Decision No. 95-014

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:	R. J. Corfe Assistant Vice-President The St. Lawrence Seaway Authority, Niagara Region St. Catharines, Ontario
Mis en cause:	Peggy A. Wright Safety Officer #1707 Human Resources Development Canada
Respondent:	Gary Wilson Co-chairman safety committee Canadian Auto Workers Local 4212
Before:	Bertrand Southière Regional Safety Officer Human Resources Development Canada

A hearing was held in St Catharines on July 20, 1995. In attendance were:

- Lou Spagnol, Mechanical Maintenance/Diver
- Joel Fournier, Service person 9, President, local 4212
- John Thomas Wickabrod Jr., Union Operations, Safety rep
- Gary Wilson, Co-chairman, occupational health & safety committee, local 4212
- Vince Hearn, Union member
- Julie Bottoni, Safety Officer, HRDC, Labour Program
- Wayne Page, Technical adviser/OSH, HRDC, Labour Program
- R. Noel Safety Officer, HRDC, Labour Program
- Peggy WrightSafety Officer, HRDC, Labour Program
- W. Bruce TkachukSafety Officer, St Lawrence Seaway
- Shahin NajakOccupational health & safety consultant Najak & Associates
- R. J. Corfe Co-chairman, occupational health & safety committee, Niagara region, St Lawrence Seaway Authority

Background

Further to an inquiry conducted on October 18, 1994 and April 25, 1995, Safety Officer Peggy Wright, Human Resources Development Canada, issued a direction, dated April 25, 1995, to the St Lawrence Seaway Authority (SLSA) at St Catharines (appendix 1). On May 5, 1995, the St Lawrence Seaway Authority sent a FAX to the office of the Regional Safety Officer requesting a review of this direction.

This direction pertains to the valve wells located in the centre wall of locks 4, 5 and 6 of the Welland canal. Each of these wells is roughly 80 feet deep; in cross section, they measure about 21 feet by 14½ feet at the top and 179½ feet by 14½ feet at their narrowest point, at the middle landing. At the bottom of the well are located two valves (Taintor valves) which control the flow of water from one lock to another. A steel lever is connected to the top of the gate to actuate it either up or down. This lever is in turn connected to an endless steel cable which goes around a windlass located at the top of the well and a return pulley located about 35 feet below the surface. The top of the well is covered with steel grating; the intermediate landing located some 30 feet down is also constructed of steel grating. Appendix 2 is an illustration of one of the valve wells. A valve house constructed above the well protects the machinery from the weather. This valve house is open to the atmosphere.

Access to the intermediate landing is gained through a caged vertical ladder that extends from ground level down to the landing. Because these ladders are over 9m long, employees use a fall arresting system when going up or down these ladders. The bottom of the well where the valves are located is accessed when the locks are empty of water, generally at the end of the navigation season; under these circumstances, it can be accessed either from the top of the well or from the bottom of the lock through the valve culvert. The valve culvert is a tunnel, about 15 feet by 15 feet across, that runs along the bottom of the lock; a number of openings, about 9 feet wide by 15 feet high, situated along the bottom of the lock wall allow the water to flow to and from the lock through the culvert during normal lock operation. When the locks are empty of water, they allow easy access to the valve culvert and to the valves.

During lock operation, the water level in the valve wells varies according to the water level in the lock: it will vary from a depth of 20 feet at low pool to about 37 feet at high pool. Because the top of the well is covered with grating and the intermediate landing is also constructed of grating, that is, mostly open area, fresh air is pumped in throughout the well whenever the locks are in operation. As a result, for each cycle of lock operation (water level going up and then down), one third of the air in the well is exhausted and an equal volume of fresh air is brought in when the water goes down.

The Welland Canal was built in the early 1930's and the valve wells have been in existence for about 63 years. It is estimated that over this period, there have been about 50,000 entries in these wells. It is my understanding that during all these years, there has never been a problem with the air in these wells; there have been injuries, but these had nothing to do with contamination of the air, either by toxic or flammable substances. Neither were there problems associated with a lack or a surplus of oxygen. When work that produces pollutants, such as welding and painting, is carried out inside the well, then air testing is carried out and forced ventilation is also employed.

The employer's detailed submission is on record. Among the various documents, I have noted the test results obtained by hygienist Shahin Najak. There was also, in the documentation attached to the safety officer narrative form, a report on gas level readings obtained by B. Tkachuk (SLSA) in October 1994 in some valve wells. Both these reports indicate that air in the valve wells is safe.

Discussion

The definition of "Confined Space" given in Part XI of the Canada Occupational Safety and Health Regulations is:

11.1 In this Part,

...

"confined space" means an enclosed or partially enclosed space that

(a) is not designed or intended for human occupancy except for the purpose of performing work,

(b) has restricted means of access and egress, and,

(c) may become hazardous to an employee entering it due to

(i) its design, construction, location or atmosphere,

(ii) the materials or substances in it, or

(iii) any other condition relating to it;

In the case at hand, I believe there are a number of different situations that can exist, each of them requiring individual consideration.

1. Work at the intermediate landing: this workplace meets subsections (a) and (b) of the definition; as for subsection (c), the safety officer, in the LAO Assignment Narrative Form, says, in the last line of the 4th paragraph on page 6: "Therefore, in my opinion the valve well is a confined space by virtue of its design alone." She does not explain what it is in the design that may cause the valve well to become hazardous to an employee entering it. My examination of the drawing (appendix 3) as well as the explanations given to me at the hearing do not disclose any design characteristic that might cause this workplace to become hazardous to an employee. The air pumping action provided by the changes in the water level as the locks are operated ensures air renewal; there are no sources of polluting or flammable gases in the wells or in their vicinity. Accordingly, atmospheric conditions inside are acceptable. At page 5 of her narrative form, the safety officer says (3rd par.): "This confined space ... is potentially exposed to the entrance of an infinite number of hazards which could be released by ships passing through the locks." This statement is broad and, I believe, very hypothetical. A specific case should be identified as well as a reasonably possible scenario. I am aware

that many ships carrying for instance cereals or minerals go through the locks; I fail to see what hazardous product they could release; furthermore, if they did release a hazardous substance, the lock personnel handling the lines would be more at risk than an employee in the valve well.

There is some mechanical apparatus located on the intermediate landing which, if it were to move, would be dangerous to an employee working there. However, all mechanical apparatus must be immobilized and locked out before an employee goes down in the valve well, as is good industrial practice and as mandated by section 13.16 of the Regulations. Electrical equipment, if needed, is connected through a ground fault circuit interrupter (GFCI) which will protect an employee from receiving an electrical discharge. There is some risk due to a possibility of slips or falls due to the metal walking surfaces and to the high ambient relative humidity. But I do no think that this risk is typical of a confined space nor will classifying the space as a confined space alleviate this particular risk. Under these circumstances, I do not consider that an employee working at the intermediate level is working in a confined space unless there is a source of atmospheric contamination in or near the space. This could be due to an activity such as welding, using chemicals that can contaminate the air, such as solvent-based paints, etc. In this case, the valve well would be considered a confined space.

2. Work at the bottom of the valve well: work at the bottom of the valve well, essentially valve maintenance and repair, is performed when the locks are empty of water, generally during the winter maintenance period. Under those conditions, the valve can be reached either from the top, first by going down to the intermediate landing, and then going down a further 35 feet to the top of the valve or, alternately, by walking into the valve culvert from the bottom of the lock. I understand that due to the chimney effect of the valve well, there is good natural ventilation in the valve well under these circumstances. If the work activities do not produce contaminants, I fail to see what else could cause air contamination. It is not apparent from the drawings if an employee working on top of the valve could easily go down from there to exit through the culvert. If he can, then the location would not be considered a confined space because there are no longer "restricted means of access and egress": he can exit either through the top of the well or through the culvert. The culvert itself, 15 feet wide by 15 feet high would not be considered a restricted mean of access. If the work carried out at some point has the potential to spread contaminants in the air (such as welding or the use of epoxy sealants), then, depending on the ease of egress, the site could be considered a confined space. In any event, the employer has an obligation to ensure a safe workplace and even if the valve well is not a confined space, the requirements of Part X, Hazardous Substances and of Part XVI, First Aid, still apply.

   When reading Part XI of the Regulations, it is apparent that these regulations are primarily concerned with the protection of employees from atmospheric dangers: lack or excess of oxygen, toxic contaminants, flammable gases or vapours. Other concerns are: protection from materials, liquid or solid, which could be introduced inadvertently in the confined space while persons are present; protection of persons from mechanical and electrical hazards which are enhanced because of the exiguity of most confined spaces. The regulations also lay down requirements regarding: emergency measures and rescue from confined spaces; detailed entry procedures; education and training of employees. But the central concern of the

regulations is atmospheric quality: air analysis must be performed before each entry. In the instant case, air quality is not a problem unless certain work activities involving air contaminants are being carried out; in these situations, the employer has been following the measures required by Part XI.

Decision

The valve wells are not confined spaces unless either contaminant producing work is being carried out therein or there is a nearby source of contaminant which could conceivably contaminate the valve well. If contaminant producing work is being carried out therein, or if there is a nearby source of contaminant which could conceivably contaminate the valve well, the valve well could or could not be a confined space, depending on whether egress can be made through the valve culvert or not. If egress can be made easily through the valve culvert, it is not a confined space; if egress must be made by using ladders, it is a confined space.

In conclusion, I hereby vary the direction by restricting its application to those situations where contaminant producing work is carried out in the valve well or where there is a nearby source of contaminant which could conceivably contaminate the valve well, and egress must be made by using a ladder or ladders, fixed or portable. The direction issued by the safety officer on the 25th of April, 1995 is valid under these circumstances.This does include the entry permit requirement, unless the employer can demonstrate that it is not reasonably practicable. I would add, in answer to a question from Mr. R. J. Corfe in his letter of June 15, 1995, that section 11.5 of the Canada Occupational Safety and Health Regulations is applicable only if the requirements of section 11.4 cannot be complied with.

However, when performing contaminant producing work in the valve well and when egress can be made directly by the valve culvert, the valve well is not a confined space; the requirements of Part X, Hazardous Substances, do apply and the employer must ensure that employees are not exposed to levels of contaminants exceeding the regulatory requirements. Finally, even when the valve well is not considered a confined space, it becomes a workplace as soon as an employee goes in and consequently, all the requirements of Part XVI, First Aid, also apply. Among other things, these provide for the prompt rendering of first aid to an employee for an injury, an occupational disease or an illness.

Decision given on October 3, 1995.

Bertrand Southière
Regional Safety Officer

Decision No.: 95-014

SUMMARY OF REGIONAL SAFETY OFFICER DECISION

Applicant: The St Lawrence Seaway Authority, Niagara Region
R. J. Corfe, Assistant Vice President

KEYWORDS

Confined spaces; valve wells; restricted access; canal lock; St Lawrence Seaway Authority.

PROVISIONS

Code: 125(p), 125(q)
Regulations: 11.3(a) & (d), 11.4(1) & (2), 11.5(1), 11.7(1)(b), 11.7(2), 11.11(1), 11.11(2)

SUMMARY

Further to an inquiry in the workplace operated by the St Lawrence Seaway Authority, namely, the Welland Canal, the safety officer made a determination that the discharge valve wells which are 80 feet deep wells, about 15 feet by 20 feet in cross section, were confined spaces. Accordingly, the employer was directed to comply with the requirements of Part XI, Confined Spaces. The wells have a middle landing where some maintenance and lubrification work is conducted. During the navigation season, the bottom of the well contains water, the level of which varies according to the level in the lock. The cover of the well as well as the middle landing are made of steel grating.

The RSO confirmed the safety officer's direction only in so far as there was a source of air contamination (due to work activities for instance) in or near the well and egress was restricted. In the absence of either of these factors, the valve wells are not confined spaces and the requirements of Part X, Hazardous substances, and of Part XVI, First Aid, apply.