioiodine removal, she indicated that the C2A1 canister worn in combination with the C4 facepiece provides substantial, effective and adequate capability for removal of gaseous as well as particulate radioiodines when selected and used as indicated by AECL flowcharts in combination with hazard assessment. She thus expressed the opinion based on information regarding AECL respirators and their intended use that the combination C4/C2A1 probably exceeds the actual capabilities of any NIOSH approved full facepiece negative pressure air-purifying respirator, meeting either industrial or CBRN requirements, for protection against radioiodine. She did note the possibility that another canister might have more total removal capability for radioiodine, but this would only be from the standpoint of reduced frequency of change-out, not superior protective capacity.

[86] On the AECL respiratory protection program generally and for radiological gases and vapours in particular, the conclusions arrived at by Dr. Dickson are as follows:

> Given the wide range of and complexity of potential respiratory hazards faced by AECL employees, both conventional and radiological, a wide range of types and makes of respiratory protection are in use. I have reviewed the main components of the respiratory protection program and specific details of the types of respiratory protection provided to workers at AECL for protection against radiological hazards, including the hazard

> assessment processes and instructions for use. I am satisfied that the respirators selected, combined with the selection flowcharts and instructions provided for use, are consistent with the intent of the CSA z94.4 Standard for selection, and provide appropriate and adequate protection against the radiological and combined radiological/conventional hazards that could be encountered. Virtually all respirators used by AECL are NIOSH certified for their intended use. Where no NIOSH certification exists, respirators selected by AECL are highly appropriate for their intended use, protection against radiological hazards.

Her conclusions deal more specifically with the respirator central to the present case in the following manner:|

> With respect to the C4 and C2A1 in particular, it is very unlikely that a more appropriate or protective air-purifying respirator on the NIOSH Certified Equipment List selected as part of the equipment could be found to replace the C4/C2A1 combination for use in those environments where radioiodine could be present. As stated NIOSH does not certify APR respirators for protection against the intended use of radiological gas or vapour exposure. Change to another non-NIOSH certified respirator would be necessary to comply with the direction and this introduces additional risk factors.

Finally, her conclusions address the matter of protection against radioactive tritium and tritiated water vapour:

> With respect to the respirator selected by AECL for use in its radiological environment involving radioactive tritium and tritiated water vapour, no NIOSH certified respirator for this use exists, and no appropriate alternate APR for the specific use of protecting workers from tritium or tritiated water vapour exists. Introduction of a non-APR alternative introduces additional risk factors unrelated to respiratory protection, and choosing no APR in the same environment would increase the exposure of the worker.

This last option would possibly be contrary to the ALARA principle previously mentioned.

[87] On the basis of what precedes, counsel for the appellant formulated a legal argument that centers on the notion of impossibility of compliance. In short, as noted to some extent in the issue formulation by the undersigned, it is the position of the appellant that compliance with subsection 12.7(1) of the Regulations through paragraph 125(1)(*l*) of the Code is impossible in relation to the provision of APRs to protect workers against radiological gases and vapours due to the legislative gap described previously. Subsection 12.7(1) of the Regulations requires provision of NIOSH-CEL respiratory protective device and one that protects against the hazardous substance radiological gases and vapours.

[88] It is the view of the appellant that it is impossible for AECL to do both, as demonstrated by the evidence that has been adduced. The appellant contends that it is

quite properly protecting workers from the hazardous substances radiological gases and vapours and it is doing so without APRs on the NIOSH-CEL for that intended use, as there are none on the said list. According to counsel, the impossibility to comply argument is not novel and has been retained in many jurisdictions, although it may not be specifically part of the jurisprudence of this Tribunal.

[89] It has however been entertained in the past by the Tribunal and it can be entertained by the undersigned, as part of the Tribunal's/appeals officer general *de novo* jurisdiction to inquire into the circumstances of the direction. That "broad" jurisdiction, according to counsel, makes it possible for the undersigned to consider both the oral evidence, exhibits and affidavit evidence regarding potential amendments to the Regulations as well as the argument that no NIOSH-certified APR is available for the intended use of protecting workers from the respiratory hazard of radiological gases and vapours, thus making it impossible for AECL to provide both a NIOSH-CEL respirator, as required by the Regulations, and at the same time one that protects against that hazard, which is the basic obligation of the employer under the legislation. Furthermore, that same "broad" jurisdiction of the appeals officer makes it possible for the latter to consider the evidence that despite the impossibility for AECL to provide its workers with a NIOSH-CEL APR respirator for the intended use of protecting them against radiological gases and vapours, it is nonetheless protecting those workers against the said hazard in a "highly appropriate manner".

[90] In support of that argument, the appellant has referred the undersigned to numerous court and administrative tribunal pronouncements where the same argument was received favourably. It is obviously not necessary to cite all those decisions here. Some however are explicit and directly to the point. In *Queensway Nursing Home* v. *Group of Confidential Employees*[2], the Pay Equity Tribunal of Ontario revoked an order against an employer, stating "an employer cannot be required to comply with an order with which it is impossible to comply. For that reason alone, the order cannot stand."

[91] The appellant also referred to two decisions under Part II of the Code prior to the major amendments that were enacted in September 2000 and were thus rendered by a Regional Safety Officer (RSO), a function that preceded that of appeals officer. In the first case, *Canada (Public Works and Government Services)* and *Public Service Alliance of Canada*, [1999] C.L.C.R.S.O.D. No. 18, two directions were rescinded due to the fact that the corrective actions being ordered had either already been complied with or the situation to be addressed no longer existed. That RSO decision concluded: "In my opinion, the direction issued in the instant case serves no purpose since compliance is impossible…In view of my responsibility under subsection 146(3) of the Code, I am of the opinion that there is no need for this direction."

[92] Similarly, in *Vancouver Wharves Ltd.* v. *International Longshoremen's* and *Warehousemen's Union, Local 500*, [1993] C.L.C.R.S.O.D. No. 1, relative to a direction

[2] *Queensway Nursing Home* v. *Group of Confidential Employees*, 2010 CanLII 56873 at para. 46 (ON PEHT), upheald on reconsideration at CanLII 746433 (ON PEHT).

concerning the prohibition to disturb an accident scene where such a scene no longer existed, the same RSO offered the following opinion that directly relates to the situation at hand:

> "Normally, a direction is given under the Code to require that workplace hazards be remedied. Its purpose is, as stated in section 122.1 of the Code, the prevention of accidents and injuries to health. To meet the purpose of a direction, the recipient may have to take actions to protect employees, to comply with prescribed standards or to put an end to illegal actions. In my view, the recipient of the direction must be in a position to comply with the direction. Otherwise, the direction does not fulfill a legitimate purpose and there is no need for the direction."

[93] Based on what precedes, the appellant argues that rescission of the direction is warranted for the following reasons. First, a clear principle with respect to impossibility of compliance can be derived from the case law to wit, that the need for fairness and justice requires consideration of an employer's position that a legal requirement or direction of a regulator is impossible to comply with. In that respect, there is support for AECL's position that where compliance with an obligation cannot be achieved, due to its wording and due to the unavailability of personal protective equipment to protect workers for the intended use specified, then it is impossible to comply with the direction and it ought to be rescinded. Second, in the case at hand, the appellant argues that the undersigned has heard clear evidence AECL complies fully with its protection obligation under the Code by providing NIOSH-CEL respirators for the intended use where available, and where the NIOSH-CEL is silent relative to a specifically required protective equipment, in this particular case APRs to protect workers from the respiratory hazard of radiological gases and vapours, by selecting and providing workers with a respirator that protects them in a highly appropriate manner. As selecting an APR that would be both on the NIOSH-CEL for the specific intended use and would protect workers constitutes an impossibility, the direction ought to be rescinded.

[94] The appellant has also argued that in addressing the issue at hand, and therefore interpreting the relevant legislation, I should retain that section 12 of the *Interpretation Act* (R.S.C. 1985, c.1-21) requires that every enactment be deemed remedial in nature and be given such "fair, large and liberal construction and interpretation as best ensures the attainment of its objects", and that legal texts such as *Driedger's Construction of Statutes* stand for the principle of statutory interpretation that "…the words of an Act are to be read in their entire context, in their grammatical and ordinary sense harmoniously with the scheme of the Act, the object of the Act, and the intention of Parliament." This "Modern Principle" of interpretation, recognized at case law, would thus require proceeding first with an analysis of the textual meaning of the legislation followed by consideration of the entire context of the enactment, including its legislative intent. As such, my interpretation of the occupational health and safety regime under the remedial legislation that is the Code should follow a broad and purposive approach where the purpose of the Act and the Regulations as a whole would need to be considered.

[95] The appellant thus submits that applying a broad and purposive approach to the interpretation of subsection 12.7(1) of the Regulations is not only appropriate but

required. According to counsel, interpreting that provision as simply requiring the selection of *any* respirator from the NIOSH-CEL without regard to its *intended use* would be contrary to the purpose of NIOSH-Certification according to the expert evidence received and the purpose of the Code and Regulations, which is the protection of the health and safety of workers. Factually, adopting such an interpretation would lead to a selection of APRs that do not provide respiratory protection to workers for the intended use, and increase risks to workers, an intent that would also conflict with the purpose of the Code and the Regulations. Following a purposive approach would allow a finding that it is impossible to select an APR respirator from the NIOSH-CEL for intended use that would provide appropriate protection against the hazardous substances of radiological gases and vapours. Regarding the possibility of resorting to ASRs (Air Supplied Respirators) as an alternative in this situation, the appellant has contended that it would be contrary to the purpose of the legislative enactment to require AECL to select ASRs that are on the NIOSH-CEL where the expert heard by the appeals officer has supported selection of an APR, the C-4/C2A1, and where the evidence has also shown that selection and use of an ASR would increase the risks to workers.

[96] As a final argument, the appellant has invoked section 1.6 of the Regulations which deals with inconsistencies between a standard incorporated by reference in the Regulations and other provisions of the said Regulations, the rule being that to the extent of the inconsistency, the other provision of the Regulations prevails. In the case at hand, the appellant maintains that the standard of NIOSH-Certification for all respiratory protective devices ought not to conflict with other provisions of the Regulations which ensure the health and safety of workers. On this point, the appellant points to Part XIX of the Regulations (Hazard Prevention Programs) where subsection 19.5(3) legally requires that employers shall “ensure that any preventive measure shall not in itself create a hazard and shall take into account the effects on the work place”. The appellant thus argues that since respiratory protection required by subsection 12.7(1) is clearly a preventative measure designed to prevent workers from encountering a hazard under subsection 19.5(3), that preventative measure must not in itself create a hazard.

[97] As such, the point it makes is that the evidence before the undersigned indicates that if AECL workers exposed to respiratory hazards involving radiological gases and vapours are required to utilize only NIOSH-CEL respirators, even where inappropriate for the intended use, or where a manufacturer provides only an assurance that it is “effective”, a hazard will, or will likely arise. Subsection 12.7(1) thus conflicts with subsection 19.5(3) of the same Regulations. The appellant thus argues that the legislator has contemplated the possibility that a dynamic standard such as NIOSH-CEL, incorporated by reference into subsection 12.7(1), could conflict with the statutory scheme and has provided a mechanism for dealing with circumstances of such conflict. It is the appellant’s submission that section 1.6 of the Regulations clearly allows the undersigned to take into account the more general duty under subsection 19.5(3) to ensure that no preventative measure is used which creates a separate hazard and where that is the case, it argues that said section 1.6 of the Regulations allows the undersigned to override the requirement of subsection 12.7(1) of the Regulations.

[98] In this regard AECL submits that to the extent that the NIOSH-CEL standard incorporated by reference could theoretically be interpreted literally as requiring selection of any respiratory protective device from the NIOSH-CEL, which could create another hazard, this would conflict with subsection 19.5(3) of the Regulations which then ought to prevail. By the same rationale, should such an interpretation of selecting any respirator from the CEL, leaving aside the obligation put on the employer to protect against the hazardous substance, the position of the appellant is that the general employer duty set at section 124 of the Code should prevail.

[99] In conclusion therefore, the appellant submits that the direction to comply with subsection 12.7(1) should be rescinded. According to the appellant, it is impossible for AECL to comply with the direction due to the gap in the NIOSH-CEL list for the one narrow category of APRs for respiratory protection from radiological gases and vapours. To require strict compliance would not be in accordance with a broad and purposive approach to interpretation of the Code and the Regulations and contrary to the provisions of subsection 19.5(3) of the Regulations and section 124 of the Code.

Analysis

[100] As is obvious from all that precedes, this case involves a single party. I have nonetheless considered it necessary to describe in some length not only the evidence presented and the position defended by that party, but also to the extent possible through the so-called HSO report and also their testimony at the hearing, those opinions expressed by the HSO and the HRSDC Engineer who offered the latter counsel in issuing the direction under appeal. What has transpired from all this testimony and evidence are the uncontested facts that the C4/C2A1 respirator in use at AECL for the intended use of protection against radiological gases and vapours does not appear on the NIOSH Certified Equipment List and that no respirator for that specific intended use, which includes Tritium and Tritiated water vapour, can be found on the CEL list since, as has been clearly demonstrated, NIOSH does not have a protocol for certifying such respirators.

[101] There has been evidence to the effect that there exist other types of respirators that can be described as “effective” for the same intended use of protecting against radiological gases and vapours, the characterization “effective” being given by manufacturers upon their research on the efficiency of certain products that they themselves fabricate. This however does not constitute NIOSH certification, although it constitutes confirmation that such respirators provide the needed level of protection. Finally, the evidence concerning the C4/C2A1 respirator system at the center of this case, is to the effect that an “effective” characterization has not been put on that system, this being explained by the fact that it is an Armed Forces developed system not subjected to commercial constraints, although there is ample evidence both from the expert witness heard at the hearing and also from manufacturers of other respirators that the said respirator offers the needed level of protection for the intended use of protecting against radiological gases and vapours, and may even be superior to those “effective” respirators in many aspects. The obligation that the direction indicates has been contravened

however is very explicit and concerns exclusively the provision of respiratory protective devices that are listed in the NIOSH Certified Equipment List. Through the various testimonies and other evidence, the said devices turned out to be primarily the C-4/C2A1 respirator for the intended use of protection against radiological vapours and gases. One should also point out at this stage that in issuing the direction under appeal, HSO Arsenault did not claim that the respirator provided by the appellant, the C4/C2A1, or others for that matter, was not effectively offering the necessary protection against radiological gases and vapours, but simply and essentially that it did not meet the letter of paragraph 125(1)(*l*) of the Code and more specifically subsection 12.7(1) of the Regulations. No evidence whatsoever was presented that the respirators in use did not offer the required protection. In fact, the only evidence on this has been that it does offer the required protection.

[102] The main thrust of the appellant's answer to the direction and its position that it should be rescinded is the impossibility of compliance with the statutory obligation of providing a specific type of personal protective equipment (NIOSH Certified) because no such equipment, as described specifically in the applicable regulatory provision, exists. In the course of formulating that position, the appellant however did expand somewhat on that position by advancing also that not only is there a gap in the NIOSH CEL where protection against radiological gases and vapours is concerned, but that if it should be forced to provide and use a respirator listed in the NIOSH CEL, albeit one that would not be certified for the intended use of protection against radiological gases and vapours, in compliance with the direction and the words of the Code and the applicable Regulations, it would not be providing the statutorily required basic employee protection under the Code, thus on the one hand complying with the specific obligation while at the same time failing to comply with its general protection obligation under the Code at section 124. Finally, it needs to be repeated here that the evidence provided by the appellant also served to establish that in terms of actual protection against radiological gases and vapours, the respirator provided by the appellant offers the best protection and is superior to even respirators qualified as "effective" on the basis of testing by their manufacturer.

[103] Before proceeding further, it is important to understand clearly what obligations under the statute and its regulations are involved. It is thus important to note that as a "whole", the Code states as its general purpose the prevention of "accidents and injury to health arising out of, linked with or occurring in the course of employment" (subsection 122.1) and that said preventative action needs to adhere to a hierarchical order of importance and thus consist "first of the elimination of hazards, then the reduction of hazards and finally, the provision of personal protective equipment, clothing, devices or materials", all with the goal of ensuring the health and safety of employees.

[104] With this as background, the obligation that HSO Arsenault has presented in her direction as being contravened is made up of two parts as a result of paragraph 125(1)(*l*) of the Code indicating by the use of the word "prescribed" that it needs to be supported, one could say receive the needed specificity, through the adjunct of a specific Regulation. As such, while paragraph 125(1)(*l*) of the Code makes it mandatory for the employer to provide every person to whom it grants access to the work place, and this primarily

means its employees, with "safety materials, equipment, devices and clothing", it is in the Regulations ("*prescribed*") that one will be informed of which of those will need to be provided and used to provide the protection required by the conditions prevailing in the specific work place where protection is to be provided, thereby initiation of the concept of "intended use".

[105] In this respect, I fully share the opinion or comment offered by expert witness Dr. Dickson when she stated that "the concept of intended use or application is important. Respirators are certified to protect against a particular type or class of hazard. Selection of a respirator from the CEL assumes that the user knows the intended use." This however does not constitute the complete obligation of any employer under the Code. While section 125, and more particularly subsection 125(1) of the Code may list numerous specific employer obligations, the great majority of those requiring for applicability purposes to receive the needed added specificity, as in the present case, by the adjunction of a regulatory provision, it must be pointed out that the preamble to that provision states that it applies "without restricting the generality of section 124", thereby indicating that for every specific obligation at section 125, there is <u>always</u> the underlying and indissociable general employer duty to "ensure that the health and safety at work of every person employed by the employer is protected", which I take to mean in terms of application of statutory rules of interpretation, that should the application of a specific Code obligation fall short for various reasons, including compliance possibility as in the present case, an employer remains nonetheless statutorily obligated to "ensure that the health and safety at work" of every person it employs is protected.

[106] At the risk of repeating myself, it is important to note again that the uncontested evidence is that the NIOSH-CEL does not list any respirator that would be certified to offer the required intended use protection against radiological gases and vapours. It also needs to be repeated anew that the direction issued by HSO Arsenault raises solely the contravention of failing to provide a respirator ("respiratory protective devices") that would be listed on the NIOSH Certified Equipment List. Finally, one needs to note anew the evidence from Dr Dickson to the effect that "virtually all respirators used by AECL are NIOSH certified for their intended use (and) where no NIOSH certification exists, respirators selected by AECL are highly appropriate for their intended use, protection against radiological hazards", which I also take to mean, when considering the whole of her report and testimony, that it satisfies the ALARA concept regarding personal radiation exposure. Finally, while the C4/C2A1 respirator has been central to the discussion herein, one must note that AECL has also selected two other respirators (APR) for use where <u>low protection</u> is required against radioiodines, Tritium and Tritiated water vapour (Comfo/GMI with TEDA and Tritium Respirator), one being non-NIOSH Certified and the other non-NIOSH Certified for the intended application, which would tend to bring those two within the scope of the direction under appeal, and also of the response position by the appellant, as addressed by expert witness Dr. Dickson whose unchallenged statement, noted above, was to the effect that:

> "with respect to the respirator selected by AECL for use in its radiological environment involving radioactive tritium and tritiated water vapour, no

> NIOSH certified respirator for this use exists, and no appropriate alternate APR for the specific use of protecting workers from tritium or tritiated water vapour exists. Introduction of a non-APR alternative introduces additional risk factors unrelated to respiratory protection, and choosing no APR in the same environment would increase the exposure of the worker."

The appellant has argued that in the present matter, it would be appropriate to adopt a broad and purposive approach, and referred the undersigned to section 12 of the *Interpretation Act* which requires that every enactment be deemed remedial and given such fair, large and liberal construction and interpretation as best ensures the attainment of its objects, said objects being enunciated in the Purpose section of the Code as the prevention of accidents and injury to health arising out of, linked with or occurring in the course of employment to which the Code applies.

The appellant has also invited the undersigned to be guided by the "Modern Principle" of legislative interpretation which calls for the analysis of the textual meaning of the legislation and also consideration of the entire context of the enactment, including its legislative intent, that which *Driedger's Construction of Statutes* describes as reading a statute as a whole, or stated otherwise, that "the words of an Act are to be read in their entire context, in their grammatical and ordinary sense harmoniously with the scheme of the Act, the object of the Act, and the intention of Parliament". I am in complete agreement with the appellant on this. As stated previously, the result of forcing the use of a protective apparatus that would not be adapted to the hazard that it needs to protect from, simply basing such a decision on the plain meaning of the legislative or regulatory wording would or could bring about a result foreign to the objects of the legislation. In my opinion, proper interpretation of legislation is certainly not just a matter of putting on or recognizing meaning to words, absent consideration of the whole statute or statutory instrument and its intended purpose. It is the purpose that must be considered paramount and consequently, where purpose and word meanings do not coincide, purpose needs to prevail.

[107] HSO Arsenault issued her direction on the basis of a contravention being committed by the appellant. Conceptually, a contravention entails the violation of an obligation expressed in diverse forms, mostly legislation, and in order for said obligation to be compellable, it is not sufficient, in my opinion, to have only a statement of what is required to be done. What is also essential is the achievability of what is stated as required to be done so that compliance can be sought and compellability ensured. Stated more pragmatically, for an obligation to be an obligation, there needs to be more than a formulation and one needs to look beyond said formulation to verify that what the formulation requires, the substance one might say, is feasible. If it is not, the obligation cannot then be compellable and compliance cannot be validly sought. That in essence amounts to the impossibility of compliance argument that the appellant has presented, and it is an argument with which I am in agreement. I also am of the view that it should find application in the present case.

[108] As part of its impossibility of compliance argument, the appellant has also presented an argument that would see the undersigned accepting that the directed selection of NIOSH-CEL respiratory protection that cannot address the intended use of protection against radiological gases and vapours would bring into play application of subsection 19.5(3) of the Regulations to the effect that a selected preventative measure shall not of itself create a hazard, and that if it does, which would then evidence an inconsistency with the provision upon which that selection is based, in the present case subsection 12.7(1), then by application of section 1.6 of the same Regulations, the inconsistency would be resolved by applying the principle enunciated at subsection 19.5(3). To adhere to this position would require the undersigned to accept that the list identified in subsection 12.7(1) under title NIOSH Certified Equipment List constitutes a standard, actually a standard incorporated by reference, that which the appellant designates as a dynamic standard for the purpose of satisfying the wording of section 1.6 of the Regulations to the effect that "in the event of an inconsistency between any standard incorporated by reference in these Regulations and any other provision of these Regulations, that other provision shall prevail to the extent of the inconsistency." While this approach would tend to find favour with the undersigned to the extent that I would agree that no preventative measure selected through the application of a regulatory/statutory provision should create a separate hazard, and where it does its use should be prevented, I am not convinced that NIOSH-CEL can be properly referred to nor constitutes a standard or a standard incorporated by reference.

[109] Furthermore, any interpretation on this particular question is liable to affect the application of the Regulations and therefore should be more fully addressed in a case involving more than a sole appealing party and no one responding to the latter's arguments. As such, it is my opinion that it is not necessary to deal with this particular issue in resolving the present appeal and to this extent I will not deal with this particular question further. Also I find it unnecessary to deal with the matter of application of CSA Standard Z94.4-M1982 as amended on selection, use and care of respirators in the present case in view of Dr Dickson's testimony and the actual text of said Standard which indicates that it is not intended to address the selection of respirators for protection against radiological contaminants, thus making it inapplicable to the facts of the present case. Finally, the fact that there may be an ongoing regulatory amendment process that may possibly end up resolving the situation central to the direction by HSO Arsenault is not relevant at this time, as I indicated to the appellant at the hearing that this matter is to be considered and resolved on the legislation as it existed at the time of the issuance of the direction.

[110] My role as an appeals officer is to determine the matter before me on the basis of all the evidence and the arguments presented by the parties. As stated previously, the present case has involved a single party and by consequence, the evidence and arguments are one-sided. This being said, I have found very convincing the testimony and evidence by expert witness Dr. Dickson. Having considered all the evidence and taken into account the submissions presented by counsel for the appellant, I find the dual argument of impossibility of compliance and that of paramountcy of the general obligation to protect at section 124 of the Code, where compliance with subsection 12.7(1) of the Regulations

would possibly create a hazard instead of preventing one, compelling. To maintain the direction as issued, therefore giving precedence to the letter of subsection 12.7(1) without regard to the underlying general legislative intent would be tantamount to acting with automaticity, which I cannot help but consider has been the case in this instance. While I can accept that the purpose of the direction surely was not to order the selection of any respirator, regardless of intended use and protective capacity, in reality, were said direction allowed to stand, that is exactly what it would amount to and, in essence, would be contrary to the purpose of the Code, which is first and foremost the protection of workers.

[111] Through review of all the documentation available in the present case, I have been able to become aware of how this case developed and how the direction came to be issued, which leads me to offer the following comments. The enforcement authority of a health and safety officer is not a "prove me wrong exercise". That authority entails the obligation to act responsibly in requiring a party to comply, to do something that it is really obliged to do. This entails on the part of the enforcing party acquiring knowledge of the obligation or obligations one is seeking to be complied with, and this goes beyond the mere consideration of the words expressing the obligation(s) sought to be complied with. By definition, legislation is general and where, pursuant to that legislation, one requires a party to do something specific, one needs first to ensure being aware, knowing, whether that is possible under the general application of the legislation.

[112] The conduct of the appellant however is not above reproach in my opinion. Its witnesses expressed pride in the fact that AECL has a full occupational health and safety program in place and that this has been the case for many years. For many years it has been aware that a part of its respiratory protection program did not satisfy, at the very least, the letter of the applicable regulations and yet apparently chose to do very little, if anything, to clarify and correct its situation, apart from possibly granting much more weight than deserved to a collection of written exchanges dating back more than thirty-five years with representatives of then Labour Canada stating being "impressed with your respiratory protective equipment". I am somewhat disconcerted with an employer showing a complete and efficient health and safety program claiming that in all these years, it had not managed to learn about the existence of the Regulatory Review Committee within Labour Canada and the Labour Program of HRSDC, as it has now become, and for that matter of the existence of FETCO as the vehicle for discussing changes to applicable legislation. This attitude however does not affect the direction considered in this appeal.

[113] This being said, the evidence that has been presented has demonstrated that the appellant is satisfying its general protective obligation under section 124 of the Code and thus, while in acting *de novo*, I have the authority to modify a direction considered at appeal in order to attain that purpose, I find that in this case this will not be necessary. Furthermore, based on the evidence and on all the arguments presented by the appellant, I find that it would be impossible to comply with the direction while ensuring compliance with the general protection purpose and obligation under the Code. Consequently, my

conclusion is that the direction cannot stand and the appeal is granted.

Decision

[114] For the reasons stated above, the appeal is granted and the direction is rescinded.

Jean-Pierre Aubre
Appeals Officer