

CANADA LABOUR CODE  
PART II  
OCCUPATIONAL SAFETY AND HEALTH

Review under section 146 of the Canada Labour Code, Part II,  
of a direction issued by a safety officer

Applicant: Bruce Scott & Charles R. Parlee  
230 Sweeney Lane  
129 Babcock Street  
Newcastle, N.B.  
Campbellton, N.B.

Respondent: Canadian National Railway Company  
1234 Main Street  
Moncton, N.B.

Mis en cause: Marcel Pelletier  
Safety Officer #3129  
Transport Canada, Surface  
Moncton, N.B.

Before: Bertrand Southière  
Regional Safety Officer  
Human Resources Development Canada

A hearing was held in Bathurst, New Brunswick, on May 22, 1996. In attendance were:

- Roland Leblanc  
Co-chairman, H & S committee
- Bruce Scott  
Trainman
- Daniel Mann  
M.T.E.S., Campbellton
- M.P. Leblanc  
M.T.E.S., Campbellton
- Leo P. Hickey  
Superintendent Transportation - CN
- D. Hanson  
CN, Moncton
- Marcel Pelletier  
Transport Canada

- Dale Hicks  
Transport Canada
- Robert Reid  
HRDC - Labour

## Background

On May 15, 1995, there was a work refusal by two CN North America employees at the loading facilities of Brunswick Mining and Smelting near Bathurst, New Brunswick. The two employees, Bruce Scott and Charles R. Parlee refused to operate a crane because of excessive lead dust in the cab of the crane. The safety officer, Marcel Pelletier, was called on the scene following the refusal to work and, after conducting an investigation, he decided that danger existed and upheld the refusal to work. Subsequently, the safety officer issued a direction to CN North America (appendix 1).

On May 20, 1995, the two employees appealed the direction to the regional safety officer under subsection 129(5) of the Canada Labour Code on the basis of the safety officer's decision that "work as crane operator for said train crew does not constitute a danger to an employee or that a condition does not exist in a place that constitutes a danger to an employee, and an employee is not entitled under section 128 or this section to continue to refuse". The regional safety officer replied that first by, he was not the proper venue for an appeal under this subsection of the Code: such an appeal must be directed to the Canada Labour Relations Board; secondly, there could be no appeal under the referenced subsection because in fact, the safety officer had decided that danger did exist and had upheld the refusal to work.

At this point, there was a breakdown in correspondence and the next communication was received in March 1996. Through the safety officer, the two employees, Bruce Scott and Charles R. Parlee indicated that they wished to pursue their appeal of the safety officer's direction. In consequence, a hearing was set for May 22, 1996.

The situation which gave rise to the direction is as follows: CN North America sends a train five days a week to Brunswick Mining & Smelting, Bathurst, N.B., to be loaded with ore. During the loading operation, CN employees operate the crane used to lift and put the covers back on the rail cars. Ore dust containing lead and zinc enters the cab of this crane and concerns about possible high concentrations of lead in the air were at the root of the refusal to work.

The cab of the crane features a ventilation system with high efficiency particulate air (HEPA) filters; however, due to a lack of maintenance, the filters do not operate as they should and dust levels inside the cab are higher than they should be. Air quality testing was carried out in February 1995 followed by additional testing in April 1995. I was not provided with the results of the tests done during February 1995. However, the tests done in April 1995 by Chris Wood, an industrial hygienist working for CN North America, show that airborne lead concentration in the cab of the crane measured over a period of 3 hours was 0.239 mg/m<sup>3</sup> (personal sample); an area sample taken in the cab over a period of roughly two hours yielded a concentration of 0.151 mg/m<sup>3</sup>. In order to estimate an employee's average exposure over eight hours, these results must be adjusted for time. According to Chris Wood's report, the eight hour average exposure for

an exposition of three hours to a concentration of  $0.239 \text{ mg/m}^3$  of airborne lead (the personal sample value), is  $0.09 \text{ mg/m}^3$ . This can then be compared with the TLV-TWA to determine whether the exposure is excessive or not.

Robert Reid of Human Resources Development Canada - Labour also took some measurements at Brunswick Mines on April 17, 1995. Three personal samples were obtained: on the conductor, on the brakeman and on an observer. The results, corrected for an average exposure over eight hours, were respectively  $0.38$ ,  $0.019$  and  $0.057 \text{ mg/m}^3$  for lead and  $0.46$ ,  $0.023$  and  $0.041 \text{ mg/m}^3$  for zinc.

Following these investigations, the employer decided to issue NIOSH approved respirators to the employees until modifications to the crane cab ventilation system could be made to bring the airborne lead concentration to an acceptable value. A few days later, on May 15, 1995, the employees refused to work because the filter masks did not fit properly and they had not been trained on how to use them. At this time, the safety officer conducted his investigation. As a result, he accepted the refusal to work and he issued a direction to the employer (appendix 1).

#### Submission by the employees' representative

- Dust masks are not a satisfactory solution to the problem of air contamination by airborne lead in the cab of the crane; the positive pressure air supply system should be repaired and properly maintained with regularly scheduled replacement of air filters. The whole crane cab must also be cleaned of lead dust, not only the windows. Presently, filters are changed every five weeks or so.
- The conductor must communicate with the rail traffic controller; the dust mask prevents clear communications; it must be removed when talking to ensure good communications. Furthermore, the dust mask is uncomfortable.
- The airborne lead concentration is ten times higher than it should be; employees suffer from headaches due to lead dust levels.
- Bruce Scott's blood lead test done by his physician while he was working at Brunswick Mines indicated a level of  $14.2 \text{ } \mu\text{g}/100 \text{ ml}$ ; mine employees are taken off work when their blood lead level reaches  $20 \text{ } \mu\text{g}/100 \text{ ml}$ . Six months after leaving the job at Brunswick Mines, his blood lead level was down to  $0.04 \text{ } \mu\text{g}/100 \text{ ml}$ .
- Mine employees shower and put on clean clothing when they leave the facility, leaving the soiled clothing at the mine to be cleaned; they do not have to go through the loading facility after showering. Outside contractors do not have to shower when they leave the facility, but showers are available.

#### Submission by the employer's representative

- The trains go to Brunswick Mines five nights a week. Loading takes three to four hours, but sometimes can last up to five hours.

- The employer has made arrangements with Brunswick Mines so that its employees can use the shower facilities located in the Boiler Room; also arrangements have been made with a nearby motel for coveralls to be washed.
- The employer is supplying face mask respirators to employees until the cab of the crane can be modified to ensure interior conditions acceptable.
- The employer has issued gloves to the employees and is looking to find the most suitable glove as a replacement; disposable coveralls should also be available shortly.
- The employer has also made arrangements with Brunswick Mines to provide its employees with instruction regarding the health hazards of lead and in personal hygiene measures to reduce their exposure.
- Discussions have been held with Brunswick Mines regarding repair and maintenance of the crane cab ventilation system. Brunswick Mines has made a commitment that the filter would be changed every two weeks, on time.

#### Discussion

Part X of the Canada Occupational Safety and Health Regulations contains the provisions that deal with the exposure of employees to airborne contaminants. Section 10.21, subsection (1) provides that:

10.21(1) "No employee shall be exposed to a concentration of

- (a) an airborne chemical agent, other than grain dust, in excess of the value for that chemical agent adopted by the American Conference of Governmental Industrial Hygienists in its publication entitled Threshold Limit Values and Biological Exposure Indices for 1985-86; or
- (b) airborne grain dust, respirable and non-respirable, in excess of 10 mg per 1 m<sup>3</sup>."

The referenced publication gives for Lead, inorganic dusts and fumes a TLV - TWA (Threshold Limit Value - Time Weighted Average) of 0.15 mg/m<sup>3</sup>; the TLV - STEL (Threshold Limit Value - Short Term Exposure Limit) is given as 0.45 mg/m<sup>3</sup>. In the latest edition of this document (1995-96), the TLV - TWA for lead has been reduced to 0.05 mg/m<sup>3</sup>; the TLV - STEL has been deleted (it is expected that Part X of the Canada Occupational Safety and Health Regulations will be amended in the very near future; the revised text will reference the latest edition of the ACGIH document).

As a result of his investigation and based on a personal sample, Chris Wood estimated the employees' average exposure to airborne lead as 0.09 mg/m<sup>3</sup> for an eight-hour shift; an area sample taken in the crane cab during the same period indicated an airborne concentration of about 0.06 mg/m<sup>3</sup>. In Robert Reid's report, the results obtained from the brakeman and the observer also indicate fairly low values, about 0.02 and 0.06 mg/m<sup>3</sup> of airborne lead; however, in the case of the conductor, the exposure is estimated to be 0.38 mg/m<sup>3</sup>, a value four to six times higher than the

other results. No explanation is given for the discrepancy. As a result of these investigations, the employees are required to use disposable dust masks, which dust masks give a protection factor of 10: exposure is reduced by a factor of 10. Using the highest result, the exposure is then reduced to  $0.038 \text{ mg/m}^3$ , which more than satisfies the regulatory requirements and also meets the present day standard. The direction was issued to ensure that employees were trained to use and fit properly the respiratory protective devices so that the intended protection be effectively provided.

One of the employees, Mr. Scott, asked his doctor to test his blood for lead while he was working at Brunswick Mines. The result obtained,  $14.2 \text{ } \mu\text{g}/100 \text{ ml}$ , is below the reference value of  $50 \text{ } \mu\text{g}/100 \text{ ml}$  recommended by the ACGIH in its Biological Exposure Indices for 1985-86 (this value has been reduced to  $30 \text{ } \mu\text{g}/100 \text{ ml}$  in the 1995-96 publication). In the instant case, these values are not legal requirements, but they are used for information purposes only. Mr. Scott also explained that he changed job some time ago and since then, he does not go to Brunswick Mines. Six months after changing assignment, he was retested by his doctor and his blood lead level was down to  $0.04 \text{ } \mu\text{g}/100 \text{ ml}$ . This would demonstrate that he was exposed to lead, but the concentration and time of exposure did not reach a critical level.

Zinc dust is considered a nuisance dust and as such, the TLV-TWA is  $10 \text{ mg/m}^3$ . The measured levels are much lower than this value and consequently, zinc dust is not an issue here.

Regarding the question of communication while wearing a respirator, I do not have enough information to make a decision. It is agreed that for efficient communications, the employee must remove the respirator, however, whether this increases the exposure significantly or not depends on the time spent without a respirator and the airborne lead concentration and this information is not available.

Finally, regarding the issue of clothing and cleaning, the employer has made arrangements with Brunswick Mines to allow employees the use of showers; arrangements have also been made to have their clothing cleaned at a nearby motel. The employer is also attempting to find suitable disposable coveralls.

It is agreed that the ideal solution is to have a clean crane cab, with a functional air filtration and ventilation system maintaining a positive pressure in the cab. The employer has strived to obtain from Brunswick Mines that the crane cab be cleaned and that the cab ventilation system be satisfactorily maintained. As an interim measure, the employer is supplying employees with disposable respiratory protection devices. I believe the employer has fulfilled his obligations to ensure that the safety and health at work of his employees are protected.

Decision

For the reasons outlined above, I HEREBY CONFIRM the direction issued by safety officer Marcel Pelletier CN North America at Moncton, New Brunswick, on the sixteenth day of May 1995.

Decision given on June 18, 1996.

Bertrand Southière  
Regional Safety Officer

IN THE MATTER OF THE CANADA LABOUR CODE,  
PART II (OCCUPATIONAL SAFETY AND HEALTH)

Direction to employer under paragraph 145(2)(a)

On May 15, 1995, the undersigned safety officer conducted an inquiry in the work place operated by CN North America, being an employer subject to the Canada Labour Code, Part II, at 1234 Main Street, Moncton, N.B., E1C 1H7, the said work place being in the Brunswick Mining loading facility Bathurst, N.B.

An inspection at the said work place revealed that while an employee is performing assigned duties a condition exists that constitutes a danger while the employee is in the said work place:

an employee working in the said location is not properly trained in the wearing of a respiratory protective device and the respiratory protective device supplied to him has not been properly fitted, this constitutes a danger while at work.

Therefore, you are hereby directed, pursuant to paragraph 145(2)(a) of the Canada Labour Code, Part II, to take measures immediately for guarding the source of danger.

Issued at Moncton, 16th day of May 1995.

Marcel R. Pelletier  
Safety Officer  
#3129

To: M. Leblanc  
Manager Train & Eng. Service  
1234 Main Street  
Moncton, N.B.  
E1C 1H7

SUMMARY OF REGIONAL SAFETY OFFICER DECISION

Applicant: Bruce Scott, Newcastle, N.B., conductor  
Charles R. Parlee, Campbellton, N.B., trainman

**KEYWORDS**

Respiratory protection; airborne lead concentration

**PROVISIONS**

Code: 145(2)(a)  
Canada Occupational Safety and Health Regulations: subsection 10.21(1)

**SUMMARY**

Further to a work refusal, a safety officer issued a direction to CN North America, at Brunswick Mines, near Bathurst, N.B., directing the employer to provide training to employees regarding the fitting and use of disposable respiratory protection devices. Two employees appealed the direction, alleging that airborne lead levels exceeded the regulatory requirements and that safe levels had to be maintained through engineering controls rather than by the use of respiratory protection. The workplace at issue is the cab of a crane owned by Brunswick Mines and operated by CN employees. Two investigations by industrial hygienists have shown that, except for one personal sample, airborne lead levels averaged over eight hours are below the regulatory requirements. When taking into account the protection afforded by the respiratory protection device (10X), all exposures averaged over eight hours, not only meet the regulatory requirements of 0.15 mg/m<sup>3</sup> but also meet the revised requirements of 0.05 mg/m<sup>3</sup> of the American Conference of Governmental Industrial Hygienists.

The regional safety officer CONFIRMED the direction