Occupational Health and Safety Tribunal Canada

Tribunal de santé et sécurité au travail Canada

Date: 2018-09-17
Case No.: 2017-33

Between:

Securitas Transport Aviation Security Ltd.

and

Canadian Air Transport Security Authority, Appellants

and

Alicia Doyle and Tracy Cleveland-Wood, Respondents

Indexed as: *Securitas Transport Aviation Security Ltd. v. Doyle*

Matter:	Appeal under subsection 146(1) of the *Canada Labour Code* of a direction issued by an official delegated by the Minister of Labour.
Decision:	The direction is rescinded.
Decision rendered by:	Mr. Pierre Hamel, Appeals Officer
Language of decision:	English
For the appellants:	Mr. Jack Graham, Q.C., McInnes, Cooper Mr. Brett Christen, Rae, Christen, Jeffries
For the respondents:	Ms. Sylvia Boyce, United Steelworkers
Citation:	2018 OHSTC 10

REASONS

[1] These reasons concern an appeal brought under subsection 146(1) of the *Canada Labour Code* (the *Code*) by Securitas Transport Aviation Security Ltd. ("Securitas" or "the employer") against a direction issued on September 2, 2017 by Ms. Mary Alice Clark, in her capacity as an official delegated by the Minister of Labour (ministerial delegate). Ms. Clark's direction was issued under the authority of paragraph 145(2)(a)of the *Code* and as a result of her finding that the respondents were exposed to a danger in their workplace.

Background

[2] The respondents Alicia Doyle and Tracey Cleveland-Wood are both screening officers employed by Securitas Transport Aviation Security Limited, at the Halifax Airport, located in Enfield, Nova Scotia. On August 31, 2017, the respondents refused to work because they were concerned about the levels of radiation emitted by a baggage screening device located at a passenger screening point.

[3] Ms. Doyle stated the following as the basis on which she was making her refusal, as reported in the ministerial delegate's report:

> When the bins are going in and out the lead curtains are open at both ends when the x-ray is on. We sometimes are standing close to the tunnel when the curtains are open and NAV CAN would not test when the curtains were up.

[4] In her refusal to work registration form filed with the Labour Program of Employment and Social Development Canada (ESDC), she reiterated the following:

> Concerned with the radiation level from the machines, and the frayed curtains lead Alicia to be concerned that the integrity of the curtains are compromised.

[5] As for Ms. Cleveland-Woods's work refusal, the ministerial delegate states in her report as follows:

> I feel 100% the Rapiscan x-rays are unsafe […] The bigger bags will hold open both curtains and when one bag is being x-rayed the next is preventing the curtains from closing.

[6] In her work refusal registration form file with ESDC, she states as follows:

> Cause of refusal to work is the level of possible radiation exposure due to being able to see into the x-ray tunnel.

[7] The Work Place Occupational Health and Safety Committee ("the Committee") was called upon to investigate the refusals as mandated by subsection 128(10) of the *Code*. The employer and the Committee agreed that the situation described by the refusing employees presented no danger to them, as stated in the ministerial delegate's Assignment Narrative included in the record forwarded to the Tribunal.

[8] Accordingly, Employment and Social Development Canada (ESDC) was advised of the continuing refusal and a ministerial delegate, Ms. Clark, was assigned to conduct an investigation into the refusals, as contemplated by subsection 129(1) of the *Code*. After conducting her investigation into the reasons for the employees' refusals, Ms. Clark wrote to the parties to inform them of her decision that the circumstances that were present at the time of the refusals constituted a danger to the employees (subsection 129(4)) and a direction to the employer to correct the situation was issued on September 2, 2017, under subsection 129(6) and paragraph 145(2)(a) of the *Code*.

[9] However, it should be noted that Ms. Clark also informed the parties that the respondents could not continue to refuse to work, in spite of her finding of danger. At the employer's request, Ms. Clark provided further clarification on the reasons supporting her decision and direction and she explains her rationale as follows:

> […]
>
> In the event of a work refusal, the outcome of the investigation is either Danger or No Danger. It was determined by the officer delegated by the Minister a Danger existed; it was further determined a work stoppage was not required.
>
> The Canada Labour Code provides the definition of danger: "any hazard, condition or activity that could reasonably be expected to be an imminent or serious threat to the life or health of a person exposed to it before the hazard or condition can be corrected or the activity altered; (danger)."
>
> Reasonably expected means: Does not require that the threat materialize every time the hazard, condition or activity occurs; it is not necessary to establish precisely the time when the threat will materialize nor does the threat need to materialize frequently.
>
> Serious means a substantial threat to health or life and includes a potential substantial threat;
>
> The refusal was determined to be covered under the Code by the serious potential threat. If it had been imminent a stop work order and a danger tag would have been required.
>
> [Underlining added]

[10] The direction under appeal reads as follows:

> IN THE MATTER OF THE CANADA LABOUR CODE
> PART II – OCCUPATIONAL HEALTH AND SAFETY
>
> DIRECTION TO THE EMPLOYER UNDER PARAGRAPH 145(2)(a)
>
> On September 1, 2017, the undersigned official delegated by the Minister of Labour conducted an investigation following a refusal to work made by Tracey Cleveland-Wood and Alicia Doyle in the work place operated by Securitas Transport Aviation Security Ltd, being an employer subject to

> the *Canada Labour Code*, Part II, at 1 Bell Blvd., Enfield, Nova Scotia B2T 1K2, the said work place being sometimes known as Securitas – Halifax (YHZ).
>
> The said official delegated by the Minister of Labour considers that the use or operation of a machine or thing constitutes a danger to an employee while at work:
>
> Employees may be exposed to radiation when the lead curtain of the Rapiscan Airport Security Baggage X-Ray Machine is prevented from closing due to the passenger bins being spaced less than 12 inches apart or the size of the bags impedes the closing of the curtain. Operation of the x-ray machine contrary to the requirements of Safety Code 29 and Rapiscan Operation Manual poses a danger to employees working in proximity to the x-ray machine.
>
> Therefore, you are HEREBY DIRECTED, pursuant to paragraph 145(2)(a) of the *Canada Labour Code*, Part II, to take measures to correct the hazard or condition that constitutes the danger to no later than September 8, 2017.

[11] In her investigation report, the ministerial delegate states the reasons supporting her finding of danger as follows:

> 1. Securitas does not consistently implement the 12" distance between bins recommended by CATSA Procedures;
>
> 2. Safety Code 29, Safety Code 21 and the Rapiscan manual all states that no person shall do anything to keep the curtains open while an x-ray is taking place;
>
> 3. Radiation testing of the machines although consistent with Document 12 did not replicate the concerns of the employees and the work conducted by the refusing employees;
>
> 4. The Health and Safety Officer is not an expert on radiation emissions or exposure. <u>They are unable to determine if the radiation emitted by the machine during periods the lead curtains are held open by the bins is outside the limits acceptable</u>.
>
> [Underlining added]

[12] It should be mentioned that the ministerial delegate had also issued, at the same time, a "contravention direction" under subsection 145(1) of the *Code* directing the employer to appoint a qualified person to investigate possible radiation exposure to employees while using the baggage screening machine in question, as prescribed under subsection 10.4(2) of the *Canada Occupational Health and Safety Regulations* (*Regulations*). That direction was not appealed and is outside the scope of the present appeal.

[13] While the appeal was originally filed by Securitas, being the employer of the refusing employees and the entity against whom the direction was issued, the Canadian Air Transport Security Authority (CATSA) applied to the Tribunal to obtain intervenor status in the appeal

proceeding in light of its duties and responsibilities under the *Canadian Air Transport Security Authority Act*, (the "Act") (S.C. 2002, c. 9, s. 2)

[14] CATSA is a crown corporation established as an agent of the Government of Canada pursuant to the Act. CATSA is responsible for the screening of non-passengers (including airport workers) and passengers at screening points at designated airports across Canada in order to prevent any person from transporting a threat item onto an aircraft by placing such item on their person, in carry-on luggage, or in checked baggage ("screening"). Securitas provides screening at the Halifax International Airport ("YHZ") pursuant to a contract with CATSA.

[15] CATSA's application was allowed by an appeals officer and CATSA was granted party status as an appellant in the appeal (*Securitas Transport Aviation Security Ltd. & Canadian Air Transport Security Authority v. Doyle & Cleveland-Wood*, 2017 OHSTC 25).

[16] The appeal was heard in Halifax, Nova Scotia, on June 19, 2018. Final submissions were received on August 7, 2018.

Issue

[17] The issue raised by the present appeal is whether the circumstances described by the refusing employees at the time of their refusals constituted a danger within the meaning of the *Code* and whether Ms. Clark's finding of danger and the direction issued on that basis are well-founded. More specifically, the issue is whether the operation of the Rapiscan scanning machine in the circumstances prevailing at the time of the refusal, i.e. when the lead curtains are open because of the presence of luggage when the X-ray is "on", presented a danger to employees.

Evidence presented at the hearing

[18] Ms. Clark testified briefly at my request, to provide further clarification on her findings and conclusions. She provided an overview of the basis on which her finding of danger was founded, as reflected in her investigation report. She referred to Dr. Caldwell's expert report (Radiation Safety Institute of Canada) prepared further to her directions and which the employer provided to her on December 4, 2017. The report concluded that the Rapiscan scanning machines were safe and employees were not exposed to any measurable radiation when operated in the conditions that prevailed on August 31, 2017. After taking cognizance of that report, Ms. Clark concluded that the employer was in compliance with her directions. She acknowledged that she would have found there to be no danger to employees had Dr. Caldwell's report been available to her when she conducted her investigation.

[19] Ms. Clark noted in her report that when the work refusal took place, NAVCAN testers were brought in to test the machines. Readings were taken at the curtains of the entrance and exit locations of the machines and were well within normal range. The testers were asked to test the areas of concern to employees and replicate the situation described involving the lifted curtains, but they advised that they were only to test in accordance with "Document 12" of NAVCAN's procedures.

The appellants

[20] CATSA proceeded first with the presentation of its evidence and called Ms. Louise Landry to testify. Ms. Landry is CATSA's General Manager of Operational Programs and at the material times had responsibility for CATSA's Radiation Safety Program. Her testimony may be summarized as follows.

[21] Ms. Landry described the establishment of CATSA and its mandate to provide for effective and efficient screening at designated Canadian airports, including Halifax (YHZ). The "screening" process is in part designed to prevent a threat item, such as a weapon or improvised explosive device, from being transported onto an airplane on a passenger, or in their carry-on luggage or belongings.

[22] One part of the screening process is the X-ray baggage machine which X-rays belongings and carry-on baggage of passengers. The X-ray generators in the X-ray machines are directed at the baggage being imaged and do not point at the entrance or exit of the machine. Rather, the X-ray machine contains two x-ray generators, one at the bottom of the machine pointing up through the baggage (vertically), and one at the side pointing through (horizontally) the baggage. The two generators are fixed to point up and across the baggage being screened, sending the X-ray beam to sensors in the machine cabinet and then into lead shielding which absorbs the radiation. The X-ray machines are installed and maintained in accordance with *Safety Code 29* published by Health Canada and referenced under subsection 10.26 (2) of the *Regulations*, and all other applicable legislation.

[23] The X-ray machine also has lead curtains at the entrance and exit of the machine. The lead curtains are in twenty-four separate strips in two rows and are designed to limit stray or scattered radiation leaving the X-ray machine by absorbing radiation that contacts the curtains. The strips are designed and intended to be moved by baggage being X-rayed and to separate around the baggage. Ms. Landry emphasized that it was normal for the X-ray machine's lead curtains to be open or partially opened when the machine was screening baggage and noted that even when the curtains were wholly undisturbed, they did not extend all the way down to the conveyor.

[24] Ms. Landry confirmed that the escape of any stray radiation in such circumstances did not pose a risk to operators of the X-ray machine who were stationed at a safe distance (greater than 50 centimetres from the entrance/exit of the machine) when performing their duties.

[25] Ms. Landry agreed that if the space in between bins were increased, it would likely reduce stray radiation to some extent but clarified that, as confirmed in the Radiation Safety Institute of Canada (RSI) Report prepared by Dr. Caldwell in response to the directions, the radiation level at the operators positions on the X-ray machine would continue to be indistinguishable from background radiation.

[26] The X-ray machines at YHZ are equipped with metal shrouds at the entrance and exit of the machines which are 66 centimetres in length at the entrance and 71 centimetres in length at the exit on the operator side 153 centimetres in length on the public side, to ensure CATSA's care and

control of baggage. The shrouds have three sides and extend out from the X-ray machine over the conveyor belt and therefore prevent persons from coming within 50 centimetres of the X-ray machine's openings as required by Section 4.l.2(l)(i) of *Safety Code 29*. The conveyor belt beneath the shroud and the rollers continuing outward prevent persons from standing in front of the entrance to the X-ray or reaching into the machine. The shrouds also ensure compliance with the *Radiation Emitting Device Regulations* (Part IV, Section 2(3)(a)) which require that X-ray baggage machines must be designed to prevent the insertion of any part of the human body into the primary X-ray beam. *Safety Code 29*'s prohibition on unsafe acts by a person, including the exposure of a body part to the X-ray beam and the lifting of the lead curtains of an X-ray machine by a person, is also addressed by the X-ray machines' metal shrouds.

[27] Ms. Landry also identified the photograph of Line 5 at YHZ and identified the three different positions of the three screening officers working at the line and confirmed, in each case, that the operators were more than 50 centimetres from the entrance or exit to the X-ray machine. Ms. Landry identified paragraph 4.2.2 of *Safety Code 29* and the testing referred to in that paragraph which found, over a period of seven years, that screening officers properly operating an X-ray baggage machine are not exposed to unsafe levels of radiation. Ms. Landry confirmed that she was not aware of any testing that had reached a different conclusion to the testing referenced in *Safety Code 29*. The testing of the machines in question had been done in accordance with CATSA and NAVCAN guidelines as set out in Document 12, as acknowledged by Ms. Clark in her investigation report.

[28] The X-ray machine allows the operator to move the bins on the conveyor backward and forward to ensure a proper image of a single bag being X-rayed is obtained. The reference in the document to ensuring 12 inches between bins is only to allow for space between the bins for image quality. The 12 inch reference is unrelated to radiation safety. There are two references in CATSA's Standard Operating Procedures (SOP) to bins being spaced 30 centimetres or 12 inches apart; both references are only for the purpose of assisting in maintaining image quality for the operator of the X-ray machine and are wholly unrelated to radiation safety.

[29] Securitas called Dr. Curtis Caldwell to testify. Dr. Caldwell is the Chief Scientist, RSI. Prior to the hearing, during a pre-hearing teleconference held on May 14, 2018, the parties agreed that Dr. Caldwell was qualified to provide expert testimony on the subject matter of radiation safety. His written report dated November 10, 2017, was also admitted on consent as an exhibit and a revised version of that report dated November 18, 2017 was introduced on consent at the hearing). Dr. Caldwell holds a Masters in Medical Physics from McGill University and a PhD in Medical Biophysics from the University of Toronto. He has worked for most of his professional career as a consultant and as a Radiation Safety Officer for Sunnybrook Hospital, where he had overall responsibility for radiation safety. Dr. Caldwell's credentials and qualifications as an expert in radiation safety are unquestionable.

[30] Dr. Caldwell's testimony essentially reflected the testing, analysis and conclusions set out in his report prepared at Securitas' request further to Ms. Clark's directions. His testimony may be summarized as follows.

[31] Dr. Caldwell commented that, as a federally regulated employer, Securitas was required to comply with the *Canada Labour Code* and its applicable *Regulations* respecting X-ray safety. In particular, he pointed to the requirement to comply with Regulation 10.26 which references *Safety Code 21*—that has been superseded by *Safety Code 29*—dealing with the recommended safety procedures for selection, installation and use of baggage inspection X-ray equipment.

[32] The RSI was commissioned by Securitas to provide an independent analysis of the levels of X-ray radiation emitted from the Rapiscan Airport Security Baggage X-ray Machines located in Halifax. Two types of tests were done to measure the functioning of the Rapiscan machine. The first was static (shield testing) which involved scanning Lucite scattering blocks to test for shielding against the escape of radiation. The second type of testing was dynamic and involved what he referred to as "representative luggage bags". In this testing the representative bags simulated a more realistic scattering medium of typical travel baggage and related items as they were moving through the machine.

[33] Dr. Caldwell explained that the RSI testing at the Halifax airport involved the measurement of radiation at various points around the X-ray machine and was measured in *Roentgen* (µR). Dr. Caldwell specified that the tests were conducted in the presence of representatives of the parties and the information regarding the positions of the screening officers was provided by the workers' representatives. The measurements were taken over the course of two days and in the presence of workers' representatives, which Dr. Caldwell considered important given the concern raised by the respondents.

[34] Dr. Caldwell specified that doses using the Lucite blocks as the scatter medium will be higher than that which would be encountered during normal use. Leakage radiation measurements with Lucite in the scanning windows and the conveyer system disabled were, in all cases, below the regulatory limit of 500 µR/hour. When performing the second type of test mentioned above, Dr. Caldwell noted that, at the operator and other closest worker positions, the radiation survey indicated levels *indistinguishable* from background radiation. Levels at the plane of both entrance and exit shrouds were in single digit micro µR levels, the highest being 4 µR/5 minutes exposure. In other words, it was no different from what the average person would experience through normal everyday exposure to radiation. He also noted that no special effort was made to maintain gaps between the bins as bags pass through the X-ray machine during the testing, to address the concern raised by Ms. Doyle and Ms. Cleveland-Wood.

[35] Dr. Caldwell explained that the regulatory limit with respect to ionizing radiation for workers is 1 milliSievert (mSv)—which is equivalent to 100,000 micro µR—per year. This limit is the same for screening officers and members of the general public.

[36] Dr. Caldwell commented extensively on potential worker exposure to radiation. He felt it important to point out that many of the measurements taken that formed the basis of his report were taken from extreme positions where screening officer would have to literally be on top of the conveyor system, which, as Ms. Landry explained in her evidence, is not the case as screening officers always worked more than 50 centimetres from the entrance and exit of the Rapiscan machine. Notwithstanding this, Dr. Caldwell concluded that the screening officer

would have to be in these extreme positions for approximately 4,386 hour per year (which is impossible) before reaching the annual limit of 1 mSv for radiation exposure.

[37] He also described when he referred to as "a more likely scenario" where a screening officer would place their arm across the shroud opening to adjust the positioning of baggage that was still on the conveyor belt. In this scenario, in order for a worker to reach their yearly dose limit (1 mSv) for radiation exposure, they would have to keep their arms in this position for approximately 219,298 hours per year which is obviously impossible. Dr. Caldwell noted that "background" radiation exists at various levels throughout the world and for example, that the level in Halifax was, on average, 2.4 mSv per year, in Winnipeg 6 mSv per year.

[38] Dr. Caldwell also explained that, due to the nature of the X-ray beams, there is very little scatter from the X-ray baggage machine to points outside of the X-ray chamber. This scatter is minimized by the manner in which radiation scatters, the shielding that is contained inside the machinery, the lead drapes and the shrouds on the outside of the X-ray chamber that further reduce the likelihood of any radiation scatter getting into an area where screening officers work. Dr. Caldwell also commented that the intensity of the radiation dissipates as it moves further from the source.

[39] Dr. Caldwell also noted that, in his view, reference in *Safety Code 29* to lifting the lead curtains meant physically lifting them with a hand or arm and did not involve situations where the lead curtains were temporarily displaced as a bag passed though the X-ray chamber. In fact, he indicated that the curtains are designed to "wrap" the bag when it goes through the machine, and the presence of the bag at the entrance and exit of the tunnel becomes an obstacle that likely blocks even further any possible scatter of radiation.

[40] Dr. Caldwell's final conclusions are set out in his report at page 21 and are as follows:

> The result of the shielding integrity test conducted using Lucite blocks producing a "high scatter" environment indicated that all systems met Safety Code standards for shielding integrity. The test verified that all machines were functioning properly and shielded sufficiently to protect workers from exceeding legislated limits. Thus, when using Lucite as a scatter medium, none of the three machines exceeded the legislative limit.
>
> When more realistic tests were performed and bins containing representative baggage, the radiation exposure levels measured at worker positions around the baggage scanning systems tested were very low. In fact, at the usual positions where workers stand, measurements were no different from natural background radiation levels (i.e. radiation levels unrelated to use of any x-ray device, such as cosmic radiation and radiation from trace amounts of radioactive materials in building materials) suggesting that the systems are exceptionally well collimated and shielded.

[41] Dr. Caldwell's findings and conclusions were not challenged by the respondents' representative or by contrary expert evidence.

The respondents

[42] The respondents did not testify and did not call any witnesses.

Submissions of the parties

Appellants' submissions

Securitas

[43] Counsel for the appellant Securitas first sets out the relevant legislative and regulatory framework for the present appeal and submits that the ministerial delegate erred in finding that the operation of the Rapiscan scanning machines presented a danger to employees at the time of their refusals. Counsel stresses that the ministerial delegate's findings are primarily based on her interpretation of *Safety Code 29* and her mistaken impression that bags passing through the machine had to be spaced 12 inches apart or else it would potentially emit harmful radiation.

[44] In her testimony Ms. Clarke acknowledged that there was nothing in the *Safety Code 29* or in the Rapiscan Manual that required bags to be spaced 12 inches apart. In addition, when read in full context, it is clear that the provisions relied on by the ministerial delegate in *Safety Code 29* related to "persons" lifting the lead drapes while the X-ray beam is on, not bags partially disrupting lead drapes while bags were passing through. This interpretation is reinforced by the second part of the same sentence where it speaks about "exposing any art of the body to the X-ray beam ..." and to the explanatory note below which says that the X-ray inspection system is installed "to prevent lifting of the lead drapes ".

[45] Counsel for Securitas refers to Ms. Landry's testimony, when she pointed out that the references to spacing of bags in CATSA's SOP relates entirely to image quality and has nothing to do with radiation safety. Ms. Landry also testified that screening officer work positions are always greater than 50 centimetres from the entrance or exit of the X-ray machine.

[46] In summary, *Safety Code 29* and the Rapiscan Manual do not require the spacing of bags for the safe operation of the machine and the references to lifting lead drapes do not apply to the normal operation of the machine when bags pass through. Instead it deals with employees physically lifting the lead drape or exposing any part of their body to the X-ray beam when operating the X-ray machine.

[47] Counsel for Securitas referred to Dr. Caldwell's testimony and his expert report on the operation of the Rapiscan scanning machines which led to the refusals. He highlights Dr. Caldwell's findings and conclusion that there is simply no danger present, which are stated earlier in the present reasons. In conclusion, counsel for Securitas submits that based on Dr. Caldwell's report and testimony, as well as the evidence of Ms. Landry, it is abundantly clear that the Rapiscan machines were being used in accordance with the manufacturer's requirements and *Safety Code 29*, and they present absolutely no danger to employees. Indeed, even when tested under the most extreme conditions, employees would not come close to their limits of exposure to radiation. That evidence, in counsel's submission, should be determinative of the appeal.

[48] Therefore, the Rapiscan scanning machines pose no danger to employees and the appeal should be allowed and the direction rescinded.

CATSA

[49] Counsel for the appellant CATSA first referred to the testimony of Ms. Clark and Ms. Landry. He points out that Ms. Clark acknowledged that neither *Safety Code 29* nor the Rapiscan Operator Manual required any minimum spacing between bins, which is the foundation of Ms. Clark's finding of danger. He further referred to the evidence of Ms. Landry, which clearly establishes that the scanning machines were in compliance with all applicable regulatory requirements and that their operation did not present a danger to the scanning officers working around them. I summarized Ms. Landry's testimony earlier in the present reasons.

[50] Counsel for CATSA then referred to the expert report prepared by Dr. Caldwell and to his testimony at the hearing, which is summarized above. In conclusion, the testing disclosed that the all X-ray machines met the regulatory limits and, in fact, were safer than those limits. At the locations where the scanning officers work, the radiation levels were indistinguishable from background radiation. In other words, the results at these locations were the same when the X-ray machine was on as when it was off. Even at the plane of the entrance to the X-ray machine, the test disclosed that the levels were not above the 1 mSv/year threshold.

[51] Counsel points out that CATSA's SOPs, which are to be followed by screening contractors performing pre-board screening on behalf of CATSA at Canadian airports, do not prohibit the operation of the X-ray machine while the machines lead curtains are open or partially open. As noted by Ms. Landry, it is normal for the lead curtains of the X-ray machine to be open or partially open while passenger baggage is being screened. The bin spacing language is only for the purpose of ensuring proper imaging on the X-ray and is not related to the issue of radiation safety.

[52] Regarding *Safety Code 29*, counsel for CATSA submits that the unsafe acts by an operator referenced in Section 4.2.1 are intentional acts of an unsafe nature by an operator or other person. For example, the covering of the X-ray machines' "ON lights" or "X-ray warning signs". The specified acts also include exposing a body part to the "X-ray beam" and "lifting the lead drapes". It is submitted that this latter reference refers, as confirmed by Dr. Caldwell, to the manual lifting of the lead drapes by an operator or other person to gain access to the X-ray chamber and does not include the disturbance of the curtains by bags being X-rayed.

[53] Therefore, counsel concludes that is no evidence of any danger from exposure to unsafe radiation in respect of employees working on or near X-ray machines utilized in the pre-board screening checkpoints and the direction should be rescinded.

Respondents' submissions

[54] The respondents' representative submitted that Ms. Clarke's finding that the use or operation of the Rapiscan X-Ray Machines did in fact constitute a danger to the workers at the Halifax Airport. It confirmed the respondents' belief of potential imminent danger and the fact that Ms. Alicia Doyle and Ms. Tracey Cleveland-Wood were justified in invoking the work refusal action. Ms. Alicia Doyle and Ms. Tracey Cleveland-Wood had serious and legitimate concerns for their health and safety, and a justified fear of possible exposures from the Rapiscan machines. The representative also submits that adequate training on these machines was not provided to employees.

[55] Therefore, the respondents request that Ms. Clark's orders and direction be maintained. The respondents further request that Securitas provide proper and thorough health and safety training on the use of the Rapiscan X-ray machine and on any other new procedures and protocols implemented on the use of such machinery in the baggage screening process.

Appellant's Reply

[56] In reply, the appellants reiterated the fact that the expert evidence presented at the hearing clearly established that the X-ray screening machines posed no danger to employees, as acknowledged by the ministerial delegate herself in her testimony.

[57] They further submit that the direction under appeal did not address the issue of training and that issue was not a subject of the appeal. The respondents' representative directed questions concerning training to Ms. Landry who replied that that screeners were provided with training before the first unit of the X-ray machine was deployed but she did not have information on that training. No evidence was called by the respondents with respect to the adequacy of training by Securitas. Accordingly, there is no evidence at all about any inadequacy of training on the X-ray machine.

[58] Finally, the respondents request that Securitas be directed to provide training on the X-ray machine and any new procedures and protocols implemented regarding the use of such machines. As noted above, the issue of the adequacy of training was not an issue in the appeal and no evidence was adduced regarding any inadequacy of training received by Securitas employees. As such, there is no basis for any order with respect to training of employees regarding the use of the X-ray machine.

Analysis

[59] This appeal is filed pursuant to subsection 146(1) of the *Code*, against a "danger" direction issued by ministerial delegate Ms. Clark under paragraph 145(2)(a) of the *Code*. The direction was issued further to her investigation into the work refusal of the respondents, made pursuant to subsection 128(1) of the *Code*. Subsection 128(1) reads as follows:

> **128** . **(1)** Subject to this section, an employee may refuse to use or operate a machine or thing, to work in a place or to perform an activity, if the employee while at work has reasonable cause to believe that

> **(a)** the use or operation of the machine or thing constitutes a danger to the employee or to another employee;
>
> **(b)** a condition exists in the place that constitutes a danger to the employee; or
>
> **(c)** the performance of the activity constitutes a danger to the employee or to another employee.

[60] Central to the right to refuse is the concept of danger, which is defined in section 122 of the *Code* in the following manner:

> **122**. **(1)** In this Part,
>
> ***"danger"*** means any hazard, condition or activity that could reasonably be expected to be an imminent or serious threat to the life or health of a person exposed to it before the hazard or condition can be corrected or the activity altered;

[61] The definition of danger cited above was introduced with amendments brought to the *Code* by the *Economic Action Plan (2013) Act*, No.2, S.C. 2013, c. 40, and came into effect on October 31, 2014. The sole question raised by the present appeal is whether the ministerial delegate is correct in her finding of danger, as defined, in the circumstances that prevailed at the time of the refusals.

[62] Subsection 146.1(1) of the *Code* sets out the authority of an appeals officer when a direction concerning a "danger" is appealed. An appeals officer may vary, rescind or confirm the direction

> **146.1** (1) If an appeal is brought under subsection 129(7) or section 146, the appeals officer shall, in a summary way and without delay, inquire into the circumstances of the decision or direction, as the case may be, and the reasons for it and may
>
> **(a)** vary, rescind or confirm the decision or direction […]

[63] I must carry out the review in a *de novo* manner, meaning that I am not bound by the findings of fact or conclusions of the ministerial delegate and I may consider all relevant evidence relating to the circumstances that prevailed at the time of the direction, including evidence which may not have been available or considered by the ministerial delegate, *(DP World (Canada) Inc. v. International Longshore and Warehouse Union, Local 500 et al.,* 2013 OHSTC 3; *City of Ottawa (OC Transpo)* v. *MacDuff,* 2016 OHSTC 2).

[64] In order to come to a conclusion of danger, a number of elements must be established. These elements flow from the definition of danger and were aptly set out in *Correctional Service of Canada v. Ketcheson*, 2016 OHSTC 19 (*Ketcheson*), the first appeal decision to be rendered under the newly defined concept of danger, in the following manner*:*

> (i) what is the alleged hazard, condition or activity?
>
> (ii) (*a*) could this hazard, condition or activity reasonably be expected to be an <u>imminent threat</u> to the life or health of a person exposed to it

OR

(ii) (*b*) could this hazard, condition or activity reasonably be expected to be a serious threat to the life or health of a person exposed to it?

AND

(iii) will the threat to life or health exist before the hazard or condition can be corrected or the activity altered?

[65] In *Ketcheson,* the appeals officer considers the meaning of "threat", which is central to the definition of danger and states as follows:

> [198] In the New Shorter Oxford English Dictionary (1993) the word "threat" is defined as: "a person or thing regarded as a likely cause of harm". Thus, it can be said that based on that definition, a threat entails the probability of a certain level of harm. Some risks are threats and some are not. A very low risk, either because of low probability or because of low severity, is not a threat. Both probability and severity each have to reach a minimum threshold before the risk can be called a threat. It is clear that a low risk hazard is not a danger. A high risk hazard is a danger.
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> [Underlining added]

[66] Likewise, the appeals officer in *Keith Hall & Sons Transport Limited v. Robin Wilkins*, 2017 OHSTC 1, states as follows:

> [40] It also warrants noting that the concept of reasonable expectation remains included in the amended definition. While the former definition required consideration of the circumstances under which the hazard, condition, or activity could be reasonably expected to cause injury or illness, the new definition requires consideration of whether the hazard, condition, or activity could reasonably be expected to be an imminent or serious threat to the life or health of the person exposed to it. In my view, to conclude that a danger exists, there must therefore be more than a hypothetical threat. A threat is not hypothetical where it can reasonably be expected to result in harm, that is, in the context of Part II of the Code, to cause injury or illness to employees.
>
> [41] For a danger to exist, there must therefore be a reasonable possibility that the alleged threat could materialize, in other words, that the hazard, condition or activity will cause injury or illness soon (in a matter of minutes or hours) in the case of an imminent threat; or that it will cause severe injury or illness at some point in the future (in the coming days, weeks, months or perhaps even years) in the case of a serious threat. It warrants emphasizing that, in the case of a serious threat, one must assess not only the probability that the threat will cause harm, but also the seriousness of the possible harmful consequences from the threat. Only those threats that can reasonably be expected to cause severe or substantial injury or illness may constitute serious threats to the life or health of employees.
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> [Underlining added]

[67] The issue in the present case, therefore, is to determine whether the employees were exposed to a danger when they refused to work. The question is not whether their refusal was based on a reasonable apprehension of danger, but rather whether they were in fact exposed to a danger in their workplace. The danger must be established objectively by the facts.

[68] The alleged condition in the present case is the operation of the Rapiscan scanning machines when the curtains remain lifted and wrapped around a piece of luggage at the entrance or exit of the X-ray tunnel, when the machine is in function. The concern raised by employees is that they may be exposed to an unacceptable level of radiation in those circumstances, which they argue could be an imminent or serious threat to their health.

[69] Exposure to certain levels of radiation is known to have detrimental effects on the health of individuals. However, in *Damian Azeez and Canada Border Services Agency*, 2013 OHSTC 8, the appeals officer states as follows:

> There is common knowledge of the potential hazardous effects on the human body as a result of radiation exposure. However, what is crucial to distinguish in the issue at hand is not whether or not on that day of the refusal there was a risk that the appellant could be exposed to radiation from the mail coming from Japan, but whether or not the levels of radiation coming from that mail were sufficiently elevated to be considered hazardous to the appellant.
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> [Underlining added]

[70] Thus, the question that arises as regards to the circumstances prevailing on August 31, 2017 and at the time of Ms. Clark's investigation is whether the refusing employees were in fact exposed to unacceptable levels of radiation resulting in a threat (imminent or serious) to their health. That question is primarily a question of fact. In light of the evidence presented at the hearing, I find that there is simply no basis upon which a finding of danger could be made.

[71] Although the appeal is a *de novo* procedure, it is useful to first examine the basis upon which Ms. Clark came to her conclusion of danger. She concluded that in order to be operated safely and in compliance with *Safety Code 29* and the appellants' operational procedures, all bags passing through the X-ray machine had to be spaced 12 inches apart. Otherwise, it would cause the lead curtains from the Rapiscan machine to open and potentially allow harmful radiation to scatter outside the tunnel. Since *Safety Code 29* considered "lifting of the lead curtains" to be an improper and unsafe usage of the X-ray device, she concluded that employees' health was potentially endangered. Thus, the ministerial delegate's finding of danger is in large part based on her interpretation and understanding of *Safety Code 29*.

[72] That *Code* is incorporated by reference in subsection 10.26(1) of the COSH *Regulations*:

> **10.26 (1)** Where a device that is capable of producing and emitting energy in the form of ionizing or non-ionizing radiation is used in the work place, the employer shall

[…]

(b) if the device is referred to in subsection (2), implement the applicable document, as amended from time to time, published by the Department of National Health and Welfare, as specified in one of paragraphs (2)(a) to (k) or published by ANSI, as specified in paragraph (2)(i).

(2) For the purposes of paragraph (l)(b), the applicable document is

[…]

(c) in respect of baggage inspection X-ray equipment, Safety Code — 21, dated 1978;

[73] It is accepted that "*Safety Code 21*" referenced in Subsection 10.26 was superseded by "*Safety Code 29*", "Requirements for the safe use of Baggage X-ray Inspection Systems". Section 4.1.2 of *Safety Code 29* (Installation requirements and commissioning tests) and section 4.2.1 (Safe Operating Guidelines), which are the relevant sections for the purpose of the present appeal, provide in part as follows:

Section 4.1.2 Installation requirements and commissioning tests

Baggage x-ray inspection systems must be used in a manner that will minimize the number of people in close proximity, so as to lower the possibility of external x-ray exposure. The following requirements apply to all facilities:

1. Every baggage x-ray inspection system must be located in such a way that under conditions of use:

    1. individuals whose baggage (or other belongings) is to be screened with the x-ray inspection system must be more than 0.50 meters away from the access openings of the irradiation chamber while the x-ray beam is on; and
    2. members of the general public, excluding staff authorized to work with or near the systems and those individuals whose baggage (or belongings) is to be screened, must be more than 2 meters away from the x-ray inspection system.

Section 4.2.1 — Safe operating guidelines

Even though operational baggage x-ray inspection systems may conform to the requirements set out in the RED Regulations (Schedule II, Part IV) and preventive maintenance programs ensure safety and reliability, improper use may lead to unnecessary external x-ray exposures and accidents. To reduce this possibility, the following minimum guidelines apply to all facilities utilizing baggage x-ray inspection systems:

1. No person must commit any acts that cause unsafe events on an x-ray system when it is in operation. Lifting the lead drapes for any reason when the x-ray beam is on, or exposing any part of the body to the

x-ray beam, or covering the x-ray ON lights or x-ray warning signs are examples of unsafe events.
Note: Although an x-ray inspection system may be specifically installed or arranged to prevent lifting the lead drapes as indicated above, or to prevent access to the entrance and exit openings of the irradiation chamber, appropriate safety warnings (written statements coupled with suitable light indicators) must be **legible** and **in clear view** at the point where items are initially presented for x-ray screening.

2. No person must create physical or mechanical conditions that ultimately make the x-ray inspection system unsafe to operate. Defeating safety devices, placing liquid-filled containers on an x-ray inspection system, positioning x-ray inspection systems in confined spaces for carrying out routine maintenance and operational test functions, and positioning x-ray inspection systems for use in areas exposed to rain or snow are examples of hazardous conditions.

[74] *Safety Code 29* further provides, in part, in Section 4.2.2 "Personal exposure monitoring" as follows:

> The results of extensive radiation surveys performed by the Bureau of Radiation Medical Devices have shown that when baggage x-ray systems comply with the RED Regulations (Schedule II, Part IV) and are maintained and operated by competent personnel, there is no detectable radiation exposure above natural background to the operator. In addition, an analysis of stray radiation survey data that spanned an eight-year period (1978-1985) revealed that the estimated exposure at the positions occupied by baggage x-ray system operators were indistinguishable from background radiation levels. There is no evidence of increased cancer risk at natural background levels. Hence, personal monitors are neither required nor recommended.
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> [Underlining added]

[75] Ms. Clark's understanding that in order for the Rapiscan machines to operate safely, a 12-inch separation was required is contradicted by the uncontested evidence presented at the hearing. That evidence is compelling: the factual assumption which underlies Ms. Clark's direction is simply incorrect. The testimony of Ms. Landry and of Dr. Caldwell is that the 12-inch separation referred to in CATSA's SOPs have nothing to do with radiation safety, but is there to ensure the quality of the image projected by the scan. The situation described by the employees reflects the normal operation of the Rapiscan machines.

[76] The supplementary explanation provided to the employer setting out her rationale are also quite revealing, in that they show that her direction is founded on the existence of what she saw as a potential threat to the health of the employees. The notion of potential threat was discussed in the case law—under both the former and present definitions of danger–to address the likelihood of occurrence of future events and mostly in relation to situations involving unpredictable human behaviour, such as in penitentiary settings, cash-in-transit industry, law enforcement activities, and the like. In those cases the material facts

establishing the presence of a potential threat are clearly established in the evidence. In other words, a danger can be prospective, and it is the likelihood that the threat may materialize in the future before the hazard can be corrected, that is being assessed under the "reasonable expectation" requirement of the definition. This element must however be assessed in relation to material facts that, once established, are capable of forming the basis of a finding of a threat being present. In my view, Ms. Clark misapplied the concept of potential threat and her finding of there being a reasonable expectation of a threat in the circumstances she describes is without factual foundation.

[77] A danger does not include situations which are hypothetical or speculative, or mere apprehension that a given situation may constitute a threat to the employee. In that sense, the threat—whether actual or potential—must be real and based on established facts, or inferred from those facts. It must be founded on material facts that establish a reasonable possibility that an employee's health will be threatened, either in the immediate (imminent) or in the longer term (serious).

[78] Ms. Clark quite simply did not have those facts before her. She issued the direction based on her belief that the lack of separation between bins/bags causing the drapes to be lifted was a problem and may cause unacceptable radiation emissions, without having at least some *prima facie* evidence of abnormal levels of radiation or malfunctioning of the scanners. In my view, this falls short of establishing the facts from which to draw a reasonable expectation of a threat being present.

[79] But regardless, I am now examining the matter *de novo* and must determine whether the employees were exposed to a danger, in light of the facts presented to me at the hearing. The measurements conducted on the machines and the resulting findings by Dr. Caldwell establish clearly that the level of radiation emitted in the circumstances described by the employees are well within acceptable levels and do not exceed the "background" exposure to which any individual is exposed. At the locations where the scanning officers work, the radiation levels were indistinguishable from background radiation. In other words, the results at these locations were the same when the X-ray machine was "on" as when it was "off". Even at the plane of the entrance to the X-ray machine, the test disclosed that the levels were not above the 1 mSv/year threshold. My summary of Dr. Caldwell's conclusions and excerpts of his expert report are compelling and determinative of the appeal. The evidence is that the Rapiscan machines were functioning correctly, and had been installed, verified and operated in compliance with the requirements of *Safety Code 29*. There is no suggestion that the situation was any different at the time of the refusals on August 31, 2017.

[80] This evidence also convinces me to accept Dr. Caldwell's understanding of the purpose of the provisions of the *Safety Code 29* which prohibit the lifting of the curtains: this is meant to prevent a person from manually lifting the drapes while the machine is in operation, and which would obviously bring the person within less than 50 centimetres of the source of radiation. I also note Dr. Caldwell's comment that the bag itself located at the entrance/exit of the tunnel would block even further possible scatter of X-rays, as the curtains do not completely block the entrance/exit of the tunnel even when they are not lifted. Such statement is consistent with the testing and radiation readings effected in the circumstances as described by the employees.

[81] Had Ms. Clark obtained readings of radiation that were higher than the acceptable norm in the course of her investigation, then she would arguably have been correct in concluding that the situation could reasonably be expected to present a threat to health. In spite of the fact that radiation is not inherently harmful and the damage to health depends on the level and duration of the exposure, a danger finding would arguably have been opened to her, and would have been consistent with the objective of prevention underlying the *Code*. I am, of course, making no determination on that hypothesis.

[82] Accordingly, I find that Ms. Clark's direction is not supported by the facts and the evidence does not establish the presence of a hazard or a threat to the health of the refusing employees, and, therefore, cannot support a finding of danger as defined in the *Code*. Ms. Clark acknowledged that she is not an expert in the field of radiation safety, and ostensibly based her finding of danger on her fear that the operation of the machines may pose a threat ("potential threat").

[83] My understanding of what motivated Ms. Clark's actions is consistent with the somewhat unorthodox decision that she communicated to the parties further to her investigation, that of a declaration of "danger, but without work stoppage". Both parties were rather perplexed in the face of such conclusion, justifiably so. The right to refuse to work in the presence of a danger is one of the fundamental pillars of the protection afforded by the *Code*. As the appeals officer points out in *Ketcheson,* it is a right of last resort, designed to deal with the most serious hazards which the panoply of preventive measures included in *Code* may not effectively deal with. Under that scheme, a refusal to work and a subsequent finding of danger by either the employer, the committee or a ministerial delegate entitles the refusing employee to continue to refuse to work. This is what subsection 129(6) of the *Code* prescribes.

[84] In my view, the direction as framed is not consistent with the scheme of the *Code*. Once a danger is found, it follows that employees have a statutory right to cease performing the work, as provided by subsection 129(6) of the *Code*. Whether the danger is as a result of an imminent or serious threat, it is a danger altogether and the ministerial delegate has no discretion to modify the operation of that provision of the *Code*. With respect, Ms. Clark misconstrued the application of the definition of danger in the remedy that she fashioned at the outcome of her investigation. In the best of light, I construe her "danger without work stoppage" order as an indication that she chose to "err on the side of caution", since she admittedly could not determine whether the respondents were exposed to unacceptable levels of radiation that could present a health hazard to them. She had no measurements to that effect, is not an expert in radiation safety and was not accompanied by such an expert, who could have taken samples and measurements during the course of the investigation. However, in light of the evidence establishing without a doubt that radiation emissions were well below the norm, there simply was no threat, real or potential, and Ms. Clark had no basis upon which to find that the employees were exposed to a danger.

[85] I am not suggesting that Ms. Clark had no option, when faced with the concerns expressed by the refusing employees and the uncertainty of the situation. In fact, she did issue on the same date a companion direction enjoining the employer to appoint a "qualified person" to carry out an investigation, as she felt that the health of employees "may be endangered by exposure to a

hazardous substance", namely X-ray radiation, as contemplated by subsection 10.4(1) of the *Regulations*. As I am not seized of an appeal against that direction, I will go no further than noting that the *Code* does envisage other approaches aimed at preventing accidents and illnesses, short of a finding of danger. As it turns out, such investigation and testing should have been the first measure to undertake in order to obtain the necessary factual information regarding the levels of radiation and whether such levels presented a threat to the employees' health. As we now know, there was clearly no such threat; indeed, Ms. Clark testified that she would not have issued her direction in light of the measurements and conclusions set out in Dr. Caldwell's analysis.

[86] Finally, the respondents' submissions that they were not provided with adequate training to operate the machines is immaterial to the reasons of their refusal and the basis of the direction under appeal. Moreover, there is simply no evidence on the record to reach such conclusion. The employees did not testify and the only evidence is that of Ms. Landry, who stated that, to her knowledge, the refusing employees had received the necessary training on the Rapiscan machines and *Safety Code 29*. Furthermore, the e-mails exchanged between Securitas officials and Ms. Clark following September 2, 2017 (included in the investigation report) establish, at least in a *prima facie* manner, that the refusing employees had been provided with training on the operation of the Rapiscan scanning machines. Consequently, there is no basis upon which I can find that the refusing employees were inadequately trained.

Decision

[87] For the above reasons, the appeal is upheld and I rescind the direction.

Pierre Hamel
Appeals Officer