

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: Clipper Navigation Inc.
Victoria, B.C.
Represented by: Leonard Tall, and
Darrell E. Bryan

Respondent: Canadian Auto Workers
Vancouver Island District Council
Represented by: F.C. (Frank) Greenlay

Mis en cause: Jim Beynon
Safety Officer
Human Resources Development Canada

Before: Serge Cadieux
Regional Safety Officer
Human Resources Development Canada

An oral hearing was held in Victoria, B.C. on September 27, 1995

Background

This case began with a refusal to work that was exercised at Clipper Navigation's Belleville terminal in July 1994. After being informed of the situation, the safety officer determined that there was not a continuing refusal to work as the employee had returned to work. Nonetheless, the safety officer informed Mr. Greenlay, the union representative who had reported the refusal to work to him, that the situation would be investigated as an occupational safety and health complaint.

The safety officer reported in his Narrative Assignment Summary that:

The issue was with the moving of containers of luggage with a manually operated hydraulic pallet jack with metal wheels with a gross weight often up to and over 1000 pounds. The distance to be moved is approximately 200 feet, 100 relatively flat, smooth concrete and 100 bumpy asphalt with a slight grade (1' in 100' approx.).

It was agreed that the terminal manager would look into the feasibility of acquiring electric pallet jacks. In the meantime, a two person procedure to move containers of luggage would be implemented. The need to evaluate the force necessary to move the said containers was also discussed and a direction was given to the employer on June 12, 1995 under paragraph 141(1)(a) of the Canada Labour Code, Part II (hereafter the Code) to ensure that the employer would have the appropriate tests conducted. That direction was not appealed by the employer.

On June 17, 1995 another employee exercised his right to refuse dangerous work. The employee had been instructed that the containers had to be moved by one person and, as reported by the safety officer, was sent home as a result of his refusal to work. The safety officer advised Mr. Greenlay that the responsibility to address the disciplinary action taken against the refusing employee rested with the Canada Labour Relations Board (CLRB). However, in discussing the issue of handling materials with pallet jacks, the safety officer was made aware that this longstanding issue remained unresolved. The safety officer reacted by issuing a direction (APPENDIX-A) to the employer under paragraph 145(2)(a) of the Code in which the safety officer directed the employer "to take measures immediately to protect any person from the danger". That direction was appealed by Clipper Navigation Inc..

Submission of the Employer

The employer submitted that although it has purchased two electrically operated pallet jacks at a significant cost (approximately \$5000.00 each) in response to the direction, it wishes to "pursue an appeal or reconsideration of this matter so that it is clear that in the event that an electric pallet jack is inoperative, we can utilize one dockhand to pull a bin to the Customs Clearance area." Furthermore, the employer insists that the direction is not valid because it is not supported by the evidence. The results of the tests (APPENDIX-B) that were conducted by two independent engineering firms¹ show that the breakaway force necessary to start the movement of a bin filled with luggage and the force necessary to sustain its movement are well below the acceptable standard values referenced by the safety officer.

Mr. Tall also suggests that this issue is an issue of manning as opposed to safe operation.

Submission for the Employees

Mr. Greenlay states that the real issue here is what constitutes a safe method of moving the bins full of luggage. He is asking the Regional Safety Officer to look beyond the physical nature of the equipment and the safe operation of the equipment and focus on the human health aspect of the operation. According to Mr. Greenlay, there is a need to look at the connection between a single dockhand moving the said bins and the injuries that are occurring. The safe method of moving the bins is by using two employees to do the job.

¹ One test was carried out by a Mr. Paul Brodeur who is likely an employee of Clipper Navigation Inc.. Notwithstanding this, since Mr. Brodeur is not an independent consultant or engineering firm, I will disregard his results on the basis that they are not issued from an unbiased source.

Decision

The issue to be decided in this case is whether a bin loaded with luggage, and weighing approximately one thousand pounds (1000 lbs.), can be moved safely by a single employee by using a manual pallet jack.

The safety officer gave a direction under paragraph 145(2)(a) of the Code and consequently, found the above situation to constitute a danger to an employee while at work. The basis for the direction given by the safety officer is the excessive force required to both initiate the movement of the bins and to sustain their movement and the high injury rate amongst Clipper Navigation's employees.

In support of the force required to initiate the movement of the bins and to sustain their movement, the safety officer referenced the work of Dr. K.H.E. Kroener, Professor of Ergonomics and Industrial Engineering, Wayne State University, Detroit, Michigan. Specifically, the safety officer suggested that the maximum force acceptable to pull the bins should not exceed the following values , i.e.

ACCEPTABLE PULLING FORCES
MATERIAL HANDLING: KHE KROEMER
WAYNE STATE UNIVERSITY

SEX BREAKAWAY SUSTAINED

Male 29 kg (63.8 lbs) 17 kg (37.4 lbs)
Female 24 kg (52.8 lbs) 14 kg (30.8 lbs)

Those values are taken from Dr. Kroener's publication MATERIAL HANDLING, LOSS CONTROL THROUGH ERGONOMICS, table 4.8, MAXIMUM ACCEPTABLE FORCES OF PULL. They represent, for both sexes at a hand height of 64 centimetres, the maximum force acceptable to ninety percent (90%) of the subject population (all experienced workers). However, "the data do not represent individual capacity limits; rather, they represent the opinions of a sample of experienced material handlers as to what they would handle willingly and without overexertion." Of particular interest in this case is that the data reported represents the force required every two (2) minutes to pull a distance of two point one meters (2.1m). In the case at hand, the employees are required to pull the bins on a distance of two hundred feet (200 ft).

The results of the tests carried out by the engineering firms and submitted as evidence by Clipper Navigation Inc. which, incidentally, do not appear to take into consideration limits for female employees, are lower than the values referenced by the safety officer. On that basis alone, it would appear that Clipper Navigation does not require its male employees to overexert themselves. However, as I noted above, the results are, in my opinion, flawed because they do not represent the force required to pull the bins the full distance of 200 feet. The Kroener study above does not look at the forces required on such a distance.

The DRAFT ERGONOMICS REGULATIONS issued by the Workers' Compensation Board of British Columbia that was also submitted by the safety officer reports values for sixty one meters (61m) which corresponds to the 200 ft. distance above. According to those regulations, the maximum force acceptable for males and females for a pull occurring every thirty minutes (30 min.), decreases significantly with the distance. It is as follows:

DRAFT ERGONOMICS REGULATIONS

SEX BREAKAWAY SUSTAINED

Male 21 kg 13 kg

Female 18 kg 6 kg

The values that were reported by the two engineering firms are as follow:

ENGINEERING FIRMS

BREAKAWAYSUSTAINED

18 kg and 19.32 kg 13.6 kg and 10.45 kg

On the basis of this evidence as it would apply to male employees only, Clipper Navigation Inc. cannot be found to be in contravention of the Code and the Canada Occupational Safety and Health Regulations (hereafter the Regulations). Further support for this conclusion is that the values reported by the Kroener study or by the DRAFT ERGONOMICS REGULATIONS issued by the Workers' Compensation Board of British Columbia are not statutory limits referenced in the Code or the Regulations. Those values can only be used as a guide in the field of ergonomics and, technically speaking, have no force of law. Nonetheless, an unacceptably high number of injuries have occurred as a result of pulling the bins loaded with luggage and, I would suspect, that was the issue the safety officer attempted to resolve.

In my opinion, the injuries are not occurring strictly as a result of having to use an excessive force to pull the bins. They are occurring because an improper and therefore, unsafe method is being used. The photograph of one employee pulling a loaded bin shows the employee initiating the pull, facing the bin, both hands on the handle of the pallet jack and exercising the force necessary to get the bin in movement. However, the next photograph shows the employee pulling the bin with his back turned to the bin and only one hand on the handle. The result of using this technique is that the employee has to exercise twice as much force with a single hand than he would have if he was using both hands. The likely reason for doing this is that the employee can accelerate the pace of work and see the distance that he must cover. The consequence is that injuries occur.

In my opinion, a safer method² of pulling the bins is for both hands to remain on the handle at all times and to have the employee take more time to cover the distance since he or she must look behind his or her back to ensure safe operation of the pallet jack. Consequently, for those

² It is not my contention that the following method is the safety and preferred method to be used. The safety and health committee for the work place in question or the safety officer could assist the employer in this respect.

circumstances where the electric pallet jacks are inoperative, the employer could be allowed to use one male employee to pull the bins if this method is strictly adhered to by the employee. It is impossible for me to comment as to whether female employees could do the same since the data reported by the engineering firms is inconclusive in this respect. More tests would be needed to decide this aspect of the case.

In those circumstances where that method cannot be used or is not recommended, a two person team should be used where one person pushes the load resting on the pallet jack and the other person pulls the load using just enough force to guide the pallet jack. Another method, such as using an electric pallet jack, could also be used. Obviously, there are many options.

Whichever method is used, it should be tailored to each individual by taking into consideration factors such as the following:

- 1) the worker is male or female;
- 2) the horizontal distance of the push or pull;
- 3) the frequency of the push or pull;
- 4) the height of the worker's hand;
- 5) the presence of a grade in the surface;
- 6) the type of surface;
- 7) the training in the proper procedure to push or pull;
- 8) the physical condition of the employee;

and any other condition appropriate to the task. To the extent that an improper and unsafe method for pulling bins loaded with luggage was being used, I find that the direction is justified. However, I note that the direction makes reference to the wrong provision authorizing the provision contravened in the Regulations. In fact, section 14.46 of the Canada Occupational Safety & Health Regulations is not authorized by paragraph 125(t) of the Canada Labour Code, Part II. It is authorized by paragraph 125(q) of the Code which provides as follows:

125. Without restricting the generality of section 124, every employer shall, in respect of every work place controlled by the employer,

- (q) provide, in the prescribe manner, each employee with the information, instruction, training and supervision necessary to ensure the safety and health at work of that employee;

For all the above reasons, I HEREBY VARY the direction issued under paragraph 145(2)(a) of the Canada Labour Code, Part II on June 20, 1995 by safety officer Jim Beynon to Clipper Navigation Inc., by replacing the two references in the direction to paragraph 125(t) of the Canada Labour Code, Part II by references to paragraph 125(q) of the Canada Labour Code, Part II.

Decision rendered on October 25, 1995

Serge Cadieux
Regional Safety Officer

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

DIRECTION TO EMPLOYER UNDER SS. 145(2)(a)

The undersigned Safety Officer, did, on the 20th day of June 1995, attend at the work place operated by Clipper Navigation Ltd., being an employer subject to the Canada Labour Code, Part II, at 254 Belleville Street, Victoria, B.C., V8V 1W9, the said work place being sometimes known as Terminal, and having conducted inquiries at the said work place; consider that the use or operation of a machine or thing described hereunder or that a condition exists in the work place which constitutes a danger to an employee while at work;

The pulling of full luggage containers of unknown weights on manual or hand pallet jacks (trucks) on the walk from the dock to the Customs unloading area by one person, contravenes paragraph 125(t) of the Canada Labour Code, Part II;

125. Without restricting the generality of section 124, every employer shall, in respect of every work place controlled by the employer,

(t) ensure that the machinery, equipment and tools used by the employees in the course of their employment meet prescribed safety standards and are safe under all conditions of their intended use;

and 14.46 of the Canada Occupational Safety & Health Regulations;

Where, because of the weight, size, shape, toxicity or other characteristic of materials, goods or things, the manual handling of the materials, goods or things may be hazardous to the safety or health of an employee, the employer shall issue instructions that the materials, goods or things shall, where reasonably practicable, not be handled manually.

HEREBY DIRECTS the said employer pursuant to paragraph 145(2)(a) of the Canada Labour Code, Part II, to take measures immediately to protect any person from the danger;

Issued at Victoria, B.C., this 20th day of June 1995.

Jim Beynon
Safety Officer

To: D. Pirog, Terminal Operations Manager
Clipper Navigation Ltd.
254 Belleville Street
Victoria, B.C. V8V

ACCEPTABLE PULLING FORCES MATERIAL HANDLING:
KHE KROEMER WAYNE STATE UNIVERSITY

(provided by Jim Beynon)

SEX BREAKAWAY SUSTAINED

Male 29 kg (63.8 lbs) 17 kg (37.4 lbs)

Female 24 kg (52.8 lbs) 14 kg (30.8 lbs)

SEATTLE TEST BY CRANE CONSULTANTS

680 lbs baggage + 240 lb tare wt. = 980 lbs (445.45 kg)

BREAKAWAYSUSTAINED

40 lbs (18 kg) 30 lbs (13.6 kg)

SEATTLE TEST BY PAUL BRODEUR

665 lbs baggage + 240 lbs tare weight = 905 lbs (411.36 kg)

BREAKAWAY SUSTAINED

30 lbs (13.64 kg) 20 lbs (9 kg)

VICTORIA TEST BY MARTIN HOLDEN, P. Eng

Baggage weight 730 lbs

Container 240 lbs

Total 970 lbs (440.9 kg)

TEST PULL BREAKAWAY FORCE SUSTAINED PULL

Westerly 40 lbs 23 lbs

Easterly 45 lbs 23 lbs

Mean 42.5 lbs (19.32 kg) 23 lbs (10.45 kg)

SUMMARY OF REGIONAL SAFETY OFFICER DECISION

Applicant: Clipper Navigation Inc.

Respondent: Canadian Auto Workers

KEYWORDS

Pull, force, pallet jack, ergonomics

PROVISIONS

Code: 145(2)(a), 125 (q)

Regs: 14.46

SUMMARY

A direction was given to Clipper Navigation Inc. because a safety officer determined that employees were required to use excessive force to move a container loaded with luggage and weighing approximately 1000 lbs, using a manual pallet jack on a distance of 200 feet.

The Regional Safety Officer VARIED the direction. The RSO found that it was not the force required to move the bin that was causing the injuries but the method used. The RSO also found that the direction quoted the wrong provision of the Code and corrected it accordingly