

Case No.: 2005-21
Decision No.: CAO-07-029

Canada Labour Code
Part II
Occupational Health and Safety

Canadian Union of Public Employees
(CUPE) - Air Canada component
appellant

and

Air Canada
respondent

August 31st, 2007

This case was heard by Appeals Officer Pierre Guénette, in Toronto, Ontario, on November 22 and 23, 2005, December 20, 2005, March 29, 30 and 31, 2006, April 4 and 5, 2006 and June 2, 2006.

Appearances

For the appellant

James Robbins, Counsel for CUPE

For the respondent

Rhonda Shirreff, Lawyer for Air Canada

- [1] This case concerns an appeal brought under subsection 129(7) of the *Canada Labour Code* (the *Code*), Part II, by Karen Salt, employee co-chair of the Toronto workplace health and safety committee, Air Canada component of CUPE. K. Salt filed the appeal on behalf of Rehab Rivers, an Air Canada in-charge flight attendant working on the round trip Toronto- Vancouver flight no. 101. The appeal is about a decision of absence of danger that health and safety officer (HSO) Bob Gass rendered on March 14, 2005.
- [2] HSO Gass testified at the hearing and submitted his *Investigation Report and Decision* on the work refusal, of which I retain the following.

- [3] HSO Gass testified that R. Rivers refused to work because only one of two air packs¹ was functioning on the aircraft. The employee wrote on her written refusal to work statement that:

Conditions expected to cause injury or illness existed before the hazard or condition can be corrected. Based on a previous incident on A321 with only one pack, I can say I felt my health and safety was at risk of suffering from poor air quality namely hypoxia.

- [4] HSO Gass stated that the flight captain met with the crew and briefed them on the measures that he would take during the flight to provide the crew members and passengers with a comfortable environment.
- [5] In his report, HSO Gass wrote that the work being accomplishing by R. Rivers at the time of her refusal was boarding the aircraft for take off.
- [6] HSO Gass specified in his report that flying the aircraft under this condition was legal according to the *Minimum Equipment List (MEL)*², if measures were taken to compensate for an unserviceable air pack.
- [7] HSO Gass stated that employee members of the health and safety committee consulted crew members at the conclusion of the flight in Vancouver. No crew members complained that they suffered any adverse reactions on the flight, despite that only one air pack was in operation.
- [8] HSO Gass concluded in his report that:

It is my decision that the condition that existed on board flight 101 did not constitute a danger as defined in the *Canada Labour Code* Part II.

Appellant's witnesses

- [9] R. Rivers testified at the hearing. I retain the following from her testimony.
- [10] On March 14, 2005, R. Rivers was assigned to work on the round trip flight no. 101 from Toronto to Vancouver as the in-charge flight attendant. After learning from another crew member that only one air pack was functioning, she came into the flight deck to inform the captain that she would not work on the flight because of the inoperative air pack.
- [11] R. Rivers called and informed an In-Flight Services Manager and Human Resources of her refusal to work.

¹ The air pack provides air exchange and cool air inside an aircraft.

² The *Minimum Equipment List* is an approved document within the *Canadian Aviation Regulations* that authorizes an air carrier to operate a specified type of aircraft with essential aircraft equipment inoperative under specific conditions.

- [12] R. Rivers said that she decided to refuse to work after being informed by the captain that only one air pack was functioning and that the following necessary steps would be taken to ensure more oxygen would be available, in accordance with the *MEL*:
- the flight altitude would be limited to a lower level (30,000 feet);
 - the remaining air pack would be operated at full capacity and the cabin would be kept as cool as possible.
- [13] Despite discussions with a manager, R. Rivers continued her work refusal and a health and safety officer was called to investigate the matter.
- [14] R. Rivers told her supervisor that she had experienced a similar air pack malfunction on a previous flight in July 2004, on board the same type of A-321 aircraft. During and after that flight, she and other crew members experienced fatigue, nausea, headaches, dizziness and a lack of coordination. She felt that the health problems were related to hypoxia³ and added that she did not want to experience the same symptoms as on the July 2004 flight.
- [15] R. Rivers said that during HSO Gass' investigation, she explained to him that because of the previous situation in July 2004, she did not feel that she could work safely on-board because her symptoms were related to the unserviceable air pack. She added that other crew members had the same symptoms on the return flight: some flight attendants dropped coffee pots on the ground; some passengers complained from the beginning of the flight about headaches and nauseas; and the temperature inside the plane was hotter than normal.
- [16] R. Rivers told HSO Gass that based on her previous training, she knew that it was an air quality issue closely related to hypoxia. She stated that hypoxia affects one's coordination and ability to function during emergency situations. It can cause somebody to drop a coffee pot on someone or inadvertently disarm an exit door.
- [17] R. Rivers said that only during a short flight of less than 90 minutes is it safe to work on an aircraft where only one air pack functions properly.
- [18] R. Rivers declared that HSO Gass told her that he was only investigating the actual incident.
- [19] Dr. Douglas Walkinshaw, President of Indoor Air Technologies Inc., testified at the hearing as an expert witness on indoor air quality for the appellant. R. Shirreff, Counsel for the respondent, did not oppose Dr. Walkinshaw's testimony, of which I retain the following.
- [20] Dr. Walkinshaw said that his current position was engineer and indoor air quality investigator. He has conducted over 300 indoor air quality investigations in buildings and aircrafts in Canada and the United States. He has testified as an expert witness on ventilation requirements and measurements in the context of an aircraft flight attendant indoor air quality issue in Montreal, Quebec.

³ Hypoxia is a state of oxygen deficiency in the body, which is sufficient to cause an impairment of function. Hypoxia is caused by the reduction in partial pressure of oxygen, inadequate oxygen transport, or the inability of the tissues to use oxygen.

- [21] In respect of the two flights involving R. Rivers, Dr. Walkinshaw declared that he had not conducted air quality tests and was not aware of tests done following those two flights.
- [22] Dr. Walkinshaw explained that his opinion was based on the following documents:
- aircraft manufacturer's data;
 - aircrafts maintenance reports;
 - Environment Canada's weather data at Toronto Pearson Airport and Vancouver Airport;
 - data from a previous study done by BRE⁴. The National Research Council of Canada is the equivalent organization;
 - hourly data report on the July 17, 2004 flight;
 - data on the Boeing 737.
- [23] Dr. Walkinshaw declared that when he conducts indoor air quality complaint investigations, he measures air contaminant samples to analyse the volatile organic compounds (VOCs). The purpose of the analysis is to identify the problem level and recommend solutions on the ventilation rate, the moisture barrier and carpet maintenance.
- [24] Dr. Walkinshaw explained that he did not collect data from either flights, but he did some extrapolations of the data already available. He opined that a failed air pack has an impact on air quality in the cabin. However, he stated that the following factors could also affect the cabin air quality:
- the age of aircraft filters;
 - the VOCs;
 - the level of humidity.
- [25] Dr. Walkinshaw declared that the VOCs can only be removed from the cabin by ventilation. VOCs contamination increases with higher temperature. Therefore, mould and fungus will grow if there is a difference of 5° C, which could create toxic gas.
- [26] Dr. Walkinshaw stated that with an unserviceable air pack, the ventilation rate is reduced and the humidity level increases in the cabin. A high humidity level will be associated with an increased use of gasper outlets.
- [27] Dr. Walkinshaw testified that air quality complaints have been made regarding buildings where the average VOCs levels were determined to be 523 microgram/cubic metre. He estimated that the level of VOCs would reach 1500 micrograms/cubic meter in an A-321 airplane where there is a failed air pack. This was almost three times the levels found in buildings with air quality problems. He added that the duration of a flight with only one air pack in operation would affect the air quality in the cabin. He reiterated that an A-321 airplane where only one air pack is operational has ventilation rates below minimum industry standards.

⁴ The United Kingdom BRE Group is a world leading research, consultancy, training, testing and certification organization delivering sustainability and innovation across the built environment and beyond. BRE provides the aviation industry with expert advice on cabin environment issues, particularly air quality in passenger aircrafts.

- [28] In Dr. Walkinshaw's opinion, there are differences in the two flights that impact on air quality, but the VOCs are the same because they come from the same sources:
- time of year (spring vs. summer);
 - maintenance history of each aircraft;
 - level of use of the personal air device by occupants (higher level means less air for flight attendants);
 - engine load;
 - runway conditions with the exhaust fumes coming from the front aircraft; and
 - packing occupancy (carry-on luggage).
- [29] Dr. Walkinshaw testified that the air quality standard applicable to aircrafts is the American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) Standard 62-1989, *Ventilation for Acceptable Indoor Air Quality*. This standard also applies to transportation vehicles, including trains, buses and planes. According to him, a new ASHRAE standard is also being proposed specifically for aircrafts, *Standard 161, Air Quality within Commercial Aircrafts*.
- [30] In cross-examination, Dr. Walkinshaw said that the ventilation system between the two airplanes is different. He added that the following several factors could vary from one flight to another:
- number of occupants;
 - humidity level;
 - what cabin occupants are wearing (perfumes, body odour, etc.).
- [31] Dr. Walkinshaw also declared in cross-examination that during his testimony, he made assumptions based on data extruded from different sources. His experience with respect to indoor air quality is mostly related to office buildings, but he has been working more often on aircraft air quality issues in the last two years.
- [32] Dr. Bruce M. McGoveran testified at the hearing as an expert witness for the appellant on the medical impact of an air pack failure. Counsel for the respondent did not oppose Dr. McGoveran's testimony, of which I retain the following.
- [33] Dr. McGoveran stated that he is an occupational health physician who provides services in that field to different organisations. He explained that he considered the following data and information with respect to R. Rivers' symptoms:
- flight reports of the July 2004 and March 2005 flights;
 - conversations with R. Rivers;
 - R. Rivers' medical file, from May 2002 to November 2005;
 - notes taken during R. Rivers' testimony;
 - Dr. Walkinshaw's data;
 - articles provided by CUPE with respect to cabin air quality issues:

- *Trends in Cabin Air Quality of Commercial Aircraft: Industry and Passenger Perspectives*⁵;
- Report to the Administrator on the National Research Council Report, entitled *The Airliner Cabin Environment and the Health of Passengers and Crew*⁶;
- *The Perspective of Canadian Flight Attendants on Cabin Air Issues*⁷;
- *Physical Demands of Cabin Personnel*;
- ASHRAE Standard 62-2001, *Ventilation for Acceptable Indoor Air Quality*;
- Proposed new ASHRAE Standard 161, *Air Quality within Commercial Aircraft*⁸;
- Air Canada data – Air flow rates and volumes: A321; and
- medical evidence literature.

[34] However, Dr. McGoveran explained that the ideal data to consider would have been the following:

- data from the entire cycle of both flights;
- interview with R. Rivers immediately after the incident of July 2004;
- information from passengers with respect to their medical history and the related symptoms; and
- information about the duration of the unserviceable air pack.

[35] In Dr. McGoveran's opinion, the symptoms experienced by R. Rivers in July 2004 were related to the failed air pack. It is possible that during the March 2005 flight, she experienced the same symptoms. He opined that the failed air pack is the most probable cause of R. Rivers' symptoms, because it decreased the level of air in the cabin.

[36] Dr. McGoveran explained that R. Rivers had not experienced those symptoms before the July 2004 flight. She had them that day on the return flight and it was only in-between flights, in Vancouver, when she had some fresh air that her symptoms diminished. He declared that she was still experiencing fatigue following those flights.

[37] Dr. McGoveran stated that the symptoms experienced by R. Rivers were consistent with the medical literature. Since, as well, a certain number of persons had the same symptoms during the flight, he believed that they were related to an environmental exposure rather than to an allergy.

[38] In Dr. McGoveran's opinion, no symptoms were reported on the March 2005 flight because the cabin temperature was lower than on July 2004, which means a lower exposure to VOCs. Also, the period of time when the C-check⁹ was performed on both aircrafts could also have made a difference as to the air filter.

⁵ Written by Professor Martin B. Hocking, Chemistry Department, University of Victoria, Victoria, British Columbia, Volume 17, No. 1, 2002.

⁶ Prepared by the Airliner Cabin Environment Report Response Team and dated February 6, 2002.

⁷ Presented to the ASHRAE Aviation Subcommittee of TC 9.3 (Transportation) by France Pelletier, Division Health and Safety Chairperson, on June 23, 1998.

⁸ Public Review Draft, dated September 15, 2004.

⁹ The C-check is an aircraft maintenance check performed approximately every 12-18 months. This maintenance

- [39] Dr. McGoveran stated that R. Rivers' health condition before the July 2004 flight was not related to the symptoms she experienced during the flight. In his opinion, R. Rivers was feeling well before that flight. The medical evidence confirmed that R. Rivers' symptoms during the July 2004 flight were related to the failed air pack.
- [40] In cross-examination, Dr. McGoveran declared that he did some study with respect to cabin air quality occupancy, but it did not deal with the air quality effect on flight attendants and neither were the documents he consulted related to aircraft air quality. He said that he became familiar with aircrafts air conditioning systems based on information received from Mr. Robbins.
- [41] Dr. McGoveran declared that he relied on R. Rivers' testimony regarding passengers' symptoms and he did not check the passengers' medical condition. Therefore, he did not have the opportunity to validate the information with them.
- [42] France Pelletier, Division Health and Safety Chairperson, testified at the hearing. I retain from her testimony that she has occupied this position since 2002 and was a flight attendant several years before that.
- [43] F. Pelletier has been involved in the development of the new ASHRAE standard with respect to air quality on-board aircrafts as a voting member of the standard committee.

Respondent's witnesses

- [44] Jay Musselman, Line Operations Manager at Air Canada, testified at the hearing that he was informed of R. Rivers' refusal to work by the In-Flight Manager. At that time, the aircraft had already left for Vancouver.
- [45] J. Musselman met with HSO Gass. In his capacity, he gave him the flight operations perspective. He told him about the impact of an unserviceable air pack on flight operations and explained the *MEL* requirements in such a situation. He also said to HSO Gass that despite an unserviceable air pack, the level of oxygen will stay the same in the cabin.
- [46] However, in cross-examination, J. Musselman stated that the ventilation system in the cockpit is separate from the cabin. He also declared that he had never dealt with air quality issues in the past.
- [47] J. Musselman stated that it is unusual to have an unserviceable air pack, but that its impact is not significant from the pilots' perspective. He added that a failed air pack has an effect on cabin temperature and fresh air.
- [48] Kay Mackenzie, Air Canada Aviation Occupational Safety and Health Manager, also testified at the hearing. I retain the following from her testimony.

- [49] K. Mackenzie was involved in the employer's investigation following the work refusal of R. Rivers. After being informed of the work refusal, she met with R. Rivers, to make sure she understood the situation. She made arrangements to replace R. Rivers on that particular flight.
- [50] K. Mackenzie met with the captain, who told her that he held a debriefing with the crew before the flight. K. Mackenzie declared that the captain did not understand why R. Rivers refused to work, because in his mind it was safe to fly with an inoperative air pack. Following her meeting with him, he got permission to dispatch the aircraft and left Toronto for Vancouver.
- [51] K. Mackenzie said that her role during HSO Gass' investigation was to explain her actions and why the employer did not agree that a danger existed. Her rationale was that it was safe to fly if the captain followed the *MEL* restrictions. However, she admitted that her decision did not take into consideration the incident of July 2004 involving R. Rivers.
- [52] K. Mackenzie said that following a request from HSO Gass, she informed the Air Canada Safety Operations and Products Manager in Vancouver of the work refusal and asked her to get statements from crew members and passengers on their arrival in Vancouver.
- [53] K. Mackenzie stated that crew members were interviewed after the passengers,. She received written reports from the Vancouver manager and provided a copy to HSO Gass for his determination.
- [54] In cross-examination, K. Mackenzie declared that she was not familiar with hypoxia symptoms. She also said that the unserviceable air pack of the aircraft was fixed the next day. There was no more follow-up because the company did not get any complaints from passengers or injury reports from crew members.
- [55] K. Mackenzie explained that she asked the Vancouver manager not to put leading questions related to air quality issues to the passengers, because she did not want them to use this opportunity to sue Air Canada.
- [56] Dr. Edward Bekeris is a medical doctor and Assistant Senior Director for Air Canada Health Services. He testified as an expert witness for the appellant on the impact of having one operational air pack on board. J. Robbins, Counsel for the appellant, did not oppose Dr. Bekeris' testimony as a medical expert, of which I retain the following.
- [57] Giving his opinion as a doctor, Dr. Bekeris stated that the symptoms experienced by R. Rivers during her flight in July 2004 could not be attributed to an unserviceable air pack, because they were not specific to anything in particular. He provided the same medical opinion regarding R. Rivers' reasons to refuse to work on the March 2005 flight. He added that when only one air pack is in operation, aviation parameters will be adjusted by pilots, one of them being to fly at a lower altitude.

- [58] Dr. Bekeris explained the various evidence he considered before providing his medical opinion. They were:
- the testimony of R. Rivers;
 - the testimony of Dr Walkinshaw;
 - the testimony of Dr. McGoveran;
 - the documentary evidence submitted during the hearing;
 - the Air Canada *Flight Report - Injury/Illness/Incident* of July 17, 2004.
- [59] Dr. Bekeris said that the symptoms described by R. Rivers' statement in the flight report were very general and could not be related to anything specific. He declared that the report did not contain enough information to link R. Rivers' symptoms to the inoperative air pack. They could hypothetically be related to air quality, but they could also be linked to the flight operations as such, for example to manoeuvring and turbulence, or to the on-board crew (including R. Rivers) personal medical impairment. However, he did not have access to R. Rivers' medical file.
- [60] Dr. Bekeris opined that the symptoms experienced by R. Rivers could have resulted from other factors than hypoxia. Referring to the *Flight Report - Injury/Illness/Incident* of March 2005, he said that the symptoms described by R. Rivers on her July 2004 return flight could be related to numerous factors.
- [61] Dr. Bekeris disagreed with Dr. McGovern's opinion because the symptoms were too general and not specific enough. He added that there was no indication that R. Rivers may have been already sick on that day.
- [62] Referring to a study done by Dr. Walkinshaw, Dr. Bekeris believed that the data were not persuasive because they dealt with different types of aircrafts than the ones involved in the July 2004 and March 2005 flights. , They also referred to higher flying levels (39,000 feet) than the ones maintained during the two flights. Furthermore, the manoeuvring and turbulence affecting an aircraft are important factors to consider, which was not done by Dr. Walkinshaw. Finally, Dr. Bekeris said that R. Rivers' symptoms could not be related to data resulting from a non-controlled environment.
- [63] As to R. Rivers' asthma history, Dr. Bekeris believed that it was significant, because the symptoms of that condition can worsen at higher altitude. In his opinion, R. Rivers' asthma could cause her to experience hypoxia symptoms. In cross-examination however, Dr. Bekeris said that hypoxia could not be related to specific symptoms.
- [64] Dr. Bekeris stated that volatile organic compounds could have an impact on health. Nevertheless, contrary to Dr. Walkinshaw's opinion, he opined that VOCs have no impact on health symptoms linked to a failed air pack, because there is no related operational data evidence. However, he did not know what caused R. Rivers' symptoms and he could not say if the symptoms experienced by a person who did not have a pre-existing condition were related to the failed air pack.

- [65] Finally, Dr. Bekeris stated that he did not examine R. Rivers or other crew members or passengers of the July 2004 flight nor review R. Rivers' personal file.

Appellant's submission

- [66] James Robbins submitted written arguments for the appellant, of which I retain the following.
- [67] J. Robbins stated that the cabin ventilation on an Airbus A-321 is affected when there is an air pack failure and this constitutes a danger within the meaning of Part II of the *Canada Labour Code*.
- [68] J. Robbins argued that R. Rivers has been trained to recognize signs of hypoxia, as part of the basic training and recurrent training of a flight attendant. R. Rivers identified the following symptoms of hypoxia: headache, dizziness, fatigue, nausea, lack of coordination, extreme blueness of lips, visual impairment and unconsciousness. On the one hand, she was right to associate her symptoms to air quality, but on the other hand, she was incorrect but reasonable in attributing her symptoms to hypoxia. However, he argued that Dr. McGovern opined that R. Rivers experienced hypoxia symptoms when she felt a headache, fatigue and lack of coordination. He added that Dr. Bekeris also testified that the symptoms experienced by R. Rivers were symptoms of hypoxia.
- [69] With respect to the responsibility of crew members to respond to on-board emergencies, J. Robbins raised the issue of crew members who are suffering from dizziness, headaches, fatigue, nausea and loss of coordination, which is dangerous to crew and passengers alike. He added that Dr. Bekeris testified that those symptoms would interfere with a crew member's ability to function in an emergency situation.
- [70] J. Robbins stated that there is unchallenged expert evidence regarding the levels of contaminants, especially VOCs, which become elevated in an aircraft cabin when an air pack fails. Medical expert evidence further indicates that those elevated levels of contaminants were associated with symptoms experienced by R. Rivers, her fellow crew members and passengers of the July 17, 2004 flight. He argued that R. Rivers' illness is similar to the medically recognized "Sick Building Syndrome".
- [71] J. Robbins referred to Dr. McGovern's testimony on the relevant occupational illness indicators applicable to this case. Dr. McGovern noted that R. Rivers only had symptoms during the return flight to Toronto, on July 17, 2004. Other crew members and some passengers reported the same symptoms on that flight. Except for the flight crew, passengers were unaware of the failed air pack, which means that they did not assume that their symptoms were related to it. Moreover, the symptoms were consistent with elevated VOCs levels in indoor air quality studies.
- [72] J. Robbins further recalled that Dr. McGovern had opined that it was reasonably likely that R. Rivers' symptoms resulted from a failed air pack because it increased exposure in the cabin to a level that was sufficient to cause symptoms. This was based on reasoning consistent with typical occupational medicine studies of exposure outcome relationships.

- [73] In addition, J. Robbins listed the significant factors of the exposure outcome relationship stated by Dr. McGovern in his testimony:
- (a) Temporal relation: the critical factor in temporal relation to conclude symptoms resulted from workplace exposure are: absence of symptoms before exposure; onset during exposure; disappearance after exposure.
 - (b) Presence of irritant symptoms in many people rather than one presents a more compelling case for workplace exposure as resulting in the symptoms;
 - (c) Control for “placebo” effect: Although in occupational medicine, random control tests using placebos are usually impossible to conduct, lack of knowledge of an exposure provides a similar control: Where people present with symptoms and are unaware of an exposure which may be causing them, it presents a more compelling case for an association of exposure and outcome than one where people know of an exposure and present with symptoms;
 - (d) Literature on indoor air quality and “sick building syndrome”: there is good and growing evidence for the association of exposure to poorly ventilated indoor air and development of certain symptoms. These are typically multiple symptoms and include neurologic symptoms such as headache, fatigue, incoordination/ clumsiness.
- [74] J. Robbins argued that Dr. McGovern’s opinion should be preferred over Dr. Bekeris’, because Dr. McGovern took into consideration more relevant information and his opinion was more consistent with typical occupational medicine studies of exposure outcome relationships. He pointed out that during his testimony Dr. McGovern opined that the symptoms experienced in July 2004 were more likely to be related to the environment than to the individuals.
- [75] As to the March 14, 2005 flight, J. Robbins argued that there are two reasons why the absence of complaints and a lack of evidence are not sufficient to determine an absence of danger:
- the absence of complaints on the March flight did not mean that nobody on the flight experienced symptoms as a result of poor air quality;
 - some fortuitous circumstances may have reduced the impact of the failed air pack on air quality on that flight.
- [76] J. Robbins also referred to the testimony of Dr. Walkinshaw regarding the different conditions on the two flights that may have led to different levels of VOCs. These conditions were the following:
- the weather was hotter in July than in March, and there is greater microbial activity and biological particles (fungi and allergens) during the summer period;
 - in July, more VOCs are released into the air than in March;
 - the time during which the aircrafts operated with an inoperative air pack would affect the air quality;
 - the runway conditions relatively to the time spent on the ground and whether the aircraft was behind other airplanes, in which case exhaust contaminants could have an effect on the contaminant levels on-board; reduced ventilation would also increase the level of contaminants;

- the interior air quality while on the ground could increase contaminant levels;
- some maintenance products (paint and anti-corrosion material sprayed on the fuselage) could increase the level of contaminants;
- dampness of the insulation affected by weather and the flight history and maintenance has an effect on VOCs production; and
- occupancy and passengers' personal effects on-board will affect contaminant levels.

[77] In addition to these factors, J. Robbins also referred to the testimony of Dr. McGovern, who listed reasons why an unserviceable air pack might produce symptoms on one flight but not on another. They were:

- on the March flight, the exposure to VOCs would have been lower because the ground temperature was lower and apparently the cabin temperature was also lower;
- passengers who are sleeping are exposed to a lower level of VOCs, because they breathe less deeply;
- the time difference between the routine maintenance, where cleaning products are used to destroy VOCs, and the flight itself implies different level of exposures; and
- the personal medical history of passengers: some passengers may have thought that the symptoms there were experiencing were related to their medical condition instead of environmental conditions.

[78] As to the investigation performed by HSO Gass, J. Robbins said that the officer had no training on aircraft issues, that he had never been involved before in such an investigation and that he had no training on aircraft heating, ventilation and air conditioning systems.

[79] To support his position that HSO Gass' investigation was inadequate, J. Robbins argued that the HSO did not take the aircraft conditions into consideration and he never investigated conditions on-board (the aircraft had left before he started his investigation). Moreover, HSO Gass did not request that air quality tests be done on-board when the aircraft landed in Vancouver.

[80] J. Robbins maintained that HSO Gass relied on the *MEL* procedure that was explained to him during his investigation. However, the purpose of the *MEL* is to address cabin pressure. It has nothing to do with the environmental danger posed by a failed air pack.

[81] J. Robbins referred to the air quality study conducted by Dr. Walkinshaw on a Boeing 737-200, from which Dr. Walkinshaw extrapolated data to apply them to the Airbus A321. Dr. Walkinshaw had testified that the envelope of an aircraft is a significant source of VOCs into cabin air. J. Robbins said that Dr. Walkinshaw made that extrapolation without taking direct measurements on the July 17, 2004 flight. He added that according to Dr. Walkinshaw, the data was similar to different airplanes related data that was not available to the public. He maintained that Dr. Walkinshaw's interpretation of the data was within his field of expertise and that it was not challenged by the respondent. Nevertheless, Air Canada called a medical doctor, Dr. Bekeris, who had no expertise in indoor air quality issues to challenge Dr. Walkinshaw's testimony. J. Robbins argued that Dr. Bekeris expressed a personal opinion about these data instead of an expert opinion. He opined that such an opinion would be inadmissible under the rules of evidence of courts and other tribunals and, if admitted, would receive little or no weight.

- [82] J. Robbins held that I should give little weight to the respondent's and HSO Gass' argument that the absence of complaints from other crew members and passengers was a confirmation that there was no danger for R. Rivers on March 14, 2005.
- [83] To support his position, J. Robbins referred to the *Canada Labour Code*, Part II, and to jurisprudence, of which I retain the following.
- [84] In reference to the definition of danger given in subsection 122(1) of the *Canada Labour Code*, J. Robbins argued that it was reasonable to expect that, given the symptoms that R. Rivers experienced and described during her testimony, she was unable to perform her duties, more specifically her duties as an "emergency responder".
- [85] J. Robbins referred to paragraphs 19 and 20 of the *Darren Welbourne*¹⁰ decision, where Appeals Officer Serge Cadieux declared that "the concept of reasonable expectation excludes hypothetical or speculative situations... one cannot wait for an accident to happen."
- [86] J. Robbins also referred to the Federal Court decision in *Juan Verville*¹¹, where Madam Justice Gauthier stated, in paragraph 35, that reasonable expectation does not mean that "every time the condition or activity occurs, it will cause injury."
- [87] J. Robbins quoted as well paragraph 36 of that same Federal Court decision, where Madam Justice Gauthier declared that "the definition [of danger] only requires that one ascertains in what circumstances it could be expected to cause injury and that it be established that such circumstances will occur in the future, not as a mere possibility but as a reasonable one."
- [88] For these reasons, J. Robbins requested that the decision issued by HSO Gass be rescinded and that a finding of danger be made.
- [89] J. Robbins declared that the appellant did not seek further direction, because the unserviceable air pack in question had been repaired the day after R. Rivers' refusal to work.
- [90] Nevertheless, J. Robbins requested that a direction be issued to Air Canada pursuant to subsection 145(2) and/or (2.1) to direct the employer:
- not to rely on the *Minimum Equipment List* when addressing future air quality complaints; and
 - not to dispatch aircrafts with inoperative air packs.

Respondent's submission

- [91] I retain the following from the submission provided by Rhonda R. Shirreff on behalf of Air Canada.

¹⁰ *Darren Welbourne and Canadian Pacific Railway Company*, CLCAOD 01-008.

¹¹ *Juan Verville and Service correctionnel du Canada, Institution pénitentiaire de Kent*, 2004 FC 767.

- [92] R. Shirreff held that the evidence established that R. Rivers had worked on many flights (14 to 21) where an on-board air pack was inoperative and had been advised before these flights of the air pack malfunction.
- [93] R. Shirreff argued that despite her symptoms during her return flight of July 2004, R. Rivers did not seek medical assistance during the flight and she did not see her family doctor for several days afterwards. She did not file a claim with the Workplace Safety and Insurance Board (WSIB).
- [94] R. Shirreff also maintained, in reference to the return flight of July 2004, that the employer had no record of any other flight attendant seeking medical attention following the flight or filing a WSIB claim in respect of it.
- [95] R. Shirreff said that R. Rivers testified that she decided to refuse to work after being informed by the captain that only one air pack was functioning and that the necessary steps would be taken in accordance with the *MEL* to ensure more oxygen would be available.
- [96] R. Shirreff stated that the evidence confirmed that the flight captain informed crew members that he would ensure a safe and comfortable flight and mitigate the negative effects of the failed air pack by flying at a lower altitude, by operating the single air pack at full capacity and by keeping the cabin as cool as possible. R. Shirreff noted that R. Rivers did not consult with the flight captain regarding those remedial actions.
- [97] R. Shirreff argued that there was no convincing medical or scientific evidence about a causal link between the air quality on the July 2004 flight and the non-specific symptoms reported by R. Rivers. She opined that CUPE's position relatively to an inoperative air pack that poses a danger could only be viewed as speculative. To the contrary, she pointed to the respondent's evidence that it is not unusual that there be an unserviceable air pack on an aircraft.
- [98] R. Shirreff argued that the testimony of Dr. Walkinshaw, an expert witness for the appellant, was problematic because he had little experience with air quality on-board aircrafts and with occupational health issues in the aviation industry. She noted that there was significant "gaps" in Dr. Walkinshaw's testimony regarding the data he took into consideration to form his opinion on the impact of a failed air pack on cabin air quality.
- [99] R. Shirreff raised the point that, under cross-examination, Dr. Walkinshaw declared that taking into consideration that no measurements were taken during the July 2004 and March 2005 flights, it would have been "impractical" to follow his standard process when collecting data for an air quality investigation.
- [100] According to R. Shirreff, Dr. Walkinshaw admitted that there was not enough information available with respect to the following significant factors to determine the air quality on-board those flights:
- the quality of ambient air on the ground prior to take-off;
 - the wind conditions and direction in relation to the plane and the other aircrafts on the runway;

- the type and amount of dust in fabrics, seats and carpets;
- the pressure differentiation on the plane;
- the type and amount of VOCs emanating from the passengers themselves; and
- the use of the air outlets at the passengers' seats.

- [101] R. Shirreff argued that the appellant's submission did not consider Dr. Walkinshaw's evidence regarding the impact of seasonal and temperature variations on the cabin air quality.
- [102] Furthermore, R. Shirreff opined that the data extrapolation made by Dr. Walkinshaw was problematic, because the aircraft used in his study, the Boeing 737-200, was technically different from the aircraft A321 involved in the flights of July 2004 and March 2005, and that would make a difference in the data considered.
- [103] With respect to the expert medical evidence submitted by Dr. McGovern, R. Shirreff stated that his experience with occupational health issues in the aviation industry was very limited. Nonetheless, Dr. Bekeris had considerable experience as a physician working in the aviation industry, which added credibility to his testimony.
- [104] R. Shirreff said that Dr. McGovern made no attempt to validate R. Rivers' statements by interviewing crew members and passengers on-board the July 2004 flight.
- [105] R. Shirreff argued that Dr. McGovern admitted in cross-examination that he could not establish a "causal relationship" between the symptoms experienced by R. Rivers and the fact there was only one air pack in operation. In addition, Dr. McGovern also confirmed that he could not establish the impact of the inoperative air pack on the March 2005 flight.
- [106] R. Shirreff maintained that HSO Gass did a complete investigation and requested the employer to monitor the progress of the flight on his way to Vancouver. On that basis, she stated that HSO Gass received and reviewed the results of the passengers' and crew members' interviews following their arrival in Vancouver. Therefore, his determination of no danger was in accordance with the Code definition of "danger".
- [107] R. Shirreff also quoted Appeals Officer Cadieux, who held in *Darren Welbourne, supra*, that "the existing or potential hazard or condition or the current or future activity referred to in the definition of "danger" must be one that can reasonably be expected to cause injury or illness to the person exposed to it before the hazard or condition can be corrected or the activity altered." She emphasized, as he did, that "the concept of "reasonable expectation" excludes hypothetical and speculative situations."
- [108] R. Shirreff also referred to the decision of the Federal Court in *Juan Verville, supra*, where Madam Justice Gauthier established that one does not need to be able to ascertain exactly when the potential hazard or condition will happen. Nevertheless, one must be able to ascertain in what circumstances it could be expected to cause injury and to establish that there is a "reasonable possibility", not a "mere possibility", that such circumstances will occur in the future.

- [109] In light of these decisions, R. Shirreff noted that Dr. Walkinshaw had testified that cabin air quality was determined by a complex interaction of several relevant environmental factors and that a number of these were unknown with regard to the July 2004 flight. She argued that, therefore, it was impossible to confirm to which extent, if any, the cabin air quality on the July 2004 flight was compromised.
- [110] R. Shirreff maintained that without convincing medical or scientific evidence pointing to a causal link between the unserviceable air pack on the July 2004 flight and the non-specific symptoms reported by Ms. Rivers in March 2005, the potential hazard could only be viewed as speculative or, at best, as a “mere possibility”.
- [111] R. Shirreff added that the appellant’s assumption that similar symptoms could manifest themselves on any flight was entirely speculative and based on only on one factor, the unserviceable air pack.
- [112] R. Shirreff requested that I confirm HSO Gass’ decision of no danger and, accordingly, that I dismiss the appellant’s appeal, because R. Rivers had no reasonable cause to believe that working on the March 14, 2005 flight with one air pack would negatively affect her health and safety. Moreover, there was no reasonable cause to conclude that R. Rivers was exposed to a “danger” on the March 2005 flight because one air pack was unserviceable. Finally, there was no reasonable cause to decide that operating any aircraft with an unserviceable air pack constituted a “danger” as defined under the *Canada Labour Code*, Part II.

Appellant’s rebuttal

- [113] J. Robbins replied that R. Rivers and other crew members experienced symptoms on the July 2004 flight and Air Canada neither denied the union’s evidence nor provided evidence to the contrary.
- [114] As to the respondent’s argument on the fact that neither R. Rivers nor other crew members and passengers of the July 2004 return flight sought medical assistance or consultation, the evidence showed that they did suffer symptoms which disappeared after the flight. Therefore, there was no reason for a crew member to submit a WSIB claim.
- [115] J. Robbins also rebutted the respondent’s argument about the data extrapolation made by Dr. Walkinshaw, by saying that it was the best available data and the respondent had not challenged the expert witness’ opinion with a counter opinion.
- [116] J. Robbins argued that, contrary to the respondent’s argument, Dr. Walkinshaw took into consideration the design differences and similarities in the aircrafts and described the possible sources of VOCs commonly found on aircrafts.
- [117] J. Robbins noted that Air Canada did not dispute the fact that an unserviceable air pack reduces ventilation rates and that this affects air quality. Moreover, Air Canada’s medical expert did not suggest that any other explanation was more likely than elevated VOC levels. He held that there was no other reasonable explanation for the shared symptoms than their association with exposure to the air in the cabin.

- [118] J. Robbins argued that the respondent had not disputed the existence of volatile organic compounds contaminants, their presence on the aircrafts and their elevated levels under failed air pack conditions. In addition, the respondent did not dispute the VOCs level estimate of Dr. Walkinshaw.
- [119] J. Robbins reiterated that the *MEL* relied upon by Air Canada did not address occupational health and safety issues nor the contamination of cabin air.
- [120] J. Robbins argued that the difference in the symptoms experienced on the July 2004 and the March 2005 flights was related to a combination of factors (*i.e.* the colder March weather), that may have reduced the impact of an unserviceable air pack on the March 2005 flight. The lesser impact did not imply that a failed air pack did not constitute a danger.
- [121] J. Robbins stated that the evidence showed that the frequency of flights with one unserviceable air pack was low and that the respondent did not submit evidence as to the number of flights done with one failed air pack.
- [122] J. Robbins rebutted the respondent's submission that R. Rivers had worked many times in the past on flights that were more than three hours long and where one air pack was inoperative. He recalled that R. Rivers testified that she had only made some short flights of less than 90 minutes with one unserviceable air pack. He mentioned again that, according to the evidence, the frequency of flights with an inoperative air pack was low.
- [123] J. Robbins argued that the respondent did not dispute the existence of VOCs contaminants, their presence on aircrafts and their elevated levels in failed air pack conditions. In addition, the respondent did not dispute Dr. Walkinshaw's estimate of VOCs levels.
- [124] With regard to the respondent's submission that Dr. Walkinshaw had little experience on aircraft air quality, J. Robbins replied that Dr. Walkinshaw sits on the ASHRAE committee developing standards for aircraft cabin air quality and, accordingly, he is a highly respected and outstanding expert in his field.
- [125] J. Robbins stated that Dr. Bekeris' testimony demonstrated that he had never dealt with cabin air quality issues.
- [126] J. Robbins submitted that "[t]he test in making a determination of danger is likelihood, on a balance of probabilities: 'whether it is more likely than not', as the Federal Court of Appeal put it in *Martin*¹², that the condition will result in harm in the future." He held that the symptoms suffered by flight attendants and passengers on a long flight with a full load were reasonably likely to have resulted from the air pack failure and that it was sufficient to establish danger within the meaning of the Code.

¹² J. Robbins refers here to *Douglas Martin and Public Service Alliance of Canada and Attorney General of Canada*, 2005 FCA 156.

[127] J. Robbins stated that HSO Gass could have required the plane to remain on the runway while he conducted tests. Instead, he let “the workplace” fly away rather than investigate on site whether it was dangerous. This was a violation of his statutory obligation.

[128] Referring again to *Douglas Martin, supra*, J. Robbins wrote:

The test in the Code for danger is thus whether the activity “could reasonably be expected to cause injury or illness”. Air Canada’s “convincing evidence of a causal link” test is substantially different from the Code’s test.”

The test in making a determination of danger is likelihood, on a balance of probabilities: “whether it is more likely than not”, as the Federal Court of Appeal put it in *Martin*, that the condition will result in harm in the future.

The evidence in this case indicates that failed air pack significantly reduces ventilation. Lowered ventilation rates raise contaminant levels. Symptoms suffered by flight attendants and passengers on a long flight with a full load, were reasonably likely to have resulted from the air pack failure. It is reasonably likely that similar conditions in the future will result in similar harm. That is sufficient to establish danger within the meaning of the Code.

Decision

[129] The issue in this case is whether or not a danger existed for R. Rivers, on March 14, 2005, at the time of HSO Gass’ investigation of her work refusal, to work on-board an aircraft with one unserviceable air pack. To decide this, I must consider the provisions of the *Canada Labour Code*, Part II, the facts of the case and the jurisprudence cited by parties.

[130] Danger is defined in subsection 122(1) of the *Canada Labour Code* as follows:

“danger” means any existing or potential hazard or condition or any current or future activity that could reasonably be expected to cause injury or illness to a person exposed to it before the hazard or condition can be corrected, or the activity altered, whether or not the injury or illness occurs immediately after the exposure to the hazard, condition or activity, and includes any exposure to a hazardous substance that is likely to result in a chronic illness, in disease or in damage to the reproductive system[.]

[131] In the case before me, the condition at issue was the inoperative air pack during the March 14, 2005 flight between Toronto and Vancouver.

[132] However, the flight had not started when R. Rivers refused to work on March 14, 2005 on the grounds that one of the two air packs was inoperative. Furthermore, R. Rivers admitted during her testimony that prior to her work refusal, she did not check with the captain what measures had been taken to compensate for the failed air pack. The employee feared that she would suffer the same symptoms that she and other crew members had experienced during a previous flight in July 2004 when one air pack was similarly inoperative.

- [133] I agree with J. Robbins that some symptoms could interfere with the ability of a flight attendant to respond to an emergency situation. However, the evidence before me did not convince me that every time an air pack is inoperative, it will jeopardize the response time of a flight attendant during an on-board emergency.
- [134] Contrary to J. Robbins' argument that the *MEL* does not address the environmental hazard posed by a failed air pack, I believe that the captain's remedial actions were appropriate to mitigate the unserviceable air pack and to ensure a level of ventilation acceptable in the cabin for crew members and passengers, because he had put the operative air pack at the maximum level, which lowered the temperature on-board.
- [135] As to the conditions that prevailed in March 2005 and July 2004, I will address the link established between the two incidents and I will then determine if there was a danger in March 2005.
- [136] The appellant held that a failed air pack affects cabin ventilation and air quality, which exposed R. Rivers to a condition of danger in July 2004. Therefore, the appellant argued that the situation in March 2005 would have exposed R. Rivers to the same symptoms as of July 2004.
- [137] However, it has been established by expert witnesses that several factors have to be considered before determining that a condition will cause an air quality problem that could be expected to cause illness to a person exposed to it. Those factors could vary from one flight to another and their impact, with respect to air quality on-board, could possibly cause illness to a flight attendant working in the cabin during a flight.
- [138] Despite the appellant's submissions, on a balance of probability, the facts do not establish that crew members could reasonably be expected to be injured or become ill every time there is an unserviceable air pack.
- [139] Justice Gauthier wrote in her *Juan Verville* decision, *supra*:
- [36] Rather, looking at her decision as a whole, she appears to agree that the definition only requires that one ascertains in what circumstances it could be expected to cause injury and that it be established that such circumstances will occur in the future, not as a mere possibility but as a reasonable one.
- [140] In the present case, the circumstances could not be expected to cause injury or illness to R. Rivers because the facts cannot establish that there is a reasonable possibility that such circumstances will occur in the future. In my opinion, only a detailed air quality survey made during flights with a full capacity aircraft and one inoperative air pack will provide stronger evidence to determine whether or not an unserviceable air pack could cause injury or illness to a crew member.
- [141] I consider that it was only speculative for R. Rivers to expect to be exposed to the same symptoms as during the Toronto-Vancouver round trip flight of July 2004. The air quality can vary from flight to flight as a result of the factors listed previously. Therefore, I do not assign much weight to R. Rivers' allegations that given her experience in July 2004, the inoperative air pack constituted a danger in respect of the flight on which she was scheduled to work on March 2005.

[142] I will now address the appellant's submissions on that issue.

[143] J. Robbins wrote:

In the present case, it was reasonably to be expected that, in Ms Rivers' words, "same everything, plane, destination, full load" and same equipment failure would have the same result: illness caused by exposure to contaminated, inadequately ventilated air. It was reasonably to be expected that if she suffered those symptoms, she would be unable to safely perform her duties, in particular, her duties as an "emergency responder", leading to danger not only to Ms Rivers but her fellow workers and passengers.

[144] J. Robbins added that, in the Code definition of "danger", the expression "reasonably be expected" includes potential or future hazards. To support his position, he referred to Appeals Officer Cadieux's decision in *Darren Welbourne, supra*.

[145] I agree with J. Robbins that the notion of danger includes a hazard, condition or activity that is "potential", "prospective" or "capable of coming into being or action" and excludes hypothetical or speculative situations. However, in the case before me, I am not convinced that R. Rivers was exposed to a condition --an unserviceable air pack that could cause some air quality problems -- that had a reasonable expectation to cause her injury or illness before the hazard or condition could be corrected. Moreover, in my opinion, the issue of whether or not R. Rivers would have been injured or ill because there was an unserviceable air pack on-board was mostly hypothetical or speculative.

[146] Dr. McGovern stated that R. Rivers' symptoms on the July 2004 flight were related to the unserviceable air pack. He did not convince me, mostly because his opinion was based on limited data. He had explained during his testimony what was the ideal data to base his opinion on (see paragraph 34). Therefore, his opinion in respect of establishing a link between R. Rivers' symptoms in July 2004 and the possibility that she could have experienced the same symptoms during the March 2005 flight is inconclusive. It has been demonstrated during the hearing and with both parties' arguments that a combination of factors has to be considered before making a determination. It is my opinion that an assumption that is not based on significant facts is not a strong argument to consider.

[147] J. Robbins referred to the Federal Court decision in *Juan Verville, supra*, when he mentioned that "reasonable expectation" does not mean that every time the condition or activity occurs, it will cause injury." I agree with this statement, which applies to the inoperative air pack. I have said before that the presence of an unserviceable air pack does not mean that every time, it will cause injury or illness to a crew member. Given the absence of a strong link between the unserviceable air pack and the potential hazard that could reasonably be expected to cause injury or illness, I find that R. Rivers was not exposed to danger on March 14, 2005.

- [148] Having decided on the link between the two flights, I do not have to address all the evidence submitted in respect of the relationship between an inoperative air pack and the on-board air quality, because the factors in place in July 2004 are unlikely the same as those in March 2005.
- [149] In conclusion, I confirm the decision of absence of danger rendered by HSO Gass on March 14, 2005.
- [150] I would like to point out that when a health and safety officer investigates a work refusal dealing with on-board air quality, a proper evaluation of the quality of air should be conducted prior to making a decision. In the present case, HSO Gass did not make any evaluation of the air quality
- [151] I would also strongly invite the employer to work closely with both the policy and the workplace committees on the issue of unserviceable air packs and their impact on the air quality of the cabin where crew members perform their work.

Pierre Guénette
Appeals Officer

Summary of Appeals Officer's Decision

Decision: CAO -07-029

Appellant: Canadian Union of Public Employees (CUPE) - Air Canada component

Respondent: Air Canada

Provisions: *Canada Labour Code*, 129 (7), 145(2), 122(1)

Keywords: Refusal to work, decision of absence of danger, air quality, air packs, hypoxia, volatile organic compound (VOC), minimum equipment list (MEL) and danger

Summary:

This case concerns an appeal by Karen Salt on behalf of Rehab Rivers further to a decision of absence of danger rendered by health and safety officer (HSO) Bob Gass on March 14, 2005.

The employee had refused to work because only one of two air packs was functioning on the aircraft.

Following his review, the Appeals Officer confirmed the decision of absence of danger rendered by HSO Gass.