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Analysis of a worker-based participatory action research approach to the identification of selected occupational health and safety problems in Canada using mapping

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CHAPTER 6: THE EXPLORATION OF MAPPING FOR PARTICIPATORY ACTION RESEARCH THROUGH COMPLEMENTARY CASE STUDIES AND RELATED ETHICAL CONSIDERATIONS

6.0 Introduction

The chapter provides the rationale for the case studies to follow and offers a link between the earlier analysis and the empirical data collected by the mapping method. It illustrates the value of the case studies to mapping through the development of specific tools. Secondly it describes the characteristics of the case studies. Thirdly it addresses some overarching and some specific ethical issues.

Mapping presents many opportunities and also challenges for the researcher. The mapping 'methodology' has been analysed in depth in an earlier chapter and that analysis informs what is to follow. Chapters 6, 7 and 8 explore the application of the method underpinned by an understanding of the methodology in the field. It is possible, within the context and the usual time and resource constraints of a thesis, to explore only a small number of cases using the method. These have been chosen, not because they are necessarily generalisable, but because they will permit a substantial testing of the methods in a variety of Canadian settings and locations. These case studies therefore provide evidence of the value of participatory action research and mapping to generate new or different data to help analyse the barriers to and facilitators of improved workplace health and safety. The case studies also shed additional light on the wider analysis of occupational health and safety offered in Chapters 2 and 3.

The case studies presented in Chapters 7 and 8 are examples of collaborative participatory action research projects, conducted with a range of groups. The case

studies therefore explore a range of utilisations of mapping. Each addresses different parts of the multi-part research question.

The casino gaming case study explores the question: *Can mapping within worker-based participatory action research be used to:*

- *explore current occupational health and safety conditions?*
- *contribute to occupational health and safety improvements at a local level and beyond?*
- *raise worker and public awareness of health and safety?*

The Holmes foundry and insulation complex case study explores the question: *Can mapping within worker-based participatory action research be used to:*

- *establish workers' previous exposures for compensation purposes?*
- *support efforts to bring about justice through compensation for workers affected by unsafe working conditions?*
- *raise worker and public awareness of health and safety?*

The casino gaming case study in Chapter 7 was prospective and used mapping to tackle current occupational health and safety problems.

The Holmes foundry case study in Chapter 8 was retrospective and used mapping to gather evidence of past exposures and subsequent disease for purposes of workers' compensation.

The chapter therefore provides the rationale for conducting the particular research studies to test the research question; it identifies what each brings to the analysis; and it outlines the steps taken to ensure the research was ethically conducted.

6.1 What the case studies bring to the exploration of the value of mapping

Each of the previous chapters provides elements necessary to the evaluation of the case studies. The introductory chapters identify the need for alternative approaches to occupational health and safety research: workers continue to bear risks at work; the socio-political environment supports the ongoing threat to workers' health and safety; there are institutional barriers to the identification and correction of conditions that place workers' health at risk and which hinder workers' success in securing compensation for harm they have sustained through their employment.

The literature and examples of mapping and participatory action research explored in Chapters 4 and 5 provide an argument for the development and utilisation of mapping techniques within a participatory action research approach to overcome some of the identified barriers.

6.1.1 Development of mapping tools

The mapping and participatory action research literature shaped the adaptation and enhancement of the mapping exercises, principally by the author of this dissertation, for use as data collection tools within the worker-based collaborative research undertakings presented in Chapters 7 and 8. While occupational health and safety mapping techniques had previously been used for worker education, awareness-raising, and some worker-based research (Reich and Goldman, 1984; Mujica, 1992;

Keith et al., 2001b; Wigmore, 1996; Firth, et al., 1997; Moir et al., 1998; Habes and Wigmore, 1998) and were gaining acceptance with the unions *(see Chapter 5),* they were further modified for use in the case studies. For example, colour coding and hazard categorisation was added (as will be further elaborated in the case studies). "Your World" mapping was an altogether new concept, developed for use in the gaming workers research to identify some of the broader psychosocial issues experienced by the workers in their personal lives that stemmed from their work (Keith et al., 1997b, 1998a, 1998b, 2001a, 2002; Keith, 2003a, 2003b).

6.2 Characteristics of the case studies

The case studies now explore the use of mapping within different time frames, settings, and work organisation characteristics, although there are some similarities too. These differences and similarities are outlined in the following sub-sections.

6.2.1 Characteristics of the casino gaming workers case study (Chapter 7)

The casino gaming workers research was an example of classical PAR, which reacts and responds to worker or community concerns rather than being initiated by a researcher. Workers brought their concerns to the attention of the researcher along with her colleagues at the Occupational Health Clinics for Ontario Workers and Manitoba Federation of Labour Occupational Health Centre.

At the time the gaming workers research was undertaken, there was virtually no prior study of the occupational health and safety concerns of gaming workers to be found in the published literature. The research (Keith et al, 2001a) was the first to

be published in the scientific literature that examined the range of health and safety hazards in the fast-growing casino gaming industry.

The setting for the gaming workers research study encompassed two Canadian locations: Windsor, Ontario and Winnipeg, Manitoba. The gaming workers were represented by two unions: the Canadian Auto Workers (CAW) and the Manitoba Government Employees Union (MGEU). All of the participating workers were union members and were currently employed. The research was undertaken to raise worker and public awareness and to improve current occupational health and safety conditions.

Gaming workers directly gathered data through the peer facilitation of focus groups. Improvements to current, local health and safety conditions were to be pursued by the gaming workers through their unions' negotiations with their employers.

6.2.2 Characteristics of the Holmes Foundry and Insulation complex case study (Chapter 8)

Like the casino gaming workers study, the Holmes case study was initiated when workers approached the Occupational Health Clinic for Ontario Workers with their concerns about the number of former workers who had become ill.

The Holmes research is a retrospective study. The complex has since shut, making it impossible to investigate working conditions that might be responsible for former workers' health problems.

Prior to the research, very little information was available and the general public was unaware of the magnitude of the Holmes tragedy. The Holmes case study (Keith and Brophy, 2004), not only addressed the research question, it shed light on what "may be the worst outbreak of industrial disease in recent Canadian history" (Mittelstaedt, 2004, F1).

The setting for the Holmes workers research study was a single location, Sarnia, Ontario. Some of the participating workers were members of the CAW union and others were non-union. All were former workers as the Holmes complex had ceased operations. The research was undertaken to identify the occupational associations of workers' injuries and disease to support claims for compensation and to raise awareness of occupational health and safety among workers and the public.

Collaborators from the Occupational Health Clinic for Ontario Workers conducted the data gathering. Redress was to be sought through the workers' compensation system with support from the CAW, Occupational Health Clinics for Ontario Workers, and worker advocates.

Each of the case studies tests the efficacy of mapping for worker-based collaborative participatory action research. They demonstrate a variety of techniques. For example, hazard mapping was carried out in both studies in focus group settings. Body mapping, however, was undertaken in focus groups only in the casino gaming study. It was carried out with individuals at a large group gathering in the Holmes case study. "Your World" life mapping and the priorities

and action planning exercises were tested only in the casino gaming case study. Other specific differences, such as colour coding and recruitment methods, are identified in the case studies. In both studies self-reported data were collected using visual participative mapping techniques for the purpose of change.

Later chapters will reveal the value and limits of the case studies and what further light they shed on Canadian occupational health and safety

6.3 Research ethics

A number of steps were taken to ensure that the research would meet ethical standards for human subject research in each of the case studies included in the dissertation. As the earlier chapters reveal, fear of retribution and job loss can stifle occupational health and safety awareness-raising and improvement efforts. The protection of the participating workers' confidentiality was, therefore, of paramount importance. These included taking steps to meet appropriate university ethical approval criteria for the studies.

6.3.1 Ethical research conduct in the casino gaming workers case study (Chapter 7)

Ethical conduct pledges were signed by all research team members and focus group leaders involved in the casino gaming workers' study *(see Appendix I)*. All contributing Occupational Health Clinic for Ontario Workers staff members had signed pledges of confidentiality as a condition of their employment *(see Appendix J)*. Information packets *(see Appendix K)* and informed consent forms *(see Appendix C)* were provided to each participant. The participant consent form outlined relevant information about the study, rights of the participants and

obligations of the researchers to the participants. It informed participants of the project's purpose, who was conducting and advising the study, and the participatory and action-oriented nature of the research process. The form identified who was conducting the focus groups. It informed participants that the proceedings would be tape-recorded. It specifically noted that any participant could ask that the tape recorder be turned off at any time. The form emphasised that participation was voluntary and that the participant could withdraw from the session at any time without jeopardy. Any anticipated benefits or risks were listed. A pledge by the research team members to maintain participant confidentiality was given, noting that information would only be published after identifiers (names, descriptions) had been removed. Participants were informed about how information gathered in the study would be utilised. Maps, charts, forms, evaluations, logbooks, and audiotapes from the focus groups were stored in a secured location.

6.3.2 Ethical research conduct in the Holmes Foundry and Insulation complex case study (Chapter 8)

The facilitators (including the author of this dissertation), who gathered data from the former Holmes foundry and insulation complex workers during hazard and body mapping sessions, were employed by the Occupational Health Clinic for Ontario Workers. Each had signed an oath of confidentiality as a condition of employment *(see Appendix J)*. No personal identifiers were recorded on the maps to protect confidentiality of participant information. Hazard mapping (to collect self-reported hazard information) was voluntary. It was conducted in small group settings where participants recreated their workplace on paper and identified hazards by consensus. As the Holmes complex had been closed for over a decade, fear of employer retribution and job loss were not concerns. No health or other personal data were

gathered during the hazard mapping sessions. Body mapping was later conducted to gather self-reported health data from former Holmes workers or their proxies (surviving family members). The body mapping took place at an all-day intake clinic. Participation in the intake clinic process was voluntary and participants were informed of the purpose of the project *(see Appendix L)*. The compensation advocates and clinic staff who gathered participants' personal histories, all signed pledges of confidentiality. Data that contained identifiers were then stored (as per medical confidentiality requirements) at the occupational health clinic in a secured location. Participants were informed that the body mapping was also a voluntary exercise. Body mapping was done with participants individually behind a screen, which had been put in place to provide additional privacy. Body mapped health data were recorded on the maps and in a logbook. Logged data were identified only by the intake code numbers assigned to the individuals upon registration. Maps, published reports, and articles contain no personal identifiers.

6.4 Summary

The case studies will provide one important means to illuminate the value and difficulties of mapping as it was adapted and developed as a participatory action research tool; they test the literature; and they directly address the multi-part research question. The research participants' confidentiality was protected through ethical research conduct measures.

The case studies are presented in detail in the following chapters. They are further discussed and evaluated in Chapter 9 with specific reference to the multi-part research question.

CHAPTER 7: CASINO GAMING WORKERS' OCCUPATIONAL HEALTH AND SAFETY RESEARCH STUDY

"Where else could you be kept up all night by lights and noise and still be in a great mood? Casino Windsor and the Northern Belle Casino of course." "The spicy atmosphere at the Northern Belle Casino is sure to keep your excitement level high as you dance with lady luck all night long." "The excitement begins as you step through the door, with intense action in the first floor and table games areas." "Try your hand at your game of choice in the old world elegance of the Crystal Casino...it conjures up images of Monte Carlo...Perhaps 007 is there. If not, you can still play the games that Mr. Bond would play" (Source: promotional literature for Windsor, Ontario and Winnipeg, Manitoba gaming facilities, 1998).

7.0 Introduction

This chapter explores an application of mapping and participatory action research (PAR) used to explore and attempt to address current occupational health and safety problems in the casino gaming environment. Mapping was utilised to gather and present evidence of current hazards and related health and psychosocial problems and to collectively create an action plan.

The Casino Gaming Workers' Occupational Health and Safety Research Study was carried out by the author of this dissertation in collaboration with casino gaming workers and in partnership with other occupational health and safety professionals and academics. The study involved the Canadian Auto Workers union (CAW), the Windsor Occupational Health Information Service (WOHIS), the Occupational Health Clinics for Ontario Workers (OHCOW), the Manitoba Gaming Employees Union (MGEU), and the Manitoba Federation of Labour Occupational Health Centre (MFL OHC). In keeping with the principles of participatory action research, the worker-researchers were active participants.

The chapter addresses three parts of the dissertation's multi-part case study related research question:

Can mapping within worker-based participatory action research be used to:

- *explore current occupational health and safety conditions?*
- *contribute to occupational health and safety improvements at a local level and beyond?*
- *raise worker and public awareness of health and safety?*

The chapter will present a background of the casino gaming industry in Canada. Secondly it will explain why the study was undertaken. Thirdly it will review the very sparse literature regarding occupational health and safety in the casino gaming industry. Fourthly it will describe the specific gaming facilities involved. The research study itself will then be presented. This account will include the development of the study, its specific goals, a detailed presentation of the methods undertaken, the study's findings and outcomes, discussion of what contribution was made by the methods and findings, and, finally, concluding remarks.

7.1 Goals of the research

Together the collaborative research team developed a set of goals for the research.

The general *long-term* goals were defined as:

- to identify health and safety hazards in the gaming industry;
- to identify barriers to overcoming health and safety hazards;
- to develop strategies for overcoming health and safety hazards;
- to open lines of communication between co-workers and between workers and their union regarding health and safety issues, thereby strengthening

worker solidarity;

- to use the information generated from the research to improve current working conditions.

Because the general, long-term goals were ambitious, it was agreed that the research would have to proceed in modest steps. The initial phase of the research would pursue several *immediate* goals:

- to find out about any workplace health and safety concerns of casino gaming workers in Windsor, Ontario and Winnipeg, Manitoba;
- to identify three to five priority concerns for action and/or more in-depth study;
- to help gaming workers become more aware of their own workplace health and safety issues.

No hypotheses were predefined -- this would be a general exploration of the casino gaming work environment from the perspective of the gaming workers themselves.

7.2 The gaming industry in Canada

In 1969, the Criminal Code of Canada was amended to legalise gambling in provincially regulated and licensed lottery schemes and casinos. The gaming industry, as described in this case study, refers to casinos and entertainment centres that provide regulated gaming or gambling services.

The gaming industry in North America, once limited mainly to large gambling centres in the United States such as Las Vegas and Atlantic City, is now rapidly

expanding into the Canadian economy. A booming growth has occurred over the past decade. "Growth in the gambling industries has continued to outstrip that of most industries..." (Marshall, 1999, p 1). All of the gaming facilities in Canada are licensed by provincial or territorial lottery/gaming corporations. While all casinos are government regulated, some are privately managed, some are government run, and others are operated by charitable or aboriginal groups (Ontario Lottery and Gaming Corporation, 2003).

According to Statistics Canada, between 1992 and 1997 profits to provincial governments from gambling rose from 1.7 to 3.8 billion dollars and employment rose from 12,000 to 35,000 (Marshall, 1999). In 2001, there were fifty-nine permanent casinos in Canada (Azmier, 2001).

Yet, in spite of its growing workforce and enormous impact on the economy, until this study there had never been a systematic investigation of occupational health and safety within the gaming industry.

7.3 Background to the research

The research was initiated in 1997 after gaming workers contacted the Occupational Health Clinics for Ontario Workers (OHCOW) and adjoining Windsor Occupational Health Information Service (WOHIS) in Windsor, Ontario, Canada. The OHCOW-WOHIS occupational health centre includes a diagnostic medical clinic, occupational hygiene and ergonomic services and an affiliated inquiries service. Clinic physicians diagnosed individual gaming workers with dermatitis, respiratory disease, negative reproductive outcomes, and a variety of

musculoskeletal injuries. The clinic staff also received inquiries from gaming workers requesting information about ergonomics and basic universal precautions for cleaning up blood and body fluid spills. There were concerns about noise, dusts, second-hand tobacco smoke, personal security, and harassment.

The clinic researchers discussed the issue with the director of the Manitoba Federation of Labour Occupational Health Centre (MFL OHC) in Winnipeg. It became apparent that the gaming workers in both locales had unmet occupational health and safety needs. There was a high demand at the workers' clinics in both locations for medical consultation, industrial hygiene and ergonomics services, and information.

7.3.1 Casino gaming occupational health and safety literature

A review of the occupational health and safety literature for casino gaming workers at the time of the study (1999) revealed very few scientific studies and reports regarding gaming workers' health and safety. It was apparent that there was a need for research for this expanding industry that went far beyond the modest resources of the occupational health centres. Table 7.1 is a brief summary of the results of the review.

None of the available literature fully explores the potential occupational health and safety risks of the gaming environment.

Table 7.1 Casino gaming occupational health and safety literature up to 1999

Focus of article	Authors	Year of publication
An incidence of pesticide exposure resulting in solvent intolerance was investigated in a hotel attached to a gaming facility	Cone and Sult	1992
Gaming workers were found to be exposed to greater levels of environmental tobacco smoke than the general population in a study carried out in a casino hotel in Atlantic City	Trout and Decker	1996
Higher levels of amines were found in side-stream tobacco smoke than in main-stream smoke in a study conducted in the gaming room of a club	Luceri et al.	1993
Mutagenic activity was found in the samples collected in the breathing zones of workers in a casino where smoking was present	Kado et al.	1991
Casino owners in Western Australia were sued by their employees for failing to provide a smoke-free environment	Ragg	1993
A job satisfaction questionnaire was administered to casino employees to identify any association with depression and aggression	Lapenz and Lester	1997
Two studies of casino card dealers found low job satisfaction another found no increased stress	Darcy and Lester; Frey and Carns; Posner et al.	1995; 1995; 1985
An investigation into the gambling, drinking, smoking and other health risk activities of gaming workers	Shaffer et al.	1999

Source: M Keith

Since the Windsor-Winnipeg study was conducted, a pilot survey of gaming workers in Scotland was carried out by the GMB [General Union] (GMB, 2001; British Broadcasting Corporation, 2001). The GMB referred to the Windsor-Winnipeg gaming workers study as a "groundbreaking survey of gaming workers in North America published earlier in 2001" (p 1). In its final report, the GMB concluded that shift work, musculoskeletal problems, second-hand smoke, ventilation, bullying, harassment, and discrimination were occupational health and safety issues that needed to be addressed. It provided a list of fifteen recommendations to deal with these issues. Calling this a first step, the union stated that "we believe this is the first time ever detailed information on casino workers'

health in Scotland has been compiled" (p 5); they pledged to carry out further research.

7.3.2 Development of the research

The occupational health clinics were faced with the practical questions of where and how to begin to address the many health and safety concerns that were being raised by the gaming workers in their respective communities. After a series of discussions, it was proposed that the most valuable and manageable undertaking would be to try to identify the most immediate health and safety concerns of the gaming workers in the two communities and to explore ideas for improvement. Thus, a collective consultative process was launched. The occupational health centres in both communities struck a research partnership with each other and with the unions representing the gaming workers: Canadian Auto Workers (CAW) in Ontario and the Manitoba Government Employees Union (MGEU) in Winnipeg, Manitoba. The CAW is a private sector union and the MGEU is a public sector union.

7.4 The gaming facilities

At the time the study was conducted in 1997-1998, Casino Windsor was operating out of two temporary facilities. The "Interim Casino Windsor" was opened in 1994; the "Northern Belle Casino," a docked riverboat, was opened in 1995 (Casino Windsor, 2003). The workforce totalled approximately 3,600 employees, represented by the Canadian Auto Workers (CAW).

Winnipeg, Manitoba opened its first gaming facility in 1989 followed by two more in 1993 (Manitoba Gaming Control Commission, 2003). The three gaming sites involved in the study-- the Crystal Casino, Club Regent and McPhillips Street Station employed approximately 800 gaming workers at the three facilities. All gaming workers in the province of Manitoba are organised by the Manitoba Government Employees Union.

Casino Windsor was modelled after the informal "Las Vegas" style casinos (Casino Windsor, 2003). Winnipeg, Manitoba's Crystal Casino was styled after the more formal "Monte Carlo" clubs. At the time of the study, the gaming facilities in both communities provided essentially the same services. However, there were a few differences: tokens were used for Windsor, Ontario's slot machines; coins (actual currency) were used in Winnipeg, Manitoba; alcohol was available in all gaming areas of Windsor, Ontario's casinos but was not yet permitted in the Winnipeg, Manitoba gaming facilities.

7.5 The research process

The first step in the research process involved meetings between occupational health centre staff in Windsor, Ontario and Winnipeg, Manitoba with several small groups of gaming workers in their own communities. The occupational health centres' staff sought to gain insight into the gaming workers' health and safety concerns and to acquire a basic understanding of gaming work processes. They also made informal visits to the gaming facilities to observe some of the work directly.

Members of each collaborating organisation along with academic research advisors

carried out extensive planning. Joint and separate meetings were held to map out the research process, explore methods, define roles, and establish the goals of the research *(see Section 7.1)*.

It was agreed that the gaming workers would govern all critical decisions in the research process. In all other respects, research team members would be considered equals. The research advisors-- professionals, clinic staff and academics-- would advise on such matters as appropriate study methods, research ethics, and control measures.

7.6 Methods

This is primarily a qualitative study. The methods applied in Windsor, Ontario and Winnipeg, Manitoba differed slightly in that Windsor, Ontario utilised colour-coding for occupational categorisation of workers in most of its focus groups and was therefore able to conduct some very basic quantitative analysis as well, the results of which were shared with the entire team and included in the Windsor report (Keith et al, 1997) but not the joint Windsor-Winnipeg report (Keith et al., 1998).

As the research was intended to give expression to the health and safety concerns of workers, primarily qualitative research methods were utilised. For those engaged in participatory action research, qualitative research methods are particularly apt. At the root of participatory action research is a critique of the dominant quantitative research approach-- that since quantitative research utilises only so-called objective or hard data, it excludes all knowledge that cannot be readily quantified

(Loewenson et al., 1993). Qualitative research, on the other hand, can provide rich in-depth descriptions and understanding of people's subjective experience. The use of qualitative research in occupational health and safety can provide insight and interpretation into workers' knowledge, opinions, feelings and social dynamics that would be missed by quantitative research alone (Needleman and Needleman, 1996) *(see Chapter 4)*.

Constrained by limited resources, focus groups were deemed by the research team to be the most efficient and effective means for data collection and exploration, as they would make it possible to involve more than one individual at a time. By definition:

> The focus group interview is a qualitative research technique used to obtain data about feelings and opinions of small groups of participants about a given problem, service, or other phenomenon (Basch, 1987, p 414).

Developed primarily as a tool for marketing research (Basch, 1987), focus groups are useful for obtaining rich insight into the thoughts and feelings of a target group about specific topics or issues (Association of Occupational and Environmental Clinics, 1996). They enable participants to compare experiences and encourage each other to discuss concerns (Barnsley and Ellis, 1992).

Focus groups can provide valid information; this is described as "consensual validation" in the Italian Workers Model (Wintersberger, 1985, p 37); "group pressures may inhibit individuals from providing misleading information and may create an atmosphere where sensitive topics can be discussed openly" (Basch, 1987, p 434). The group dynamic can be effective for "gaining insights into people's

shared understandings of everyday life and the ways in which individuals are influenced by others in a group situation" (Gibbs, 1997).

Furthermore, focus groups provide a mechanism for interaction (Basch, 1987) and collective interpretation (Morgan, 1998). There is evidence that decisions and commitments made in a focus group setting are more likely to be successfully carried out, particularly in the area of health (Basch, 1987). These characteristics ideally suited the project's goals. In order to create a safe, encouraging focus group environment where the participants would experience a sense of trust, it was determined that the gaming workers on the research team should act as focus group leaders and that the focus group sessions would be conducted in a location away from the gaming sites. Occupational health centre staff would attend all focus group sessions as observers and recorders.

7.6.1 Mapping

The chosen method of data collection was mapping. Mapping has been used successfully as an occupational health and safety awareness-raising technique; it has had more limited, but successful use as a research tool (Keith et al., 2001a; Keith, 2003a, 2003b; Keith and Brophy, 2003b, 2004; 2004; Mujica, 1992; Labor Occupational Safety and Health Program, 1996; Kirby, 2002; Brown, 1995; Hazards, 1997, 1998, 2000; Koehnen, 2002; de Koning and Martin, 1996) *(see Chapter 5 for further information regarding mapping).*

7.6.2 Focus group leaders' guide

A focus group leaders' guide was developed *(see Appendix M)* providing instructions for each of the mapping exercises and a set format for the focus group sessions in both cities. This minimised the possibility of variances in approach by the multiple focus group leaders and ensured a degree of uniformity. The guide also included instructions for creating a comfortable, safe and productive atmosphere.

The following *four-step mapping process* was adapted for use as a set of data collection tools. The exercises were designed to gather descriptive data regarding the participants' perceptions of their own health, the workplace hazards they were facing, and the psychosocial impact of their work on their personal lives. The exercises culminated in the development of an action plan to address prioritised issues. All pertinent information from maps, charts, and discussion, was recorded in a previously prepared session-specific logbook.

The mapping exercises used were as follows *(see Chapter 5 for more detailed descriptions)*:

1. *Body mapping* was used to elicit subjective information regarding the *health* problems (illnesses, injuries, aches and pains) of workers. This exercise was carried out collectively using large, simple images of the body (front and back) posted on the wall. Focus group participants were asked to place self-sticking dots on the body map to indicate any health problems they were experiencing. Participants then reported, one at a time, what health problems their dots represented.

2. *Hazard mapping* was used to identify occupational *hazards*. Focus group participants were asked to draw a rough diagram of their work area or areas on large sheets of paper. Collective drawing of maps was encouraged when there was more than one person from a particular work area in the focus group. Participants were instructed to draw the physical layout of their work areas, themselves, their co-workers and any hazards they could identify. Using previously prepared colour-coded, self-sticking labels, participants were asked to categorise the hazards under the headings of: biological, chemical, physical, stress or work design. They were then asked to describe their drawings to the rest of the group.
3. *Life mapping,* referred to in the casino gaming workers research as "Your World" mapping, was designed to bring out the *psychosocial* impact of work and its hazards on the gaming workers' lives. It was specifically developed for this research study. A large sheet of paper, with a small human figure drawn in the centre, was fixed to the wall. Participants were asked to add symbols or words around the human figure to represent any areas of their life they believed to be affected by their work. For example, the effects of shift work on childcare might be represented by figures of children and a clock. Participants then explained their drawings and/or written comments to the group.
4. A *Priorities and Action Plan* was produced by each focus group using a large wall chart to record what participants consider to be priority problems, their associated causes and effects, and some creative solutions. Focus group participants were each asked to identify one priority workplace health and safety concern for action and/or more in-depth study. The chosen priorities

were to be based, not only on their personal experience, but also on what they considered important to their co-workers. Participants were asked to consider:

- Is this a serious concern for me personally?
- Is this a serious concern for my co-workers?
- Has this concern resulted in serious health problems?
- Could this concern result in serious health problems?
- Are many people affected by, or at risk of being affected?

Participants were asked to cast three votes for their top priority issues using self-sticking dots. The rationale of the research team was that one vote might be insufficient and, in fact, frustrating to participants who might have several issues of equal concern. The multiple votes gave them the opportunity to vote on, not only their own top priority issue, but other participants' issues as well. The limit of three votes was set by the research team as there was concern that a greater allowable number might minimise the importance of each of the votes. The final stage of the exercise entailed a brainstorming discussion regarding possible remedies or solutions.

7.6.3 Training for focus group leaders

A day-long training session, led by centre staff and a popular educator, was held for the focus group leaders to ensure their familiarity with the focus group format, to clarify their role, and to provide ideas for dealing with potential group dynamics issues. Focus group leaders were advised that their role would be to animate discussion while abiding by such principles as maintaining impartiality, treating

study participants respectfully, maintaining confidentiality, refraining from unduly influencing study participants, and being aware of possible conflicts of interest.

The focus group leaders then engaged in the mapping exercises themselves to better understand how the series was to be conducted. One of the issues that emerged through the process, as focus group leaders described their own health and safety concerns, was the potential difficulty in recruiting participants. The "Your World" mapping exercise revealed that work was exhausting and stressful leaving little energy for additional activities. This raised the concern that recruitment of participants might be a challenge. Another concern raised by the focus group leaders was the length of time required to complete the mapping series. The initial mapping series included an individual body mapping exercise as well as a group exercise. It had been felt that more personal or embarrassing health issues might emerge on the individual, privately completed body map. However, in the interest of time, the individual body map exercise was dropped. Other minor suggestions were made regarding the remaining exercises. Modifications were subsequently made to the Focus Group Leader's Guide based on this feedback.

7.6.4 Recruiting focus group participants

To recruit volunteer study participants, Canadian Auto Workers (CAW) and Manitoba Government Employees Union (MGEU) representatives wrote directly to all gaming workers in their respective Ontario and Manitoba facilities. The representatives also promoted the study by posting flyers and providing information packages at work. Gaming workers who were interested in attending a focus group

session were asked to submit a completed participant form. They were then organised into appropriate groupings.

7.6.4.1 Demographics of participants

The focus group sessions, averaging two and a half to three hours each, were held at various times of the day and evening to accommodate workers' shifts. Participants filled out a brief questionnaire in which they provided some demographic information, such as gender, seniority and age *(see Appendix N)*.

A total of 51 gaming workers in Windsor, Ontario and 20 gaming workers in Winnipeg, Manitoba participated in sixteen separate focus groups. The five focus groups held in Winnipeg, Manitoba were made up of participants from the same occupation. There was some difficulty in scheduling such homogeneous groups in Windsor, Ontario, as there were more job classifications than in Winnipeg, Manitoba. Four of the thirteen focus groups in Windsor, Ontario were made up of participants from the same occupation; the remaining nine sessions were mixed. In order to correlate data with occupation in the mixed groups, the focus group leaders provided Windsor, Ontario participants with unique colour or shape-coded stickers to assist with the recording of mapping results by occupation.

As Appendix O shows, there were workers from each of the five gaming facilities operating in the two communities. Sixteen occupational groups within the gaming industry were represented, however the dealers (17) and porters-cleaners (13) were most heavily represented. The majority (46) had worked at the gaming facilities between one and five years. There were thirty-six (36) women and thirty-five (35)

men; twenty-six (26) were in the 21-30 age range; twenty-six (26) were in the 31-40 age range; fifteen (15) were in the 41-50 age range; three (3) were in the 51-60 age range; one (1) did not specify age. There were fifty-six (56) full-time, thirteen (13) part-time and one (1) casual employee. There were two (2) self-reported sexual orientation minority and six (6) self-reported racial minority participants (Note: some demographic information was missing from one of the participants).

7.6.5 Observing and recording focus groups

Occupational health centre staff functioned as observers and recorders for each focus group. They provided clarification regarding the exercises, if needed; ensured the research was being carried out in a sound manner; and recorded all of the participants' pertinent comments. Any observations, impressions, and feelings of the observers were also recorded. The observers and recorders did not facilitate or participate. As part of the reflection process characteristic of participatory action research, following the sessions, there were debriefing meetings of the focus group leaders, observers, and recorders. This provided an opportunity to discuss any difficulties, to plan the next sessions, and to share observations.

7.7 Summary of the joint Windsor-Winnipeg results

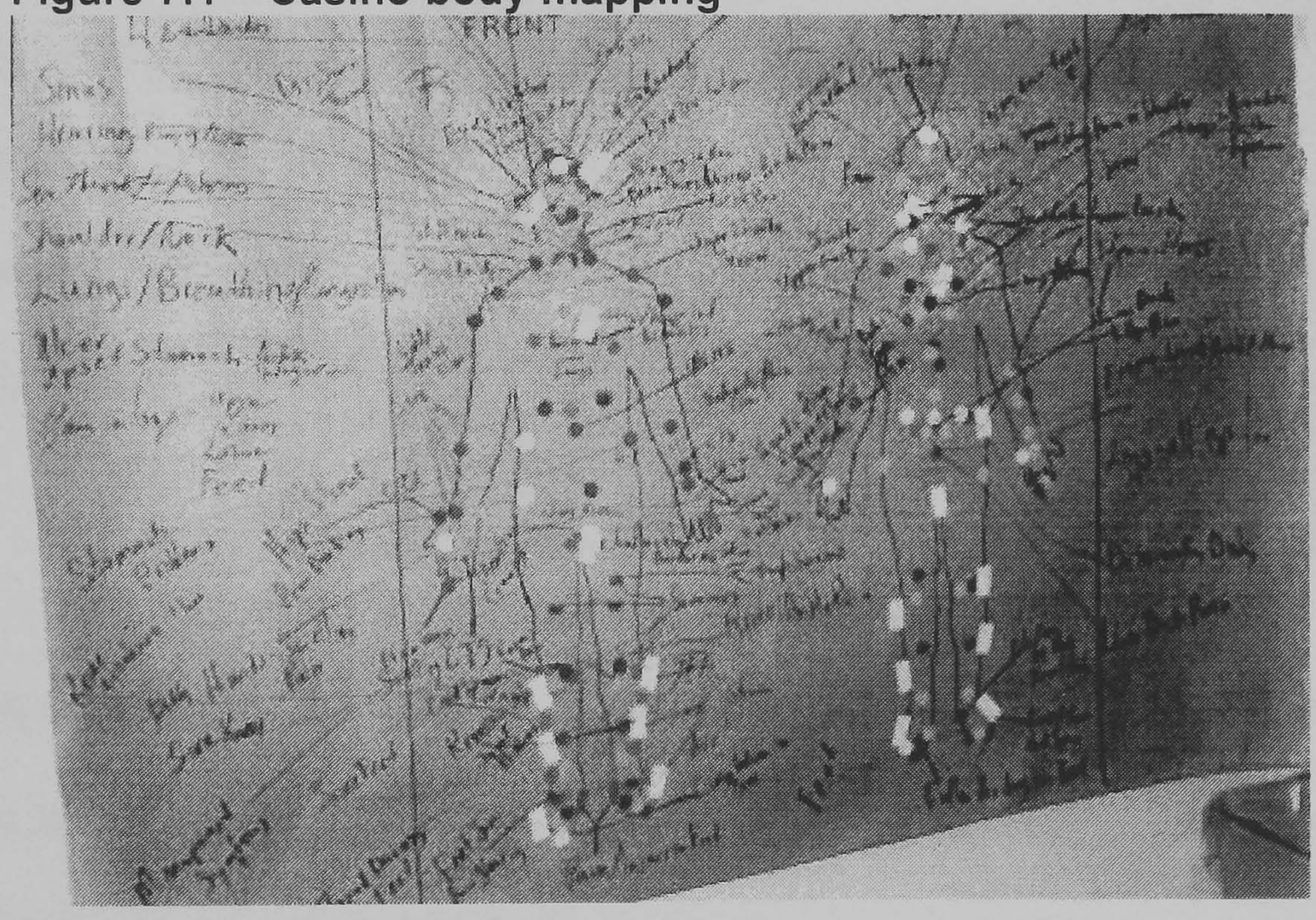
The data collected through the use of the mapping exercises provided information regarding the participants' self-reported health problems, the workplace hazards they face, and the impact of their work on their lives beyond the gaming facility doors. The priorities and action charting provided a set of prioritised issues and recommendations for remedial action.

Following the completion of all the focus group sessions, a research team sub-committee in each locale, which included occupational health clinic staff and principal worker-researchers, reviewed, categorised and analysed the raw data recorded in the session logbooks and on audiotapes. They categorised key points.

7.7.1 Combined Windsor-Winnipeg body mapping data

The completed body maps revealed concentrations of dots in the lower back, shoulder, joint, neck and head areas. These self-reported data indicate that body mapping can be used to gather a wide range of health problems *(see Figures 7.1 and 7.2)*. In many cases the participants indicated their assumptions regarding causality.

Figure 7.1 – Casino body mapping



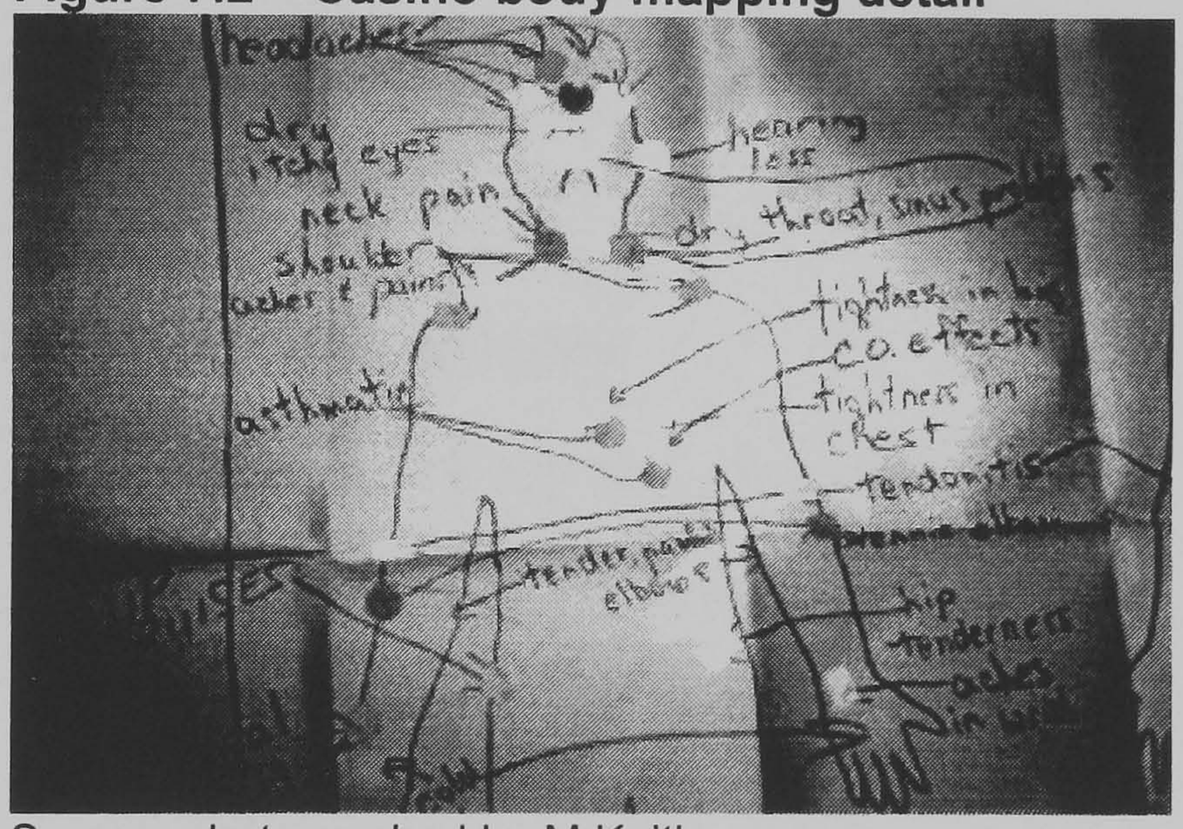
Source: photographed by M Keith

Musculoskeletal pain in the shoulders, back, hips, feet, ankles, knees, neck, elbows, wrists, hands, and fingers was attributed to heavy lifting, manual handling of coins, pushing heavy carts or trolleys, lifting buckets of coins from below floor level and stacking them on trolleys (called "coin pulls"), pushing and pulling trolleys loaded

with coins, wearing coin belts, prolonged standing and walking (in some cases on uneven surfaces such as cobblestone flooring), having to move furniture to clean while holding a mop or broom in the other, (having been instructed never to set the cleaning equipment down). Repetitive strain injuries, such as tendonitis, carpal tunnel syndrome, stress fractures, and epicondylitis were assumed by the workers to have been caused by repetitive work such as dealing cards or using a computer keyboard and by awkward postures from poorly designed workstations. Traumatic injuries, such as pinches, crushes, burns, scalds and cuts had occurred reportedly from poorly designed tools, equipment, and facilities.

Reproductive problems, such as miscarriages were thought to be related to poor ergonomic design, prolonged standing and second-hand smoke.

Figure 7.2 – Casino body mapping detail



Source: photographed by M Keith

General health complaints, such as headaches, irritability, fatigue, sleeplessness, and dizziness were largely attributed to stress, shift work, and second-hand smoke. Heat and cold related problems were attributed to unevenly controlled indoor temperatures, inappropriate clothing requirements and uniforms, and outdoor travel or activities.

Hearing loss or ringing in the ears was believed to have resulted from working in close proximity to the noisy slot machines. Eyestrain and discomfort were thought to be caused by flashing or glaring lights and/or second-hand smoke.

Allergic reactions and skin rashes, were attributed to coin dust, insects, harsh cleaning agents, and other chemical usage.

Upper and lower respiratory tract problems, such as shortness of breath and sore throats, were believed to be related to the poor indoor air quality and second-hand smoke. A perceived increase in colds, flu, nausea, and gastrointestinal problems was attributed to the gaming workers' close contact with the general public.

7.7.2 Combined Windsor-Winnipeg hazard mapping data

The hazard mapping similarly elicited a wide range of concerns. The following are the occupational hazards most frequently cited by the gaming workers in each of the five assigned categories: physical, chemical, biological, work design, and stress hazards *(see Figures 7.3 and 7.4)*.

In the *physical hazards* category, poor temperature control was mentioned by all occupational groups. Some of the comments related to temperature were linked with inflexibility in the dress code.

Three groups identified noise from slot machines and customers as a hazard. Other hazards categorised by the gaming workers included equipment and machinery and heavy work.

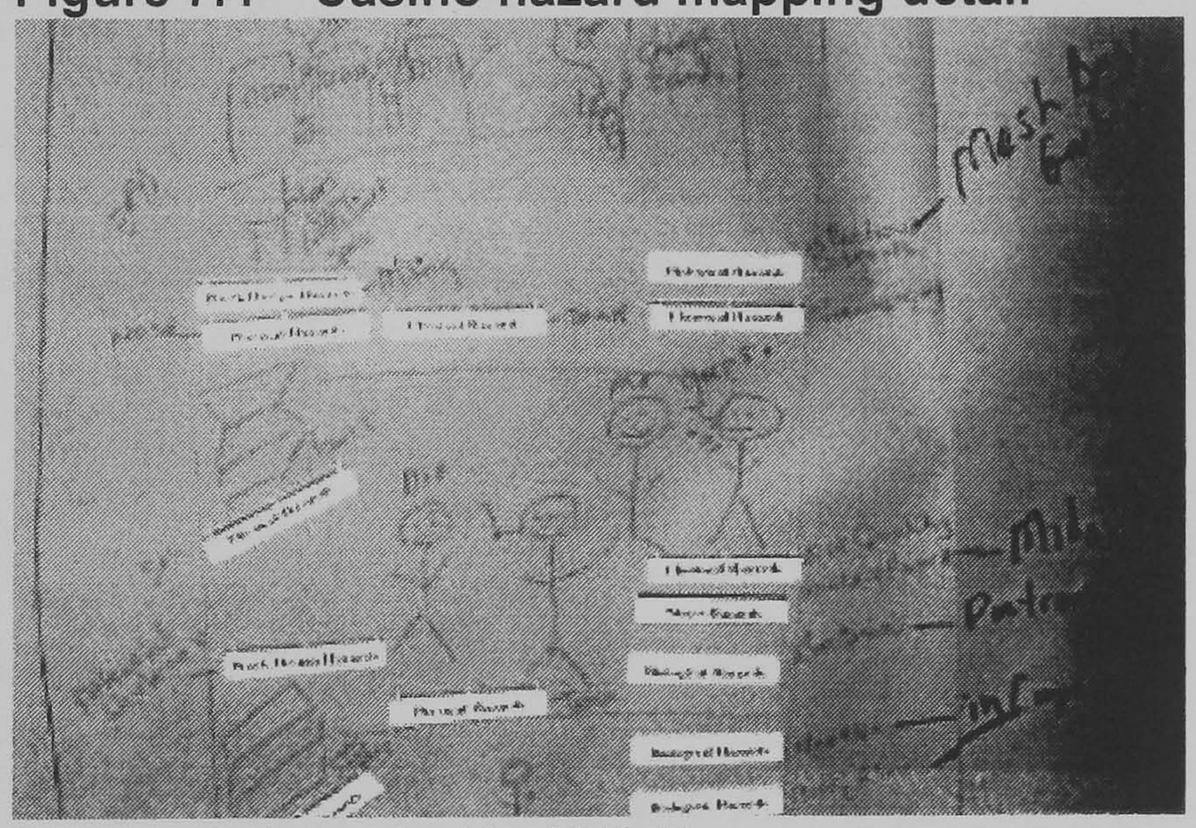
The *chemical hazard* most vociferously noted in all occupational groups was environmental tobacco smoke. This was mentioned together with comments about poor ventilation and generally poor air quality. Certain chemical hazards were occupation specific, such as coin dust mentioned by *cashiers* and cleaning chemicals mentioned by *cleaners*.

Figure 7.3 – Casino hazard mapping

Source: photographed by M Keith

The *biological hazards* reported by all occupational groups were mainly those associated with working in close proximity to the public, that is, "colds and flus," concern about handling contaminated money, tokens and gaming chips, and being in contact with human waste and other body fluids. Body fluids and germs were also considered to be a cause of stress, along with fear of disease transmission from carelessly discarded hypodermic syringes.

Figure 7.4 – Casino hazard mapping detail



Source: photographed by M Keith

Work design hazards included poor building design, poor ergonomics, repetition, standing, and working alone. Material handling activities, particularly handling tokens, coins or other heavy objects, such as chairs and stools, were mentioned in several groups. Other concerns

included manoeuvring through narrow spaces crowded with people, slot machines and other furniture and poor workstation layout and design.

Three main workplace *stress hazards* that emerged were: relations with patrons (dealing with behaviour ranging from rude to violent), relations with management (inconsistent rules, having no compassion), and concerns about personal safety (walking to the car, robbery). Other stressors mentioned included shift work and short staffing.

Some issues, such as second-hand smoke, stress and harassment from patrons were almost *universal.* Not surprisingly, however, different occupational groups emphasised different concerns.

The *dealers* considered repetitive strain injuries to be one of their greatest concerns. They also feared reprisal from patrons who had lost money. They observed that patrons, who were emotionally stimulated, many under the influence of alcohol or drugs, became aggressive, particularly after losing money. The dealers referred to Friday and Saturday nights as "Fight Nights," as agitated, intoxicated patrons lost self-control. One dealer spoke of how gratified he felt when a patron won a large amount of money, only to face disapproval from his supervisor. Some workers spoke of enjoying the excitement of the overall gaming atmosphere.

The *cleaners* (porters) were concerned about ergonomic issues (pushing, pulling and carrying equipment), use of cleaning agents, noise and overcrowding, along with concerns about biological hazards from body fluids, and bacteria. They

expressed concern regarding spills of blood, urine, and vomit, particularly in the bathrooms. Some spoke of having to dispose of containers of urine from beside the slot machines. These were apparently left by patrons who were unwilling to give up their places at the slot machines to use the restroom. Porters also spoke of the harassment they experienced from some superstitious patrons while they were sweeping around slot machines -- they were told angrily that brooms brought bad luck and to "get away" from the area.

Workers in the *slot machine department* reported the problems of noise and abuse from patrons. The overall atmosphere was described as being very stressful. They reported that the slot machines were extremely noisy, playing tunes and ringing bells to attract patrons. Flashing lights, reflective surfaces, and mirrored ceilings added to the "super-charged" environment. They also spoke of the heavy penalty imposed by their employer if they were short any money. They felt that the stressful environment and demanding patrons made it difficult to concentrate and that mistakes in making change were inevitable.

Participants from the *security department* reported that prolonged standing and fear of patron violence were important issues for them. They reported a number of instances in which irate patrons tried to assault them – for example, one security officer told of an incident in which a patron attempted to run him down with his car.

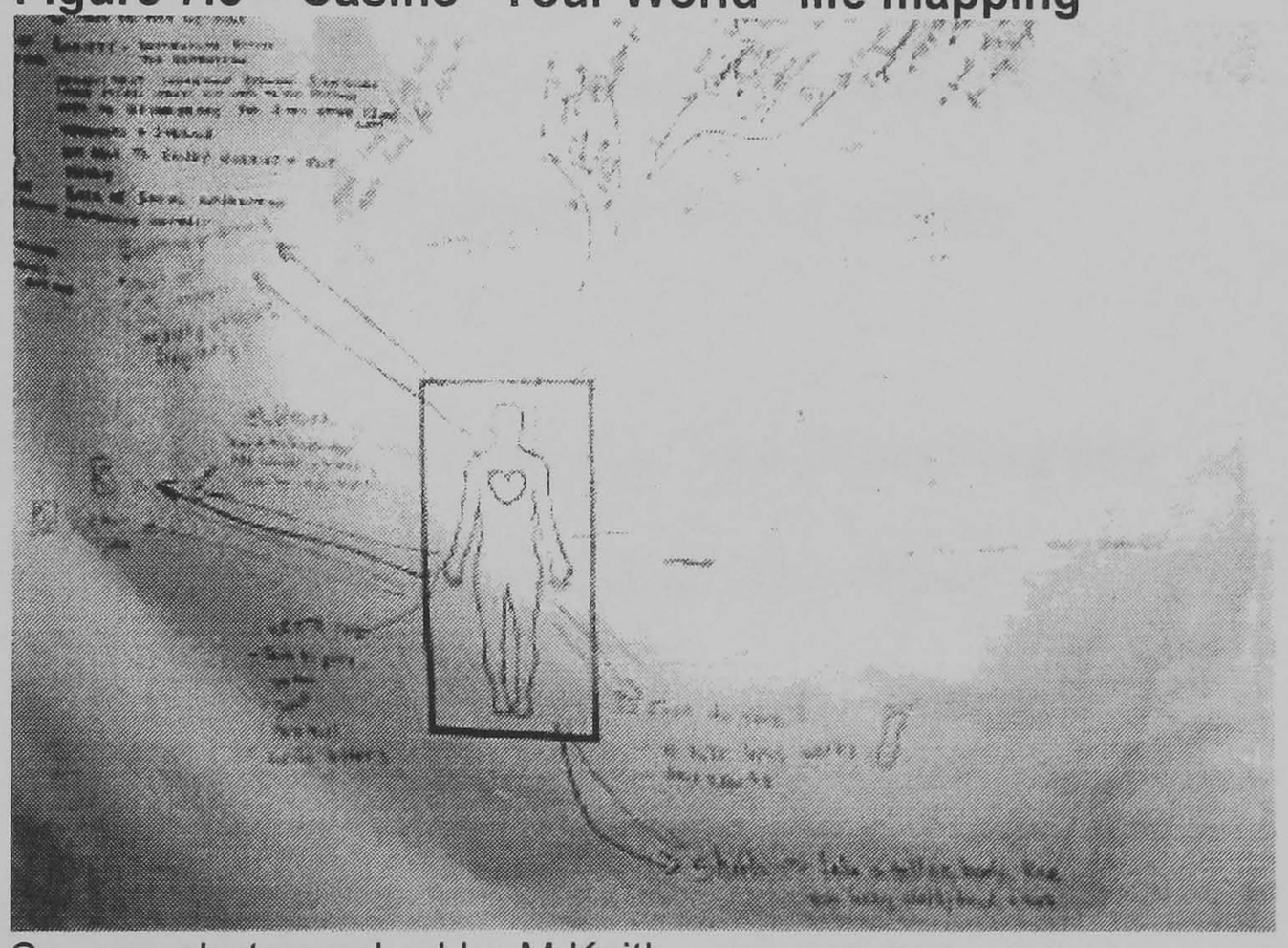
Overcrowding, stress and poor ergonomics were among the issues raised by the *office workers.*

(See also Appendix P for key descriptive Windsor, Ontario hazard mapping data and Appendix Q for key descriptive Winnipeg, Manitoba hazard mapping data).

7.7.3 Combined Windsor-Winnipeg "Your World" life mapping data

The "Your World" life mapping exercise elicited a range of results *(see Figures 7.5 and 7.6)*. The most frequently cited psychosocial problems were the disruptions caused by shift work and scheduling, and the impact of pain, illness and fatigue on the gaming workers' daily lives.

Figure 7.5 – Casino "Your World" life mapping



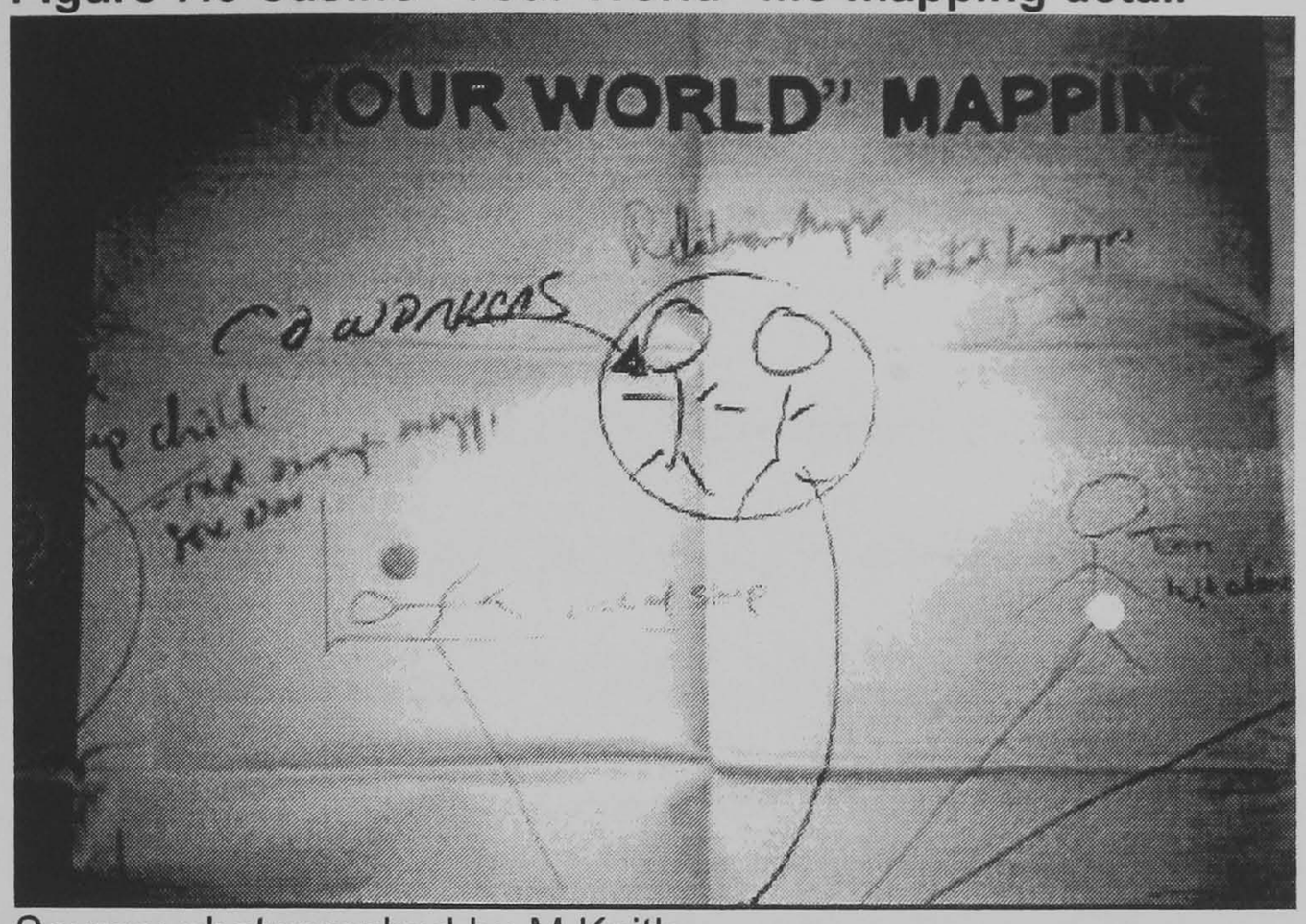
Source: photographed by M Keith

Participants described the effects of shift work and scheduling on their relationships with friends and family, childcare and child rearing, leisure and social activities, weekend and holiday activities, and community and church involvement. Some reported a reduction in sexual activity, reproductive problems, and increased marital break-ups.

Pain, injuries, illness and fatigue affected some participants' ability to perform housework, participate in sports and other hobbies, and tend to the needs of children and grandchildren.

Several participants spoke of how much they liked their jobs. Yet they talked, almost without exception, about the exhaustion or stress symptoms they experienced after work.

Figure 7.6 Casino "Your World" life mapping detail

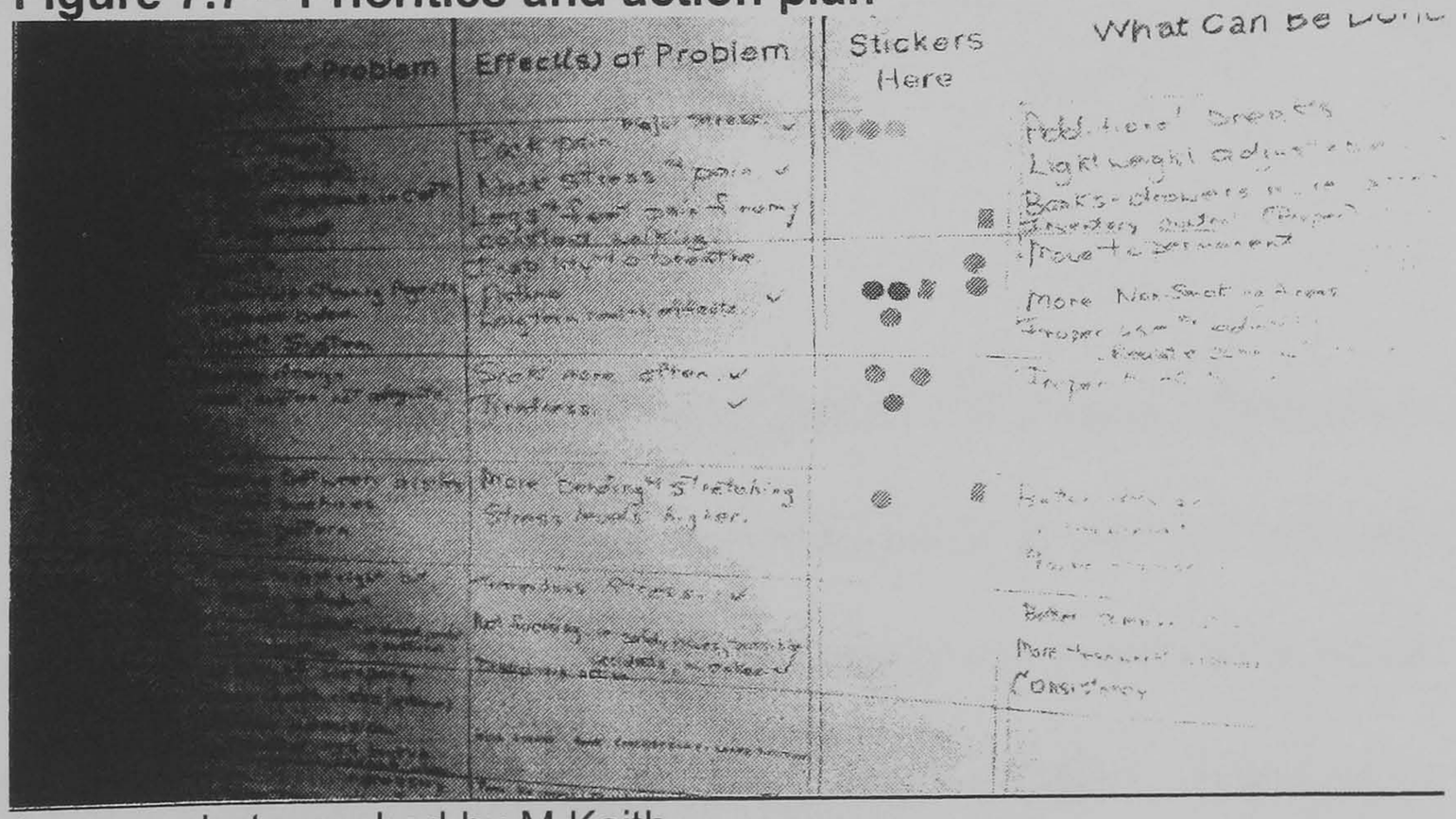


Source: photographed by M Keith

They spoke of mood, stress and irritability problems. They reported problems with sleep and appetite. Some participants discussed the need to be alone after returning home from work, feeling unable to face family and friends. Some feared for their job security.

(See also Appendix R for key descriptive Windsor, Ontario "Your World" mapping data and Appendix S for key descriptive Winnipeg, Manitoba "Your World" mapping data).

Figure 7.7 – Priorities and action plan



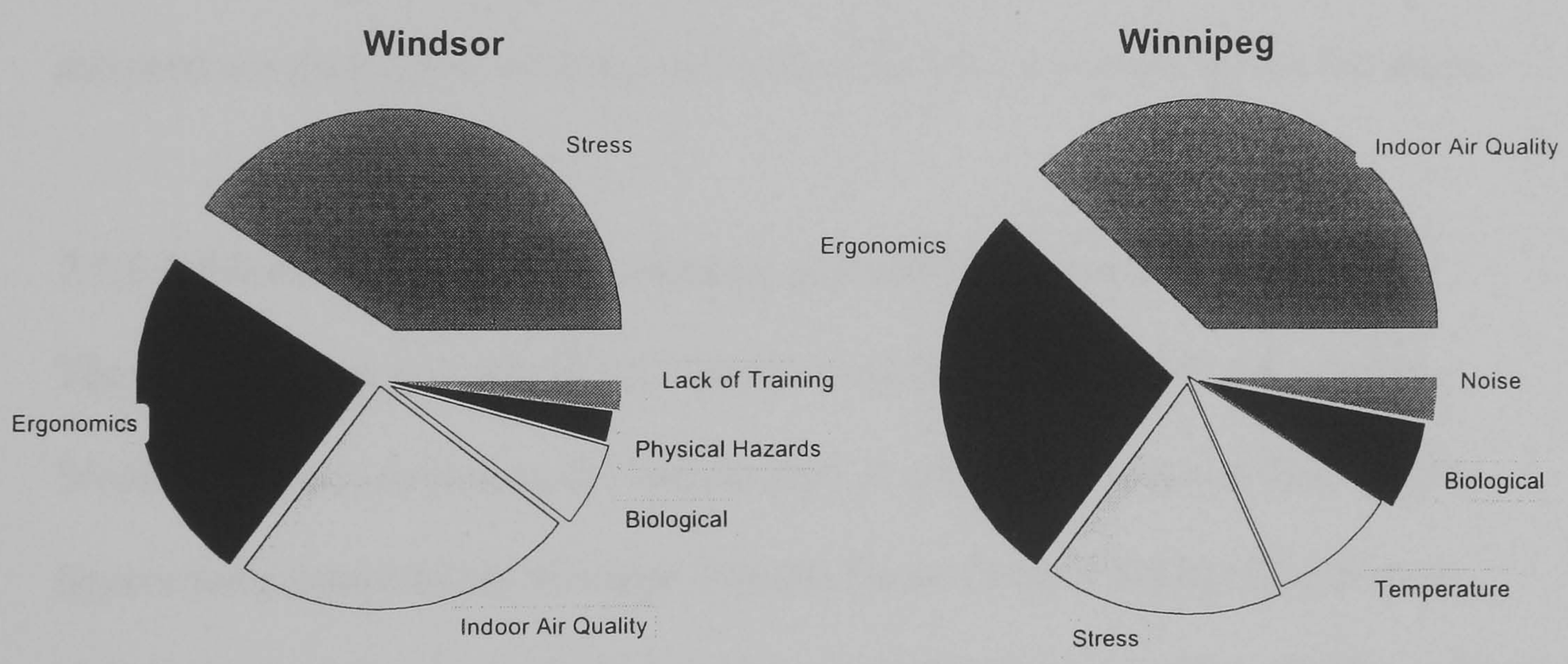
Source: photographed by M Keith

7.7.4 Combined Windsor-Winnipeg priorities

The top priority issues were determined by categorising and tallying the vote stickers on each of the *priorities and action plans (see Figure 7.7).*

As Figure 7.8 illustrates, the priority issues identified by the participants in Windsor, Ontario were categorised as: *stress, indoor air quality (including second-hand smoke and temperature extremes), ergonomic hazards, biological hazards, physical hazards, and inadequate training.* Noise, which was identified as a serious problem by many of the participants, was viewed primarily as a cause of stress and was thus included in the stress category, along with overcrowding and harassment.

Figure 7.8 - Priorities



Source: M Keith

The top priority issues identified by the participants in Winnipeg, Manitoba were categorised as: *indoor air quality, stress, ergonomics, noise, patrons with infectious diseases, and temperature extremes.* Indoor air quality was a priority problem identified by all occupational groups and the focus group leaders. Ergonomics

followed closely. Stress and temperature extremes were priorities for three groups, focus group leaders included.

7.7.5 Additional quantitative Windsor, Ontario mapping results

As indicated, at the request of the collaborating union health and safety representative, some quantitative analysis was conducted with the Windsor, Ontario data. The first two focus groups were held with homogeneous occupational groups: one with six porters (cleaners) and one with four dealers. The third session was held with mixed occupations making it difficult to identify problems within occupational categories. The team met and decided that this problem could be overcome using colour-coding within mixed groups to identify participants by their occupations. In the subsequent groups, totalling thirty-six participants, each was assigned unique colours or shapes of stickers for their exclusive use on the maps.

7.7.5.1 Windsor, Ontario body mapping quantitative results

The results shown in Appendices T and U were based on the data collected in Windsor, Ontario following the introduction of colour and shape coding. These figures were issued in the Windsor, Ontario Focus Group Findings (Keith et al, 1997b) but were not included in the joint report (Keith et al., 1998a, 1998b) as there was no Winnipeg, Manitoba equivalent. While the results may not be statistically meaningful, they provided the Windsor gaming workers' union representatives with additional indicators of their members' health concerns.

As Appendix U illustrates, a majority of participants across all occupational categories reported the following specific health problems during body mapping

exercises: headaches (50%), lower back pain (58.3%), knee pain (58.3%), neck pain (50%), and shoulder pain (72.2%). *(Note: includes only the data from the 36 participants who were identifiable by individual unique colour-coding).*

7.7.5.2 Windsor, Ontario hazard mapping quantitative results

Appendix V shows the actual numbers and percentage of participants reporting specific hazards. They are categorised as: physical, chemical, biological, work design and stress. These figures were included in the Windsor, Ontario Focus Group Findings (Keith et al, 1997b), which was provided to the union representing the Windsor gaming workers.

As the data illustrate, the majority of participants across all occupational categories identified the following specific hazards during hazard mapping exercises as: noise (64%), temperature (58%), building design (64%), second-hand smoke (64%), body fluids and germs (72%), overcrowding/small work areas (70%), harassment from patrons (66%), harassment from supervisors (54%).

7.7.5.3 Windsor, Ontario hazards identified by occupational or departmental category

Appendix W shows the percentages of participants within various occupational or departmental categories reporting hazards within eleven broad hazard categories. As the data illustrate, some concerns, such as noise and biological hazards were common to all groups. A smaller percentage of the security, finance department, transportation personnel and engineers reported concerns.

7.7.6 Combined Windsor-Winnipeg gaming workers' recommendations for remedial action

The priorities and action plan exercise elicited recommended solutions to the prioritised concerns. The suggested solutions to combat stressful working conditions were varied. Many focused on the need for better management training especially in so-called "people skills;" standardised management policies; consistent application of rules; developing and enforcing policies for dealing with abusive or intoxicated patrons; educating patrons; discontinuing the use of the security surveillance systems (cameras) to evaluate workers; improving communication and the relationship between workers and management; getting management to listen to the workers; providing sensitivity training regarding human rights issues; improving scheduling and rotating holidays and weekends; increasing teamwork; and establishing a "mental health and safety committee." The gaming workers also suggested *stress* could be reduced by simply "turning down the noise".

They suggested *indoor air quality* and second hand smoke problems could be alleviated by improving the general ventilation system; maintaining comfortable temperatures; providing self-ventilating, filtered smoking tables; installing local exhaust systems to capture locally-generated contaminants, such as coin dust; maintaining the HVAC [heating, ventilation, and air conditioning] system; carrying out regular air testing; limiting or banning smoking; and enforcing regulations regarding smoking in restricted areas.

They suggested *ergonomic* problems could be reduced by instituting rotation of jobs; providing a massage therapist or physiotherapist on site; providing an exercise area and equipment on site; providing longer breaks and rest periods; hiring

additional staff to allow for team tasks and relief persons; improving workstation design; maintaining carts and other equipment; providing or permitting more comfortable footwear; providing better carpet underlay; providing lightweight adjustable carts; making coin banks more accessible; providing chairs, stools, anti-fatigue mats, step-ups, and lifting devices; removing unsafe equipment, such as the "shuffle master" which sets a pace of work viewed by the dealers as too fast; increasing work space by widening aisles and limiting the number of patrons in an area; improving the coin pull by having coins drop into chutes under the floor; providing ergonomically designed tools and equipment; and soliciting worker input into work design *(see Appendix X for specific priorities and solutions provided by Windsor, Ontario participants and Appendix Y for specific priorities and solutions provided by Winnipeg, Manitoba participants).*

7.8 Evaluating the process

As participatory action research is as much about the process of gaining knowledge as it is about the end product, an evaluation of the process from all perspectives was important to the research team. The participatory nature of the research prescribed that the research team would collaboratively develop the evaluation process and the results would be included in the research findings (Greenwood and Levin, 1998). All focus group participants and leaders provided written evaluations. This feedback, borne out of direct experience, served several purposes. It provided an indication of the effectiveness of the research approach. It helped the research team to gauge the level of satisfaction of the participants and leaders. It informed the research team of how easy or difficult the various aspects of the research were to

carry out. It contributed to the research team's overall reflection and evaluation of the research in terms of its goals.

The following subsections summarise the evaluation data provided by participants in each location (Windsor and Winnipeg) and by the focus group leaders in each location. The evaluations are followed by observers' comments from each location.

7.8.1 Participant evaluations

The participant evaluations were done immediately following each focus group.

Participants submitted a short written evaluation based on three questions:

1) What Did You Like About Today's Focus Group Session?

2) What Did You Not Like About Today's Focus Group Session?

3) Do You Have Any Suggestions for Improving the Focus Group Sessions?

7.8.1.1 Windsor, Ontario participant evaluations

When asked what they liked about the session the Windsor, Ontario participants were overwhelmingly positive about the experience; they enjoyed the mapping exercises. Several participants expressed their surprise in learning that workers in other areas of the gaming facility and even in other job classifications were experiencing similar problems. They said they felt less alone with their own problems. A number of participants expressed their gratitude to the research team for giving them the opportunity to communicate their concerns and they appreciated the fact that someone was listening to them. Several responded that they felt that this research project was going to make a difference and that the involvement of

workers in their own research was an effective, "common sense" strategy for making health and safety improvements.

When asked what they did not like about the session the participants made few negative comments. Some found the time too long; others found the time too short. Several expressed the hope that the research would actually have an impact on their working conditions. One commented that the research should have been undertaken sooner. When asked if they had any suggestions for improving the sessions the participants offered some useful ideas. For example, they felt that providing day care would have enabled more workers to participate. Several expressed the wish that sessions would be held on a monthly or yearly basis or as part of regular health and safety training *(see Appendix Z for Windsor, Ontario participants' comments in full).*

7.8.1.2 Winnipeg, Manitoba participant evaluations

The response from Winnipeg, Manitoba participants to the focus group content and format was very positive. Three main themes emerged from the comments. Participants were pleased with the breadth and depth of the topics covered. They appreciated the opportunity to be included and to be heard. They were optimistic that positive change could come about.

When asked what they did not like about the focus groups, the majority of comments reflected disappointment in there being too little time to fully explore the issues and too few people participating. Echoing the concerns about too little time and low participation, suggestions for improving the focus groups included holding

more or longer focus groups and encouraging greater participation. Other suggestions included having some mechanism for communicating the concerns to management *(see Appendix ZA for Winnipeg, Manitoba participants' comments in full).*

7.8.2 Focus group leaders' reflections

After the completion of all of the focus groups, the focus group leaders were asked to provide their reflections on the process. They were asked for their thoughts on the mapping exercises, the recruitment process, whether or not the process increased general awareness of health and safety problems, what they gained from the overall experience and what the union gained from the experience.

7.8.2.1 Windsor, Ontario focus group leaders' reflections

The Windsor, Ontario focus group leaders had a number of comments regarding recruitment of focus group participants. They felt that "word of mouth worked best". Speaking directly to the gaming workers about the research was felt to be better than mailing out information and registration forms. This "one on one" approach also provided the opportunity to discuss health and safety issues. They felt that telephone contact was also an effective means of communication.

The focus group leaders found the mapping exercises to be a very effective way for participants to express their concerns. It also enabled the focus group leaders and the health and safety representatives to better understand the problems and their locations. They were pleased by participants' positive reactions and their

enthusiasm. The series of mapping exercises and priority and action charting was felt to be a "wonderful problem solver".

The research was felt to have increased the gaming workers awareness of health and safety issues overall. This awareness extended beyond the focus group participants to many individuals in the general Windsor, Ontario casino workforce. Following the completion of the focus group process, several gaming workers approached members of the research team expressing an interest in becoming involved in the research. It also increased the workers' awareness of and sensitivity to problems outside of their own departments or occupational groups. This began a process of solidarity building; it challenged the occupational hierarchy that exists within the gaming workers' culture: dealers at the top, porters at the bottom and other occupational groups in between.

The focus group leaders reported that, through the research, they gained more knowledge of the work environment. It also provided them with an opportunity to meet with a number of workers they otherwise would not have, including gaming workers in Winnipeg, Manitoba. They were glad that they had been involved in a process that would lead to change. They welcomed the participants' suggestions for solutions to a number of health and safety problems. They found it to be a "rewarding learning experience".

The focus group leaders felt that the union representing the Windsor, Ontario gaming workers (CAW) gained new insight into the health and safety concerns in

the gaming environment. It provided them with ideas for improvement and with information about the hazards that their members face.

7.8.2.2 Winnipeg, Manitoba focus group leaders' reflections

In general, the Winnipeg, Manitoba focus group leaders were pleased with the mapping exercises believing them to be a good way of getting participants actively involved and for helping participants see patterns of problems. As for overall participation in the focus groups, the focus group leaders were somewhat disappointed that there were not more participants and they offered suggestions for improving participation another time. They commented that the focus groups were a good vehicle for increasing awareness of health and safety issues among workers. They noted that what they gained, as individuals, from conducting the focus groups were an increased awareness of health and safety issues and specific skills, such as greater confidence and improved facilitating and listening skills. The focus group leaders suggested that the union became better aware of health and safety issues for gaming workers and gained greater unity and support from individual union members.

7.8.3 Observers' comments

The focus group observers also lent their comments and reflections on the process. These observations are important as they reflect an evaluation of the process from a more informed position regarding participatory action research and mapping. The observers were interested in testing the value and effectiveness of the methods for use in occupational health and safety research, as well as in exploring hazards in the casino gaming industry. The observers' comments follow.

7.8.3.1 Windsor, Ontario observer's comments

The Windsor, Ontario focus group observer (M. Keith) reported that the focus group sessions were lively and productive with active participation by all. The focus group leaders took the research process very seriously, taking care not to influence the participants. They became more self-confident as the sessions progressed and skilfully animated the groups. The focus group leaders' familiarity with many of the participants and the conditions at the various gaming facility locations helped to make the atmosphere comfortable and supportive. The body mapping proved to be an effective "ice-breaker" and elicited many comments. The number of "stickers" that were applied to represent health problems seemed to surprise many people. The hazard mapping and "Your World" life mapping were equally successful and participatory. Many participants initially expressed concern about drawing but, once they got started, were enthusiastic and very thorough. Problems were creatively represented and expressed. The comfort level in the group continued to grow as the sessions progressed and the participants showed surprising candour about some very personal issues. The prioritising exercise was sometimes a bit difficult. Understandably, some participants had trouble naming their top priority issue because they had a number of serious concerns.

These observations reflect the merits of participatory action research as discussed in Chapter 4. For example, the worker-researchers learned and applied new skills and confidence as they successfully facilitated the group sessions. The strengths of mapping, as outlined in Chapter 5, were also apparent. The mapping stimulated communication and open sharing; it did not limit those with lesser literacy skills; it spawned insights and ideas and commitment to change.

7.8.3.2 Winnipeg, Manitoba observer's comments

The Winnipeg, Manitoba focus group observer (B. Cann) reported that she felt the process was a good illustration of participatory action research in practice. The focus group leaders' first hand experience with most of the concerns raised by participants enabled them to broaden some of the discussion. Workers appeared to appreciate being able to talk to people who could identify with their working conditions and were pleased that the union offered them the opportunity to voice their concerns. When recruiting workers to participate in the focus groups, it took some time for the enthusiasm generated in the focus groups to reach the "shop floor." Had more time been allowed to elapse between focus group sessions there may have been better participation in the focus groups. Interest in participating grew towards the end of the project and some workers had to be turned away.

The Winnipeg experience was similar to Windsor's in terms of the focus groups themselves. The worker facilitators were effective and the sessions were successful. However, as reported, the Winnipeg group had slightly more difficulty initially in the participant recruitment process. One lesson from the Winnipeg experience was that participatory action research is a time-consuming process. As the observer suggested, perhaps more time should have been planned between focus group sessions to permit for communications among the gaming workers regarding the importance of participating in the study.

7.9 Post data-collection reflection and planning meeting

Following the data collection period, there was a meeting of the full research team.

The gaming worker team members from both locations, Windsor and Winnipeg,

summarised how they felt about the process of conducting the focus groups. Interesting incidents and any setbacks were related. Evaluation data (as outlined in the previous section) were shared. The goals of the project were reviewed and no modifications were made.

Comparisons were made between the results from the two geographic locations, focussing particularly on the priority issues. A decision was made to prepare a full joint report describing the study and its findings (Keith et al., 1998a) for the research team and a smaller handout to distribute to all gaming workers in both locations (Keith et al., 1998b).

7.10 Public release of the joint study findings

The results of the research study were distributed via a six-page summary report to all of the gaming workers in both communities. This was an important step as it raised awareness of the issue of occupational health and safety among the non-participating gaming workers and informed them of the concerns that had been prioritised by their co-workers for negotiations with the employers. It was deemed important that the union membership as a whole be informed and supportive as this would lend more weight to the demands for improvements during contract negotiations.

The support of the community-at-large was also considered to be important for additional leverage in dealings with the employers. Concurrent press conferences were held at the respective union halls in Windsor, Ontario and Winnipeg, Manitoba

to publicly release the study findings. Some of the maps, which contained no personal identifiers, were displayed for public viewing.

The study's release received wide media coverage. For example, after receiving the press release announcing the impending press conference, the Windsor Star published an article, complete with graphic descriptions of such unsafe conditions as "urine left in plastic cups by fixated slot machine players, carelessly discarded hypodermic needles, and intense stress" (Bailey, 1998a) *(see Appendix ZB).*

Following the press conference the Windsor Star published another article which included interviews with gaming workers who further elucidated their working conditions and injuries to co-workers (Bailey, 1998b) *(see Appendix ZC).*

The same day, the Winnipeg Sun reported on the study describing the heavy coin carts, second-hand tobacco smoke, and noise. It also stated that that "Manitoba lottery officials say they're willing to listen to the union to see what workers have in mind in Winnipeg" (Edmonds, 1997) *(see Appendix ZD).*

The study was further communicated and legitimated to a broad readership, including occupational health and safety practitioners, through its publication in Occupational Health and Safety Canada (1998), Canadian Occupational Health and Safety News (1998), the Workers Health International Newsletter (1997), Elm Street (Cameron, 1999), the Gaming Magazine (2000); and by television and radio stations in both cities and across the country. A weekly report on gambling

addiction published by the Harvard Medical School, while suggesting that medical examination of the subjects might serve to validate the findings, agreed that:

> Nevertheless, Keith et al. (2001) have contributed to an otherwise under-studied area of gambling research. An understanding of the health effects gaming venues have on employees is vital for the physical and emotional well being of those who work in the gaming industry as well as those served by these workers (Harvard Medical School, 2001).

The media interest in the study and the acknowledgement of its importance served to provide the casino gaming workers with a sense of their own worth and the value of their perceptions.

7.11 Consequences of the study

In 1999, the union health and safety representatives from the facilities in both communities were asked a series of follow-up questions (by the author of this dissertation) to evaluate the status of the health and safety concerns raised during the study. The union representatives' responses are summarised as follows.

7.11.1 Windsor, Ontario outcomes

Collective bargaining took place between the CAW and the casino corporation within weeks of the release of the study findings. At the union's insistence, reference to the gaming workers' research study was incorporated into the language of the new collective agreement as follows:

> Gaming Workers' Health and Safety Research Project: The Employer agrees to meet with the union within a period of 120 (one hundred twenty) days following the signing of the Collective Agreement to discuss unresolved issues identified in the Gaming Workers Health and Safety Research Project Priorities report published February, 1998 (Casino Windsor and CAW Canada, 1998).

It was agreed that the findings were to be considered by the joint union-management health and safety committee. The study's recommendations were indeed discussed during committee meetings and, in many cases, recommendations were implemented. "Items in the report are dealt with at each meeting. The report has been taken very seriously; we are looking at the problems and discussing the solutions that were proposed" (Egan, 1999, np). For instance, there have been numerous ergonomic improvements in terms of workstations, practices and equipment. "Ergonomics assessments have been done and are being done and recommendations are being implemented; there is now more awareness of the issue of ergonomics for management and workers. Now they know what it means." An increase in labour relations personnel has improved interpretation and implementation of management policies. Control of unruly patron behaviour is more consistent; "We are dealing with the threat of assault. There are some new procedures in place and there have been a number of on-site workshops with outside speakers." The issue of biohazards is being addressed; "We now have communicable disease training for every worker and there is more hepatitis B inoculation." In terms of the indoor air quality problem and the second hand smoke problem, "We have some improvement since we moved to the new building but there is still a problem. We have left a lot of that to the union and the CAW Prevent Cancer Campaign… Early in the year (2000) we are going to meet with [members of the union executive] to talk about the second-hand smoke problem and some possible additional research" (Egan, 1999, np).

7.11.2 Winnipeg, Manitoba outcomes

The union in Winnipeg, Manitoba did not attempt to include the study in its collective agreement. The union, however, began to deal with the findings through its joint union-management health and safety committee structure. The committees followed up on all areas of the survey and improvements were made. For example, cash carts were introduced, eliminating the need for slot attendants to carry heavy amounts of cash; cashiers have experienced less lifting in the bank area as a result of ergonomic changes; and an assessment was carried out regarding stress and harassment in a process initiated by the Manitoba Lottery Board of Directors (Day, 1999).

7.11.3 Outcomes attributed to research study

Both union representatives reported that a considerable number of improvements recommended by the gaming workers had been implemented and they directly attributed these successes to the research study.

It is notable that the two interim Windsor, Ontario facilities were closed several months after the release of the study findings and a large permanent facility was opened, adding approximately 1,500 employees to its workforce. The gaming facilities in Winnipeg, Manitoba were also restructured -- one of the facilities was closed while the others were expanded. Approximately 300 new jobs were created. The findings of the research study provided the gaming workers with specific demands for the design and outfitting of the new facilities. It is important that workers have such input during the design, construction, and set up of a new facility

or work area. The study equipped and empowered the gaming workers to make informed demands.

7.12 Discussion

The main goal of the research study was to gain knowledge of the health and safety concerns and priorities of gaming workers, an area that had previously not been studied, in order to provide direction for action and further study. This goal was accomplished. The research method chosen provided discussion on many issues. The utilisation of mapping exercises to gather data, rather than the more traditional survey methods, resulted in full and enthusiastic participation, rich description and dialogue, and thoughtful, strategic, collectively-formulated recommendations. The participatory nature of the study created a sense of ownership and empowerment among the gaming workers which allowed them to confidently and knowledgeably present the findings to their joint union-management health and safety committees for consideration and action. Furthermore, sought-after improvements to occupational health and safety conditions have resulted, demonstrating that the approach helped to overcome, in part, the barriers to worker health and safety activism posed by the bipartite system *(see Chapter 3)*.

7.12.1 Reliability

There is consistency in the findings that might be construed as evidence of reliability and replicability. Many of the main health and safety concerns were repeated by individuals within and across focus groups. Much of what was heard in the focus groups had also been heard on the *shop floor* of the gaming facilities, in health and safety committee meetings, and in preparation meetings for the research

project. The non-gaming worker research team members, in visiting each of the gaming facilities, also found consistencies between the observable phenomena (such as poor workstation and equipment design, noise, and second-hand tobacco smoke) and the data provided by the participants. Moreover, the similarity between concerns voiced in Windsor, Ontario and Winnipeg, Manitoba was striking. The reports from two distinct geographic locales, from multiple gaming facilities, and across several occupational groups showed remarkable consistency. As previously mentioned, the use of focus groups, especially homogeneous groups, can increase reliability (Basch, 1987; Wintersberger, 1985) as workers provide corroboration of each other's information.

Some of the gaming workers' concerns were also supported by existing literature. Concerns about second-hand tobacco smoke, for example, are corroborated by previously published investigations, which found increased levels in casino gaming areas (Trout and Decker, 1996; Trout et al., 1998). Literature on the health risks of environmental tobacco smoke in the hospitality industry (bars and restaurants) is also relevant for the gaming workers (Eisner et al., 1998; Dimich-Ward et al., 1998; Akbar-Kanzadeh, 1996; Seigel, 1993; Bergman et al., 1996; Jarvis et al., 1992). The pilot survey of casino gaming workers conducted in Scotland found similar concerns, such as shift work, musculoskeletal problems, and air quality concerns (GMB, 2001).

Because of the lack of literature specifically related to gaming workers' health and safety, it would be an onerous task to evaluate the gaming workers' study findings on the basis of existing knowledge. One might examine the literature regarding

occupations that are similar to those found in the gaming industry. Or one might examine the current literature regarding the known health effects of conditions described by the gaming workers. For example, there is ample literature supporting the gaming workers' subjective experience regarding shift work and stress (Harrington, 1994) and regarding the association between stress and its effects on health (Martino, 1992).

Participatory action research is difficult to validate using conventional methods *(see Chapter 4)*. As a participatory and largely qualitative study, no claim is made for the impartiality of the worker-researchers. Their knowledge of the gaming work environment and the complexities of the social dynamics existing in their own workplaces (for example, tensions between occupational groups) provided valuable background perspective. The study met its *immediate* goals, which were:

- to find out about any workplace health and safety concerns of workers in Windsor, Ontario and Winnipeg, Manitoba gaming facilities;
- to identify three to five priority concerns for action and/or more in-depth study;
- to help gaming workers become more aware of their own workplace health and safety issues.

While further research and action are needed, this initial study also served to meet the general *long-term* goals:

- to identify health and safety hazards in the gaming industry;
- to identify barriers to overcoming health and safety hazards;
- to develop strategies for overcoming health and safety hazards;

- to open lines of communication between coworkers and between workers and their union regarding health and safety issues, thereby strengthening worker solidarity;
- to use the information generated from the research to improve current working conditions.

7.13 Conclusion

This research provides a snapshot of the health and safety problems in the casino gaming work environment from the workers' own experience and perspective, making a valuable contribution to our understanding of their concerns. The findings clearly indicate that opportunities exist for further research into the health and safety of casino gaming work, particularly in the identified priority areas. Stress, indoor air quality and ergonomics were prioritised by both the Windsor, Ontario and Winnipeg, Manitoba participants.

Demands and harassment from impatient or unruly patrons, a noisy and high-energy environment, shift work, and employer surveillance and inconsistency were among the sources of stress cited by participants; they believed these factors to be responsible for such health problems as headaches, irritability, and hearing loss. Poor ventilation, inadequate heating and cooling systems, environmental tobacco smoke, dusts, and chemical contaminants were considered to be contributors to poor indoor air quality problems and resulting health problems such as respiratory disease, sore throats, rashes, headaches, and irritated eyes. Heavy loads, improperly designed equipment and work-stations, prolonged standing, and repetitive motion,

such as card dealing, were among the factors the participants held responsible for a range of musculoskeletal and repetitive strain injuries.

The research provides evidence from which it can be reasonably concluded that there are health and safety concerns in the gaming environment requiring further research and corrective action. An industry-wide evaluation of the health and safety concerns in the identified priority areas would be a responsible response.

The research has also proven to be of value in terms of hypotheses generation. Although this study answers some questions, it poses many more. For instance: *Does gaming work present specific ergonomic challenges? Are there ways of reducing stress in the gaming environment? Can patron-generated violence and harassment be controlled? Do gaming workers' cotinine (measurable nicotine metabolite) levels differ pre and post-shift? Do unionised and non-unionised facilities differ in terms of health and safety conditions?*

The collaborative and participatory nature of the study provided all involved with a rich learning experience. The overall process proved to be empowering, enlightening, and effective. The backing of collectively developed action plans bolstered the confidence and effectiveness of the union health and safety representatives and aided them in their negotiations with their employers. The gaming workers in both locales also achieved enhanced union solidarity as the process helped to break down barriers between departmental or occupational groups.

Prior to this research, the casino gaming industry had been unstudied. The gaming workers were without precedents or models to inform their demands for improvements or to provide evidence to support their own experiences. This research provided them with information, evidence, and a collectively agreed upon set of priorities and demands. While the research did not result in a wide-scale structural transformation within the casino gaming industry, the employers in both locations were compelled to deal with occupational health and safety issues that had previously been unaddressed. It might be presumed that, through communications between the Windsor and Winnipeg gaming workers and gaming workers in other locales, the research and its findings can provide benefits for others as well.

Besides illuminating the occupational health and safety issues in the casino gaming industry, the research successfully tested the effectiveness and applicability of new methods, demonstrating that mapping can be a valuable tool for data collection in an occupational health and safety participatory action research study. Evaluations of the process by participants and research team members were generally positive. Mapping proved to be an effective and efficient method for gathering a range of subjective data. The study produced findings that were translated into action.

The casino gaming workers case study is more fully discussed and evaluated in Chapter 9 in relation to the multi-part research question posed by the dissertation. Its strengths and weaknesses are explored. It is evaluated in terms of the effectiveness of the research methods applied. Its contribution to the adoption of mapping as a participatory action research method is also explored.

A case study of foundry workers is presented in the following chapter (Chapter 8). Like the casino gaming workers' study, it employs the principles of participatory action research and utilises mapping for data collection. The foundry study, however, differs from the gaming workers' study, which explores current conditions, in that it explores *past* conditions for workers compensation purposes.

CHAPTER 8: HOLMES FOUNDRY AND INSULATION COMPLEX OCCUPATIONAL HEALTH AND SAFETY RESEARCH STUDY

Flaviano Fracalanza worked at Holmes Insulations, a now-defunct plant where provincial government labour inspectors once found what they believed were the highest airborne asbestos fibre concentrations ever recorded...He remembers the plant was "unbelievable, the dust and the noise." Fracalanza has been diagnosed with asbestosis...[He] says workers did worry about asbestos, but managers told them that reports that it was a killer were exaggerations (Mittelstaedt, 2004).

8.0 Introduction

This chapter explores some of the barriers that needed to be overcome in order to bring to light and win compensation for the health problems suffered by former employees of the Holmes foundry, Caposite, and Insulation complex in Sarnia, Ontario and some of the means available to overcome these barriers. The case study addresses three parts of the dissertation's multi-part case study related research question:

Can mapping within worker-based participatory action research be used to:

- *establish workers' previous exposures for compensation purposes?*
- *support efforts to bring about justice through compensation for workers affected by unsafe working conditions?*
- *raise worker and public awareness of health and safety?*

The chapter provides a background to the research by first characterising the community setting in which the study was conducted and the specific industry being examined. Secondly the research goals, methods, results, and broader outcomes are presented in detail. Finally a brief discussion and concluding remarks are included. Further analysis and evaluation of the case study, along with a comparison to the casino gaming case study, will follow in Chapter 9.

8.1 Characteristics of the Sarnia community

The following brief description of the community in which the Holmes case study took place is included because it characterises the social, economic and political environment in which the research was conducted.

Sarnia is a small community in Lambton County, Southwestern Ontario. Here, more than a thousand kilometres from the nearest asbestos mine, record numbers of workers have been diagnosed as having asbestos related diseases (Lambton Public Health Unit, 2000; Keith and Brophy, 2003a). Like the current recipients of imported asbestos in developing countries, the Holmes workers in Sarnia-Lambton became the unwitting victims of asbestos that was brought into their community by their employers (Keith and Brophy, 2003a).

A thriving petrochemical industry was established in Sarnia following the 1851 discovery of petroleum in the area (Ford, 2000). By 1893, the Sarnia area was the major supplier of crude and petroleum products for Canada (Tourism Sarnia-Lambton, 2001b). "Stretching for over 30 kilometres along the St. Clair River from the southern tip of Lake Huron to the Village of Sombra lies the largest concentration of petroleum and chemical industry in Canada" (Ford, 2000). It is referred to locally as *Chemical Valley*. Along the river are massive oil tanks, hundreds of stacks, many sporting flames, and miles of pipes running from tank to tank and plant to plant.

Many companies have come and gone over the years; some have undergone name and ownership changes. Bayer Rubber, Nova Chemicals, Imperial Oil, Shell and

Dow, are among the large multinational petrochemical producers currently operating in the Sarnia area. The various industries use each other's products and by-products. A broad array of consumer and industrial goods is produced (Tourism Sarnia-Lambton, 2001a, np).

Throughout the past century, there have also been numerous smaller operations, which served both the petrochemical industry and the auto industry. Ethyl Corporation produced tetra-ethyl lead additive for gasoline, Prestolite produced auto parts, Holmes Foundry made engine blocks and munitions, Holmes Caposite plant produced asbestos insulation materials, and Owens-Corning produced fibreglass products.

One characteristic of almost all of the industries in Sarnia is their extensive use of asbestos. Asbestos lined the foundry ovens, asbestos products were produced and exported, and asbestos insulation covered the miles of pipes that interweave the chemical valley. The Sarnia-Lambton area has been cited as having the highest rates of pleural mesothelioma in Ontario (Finkelstein, 1996; Marrett et al., 1991). Between 1986 and 1993 there was a four fold excess incidence of mesothelioma in Lambton County compared with the rest of Ontario; 74 percent of the cases were among former workers from either the Sarnia petrochemical industry or the Holmes Foundry complex (Health Canada, 2003).

As Table 8.1 shows, the age-adjusted hospitalisation rate for mesothelioma among males in Lambton County was over five times the provincial rate in 1992 to 1998; the rate for asbestosis among males was nine times the provincial rate (Lambton

Public Health Unit, 2000). There were elevated rates of several other respiratory diseases, including cancers that are associated in the literature with exposure to asbestos (Selikoff et al., 1979).

Table 8.1 Hospital morbidity data, Lambton County, 1992-1998[1] *(# of hospitalisations in brackets)*

Disease	Males	Females	Both
All cancers	1.34* (4,443)	1.28* (3,896)	1.31 (8,339)
Lung cancer	1.50* (768)	1.39* (423)	1.46* (1,191)
Mesothelioma	5.33* (37)	-- (4)	3.92* (41)
Asbestosis	8.97* (10)	-- (0)	8.93 (10)
Nasopharnyx	3.59* (9)	-- (0)	2.52 (9)
Oesophagus	1.41* (79)	1.18 (26)	1.35* (105)
Asthma	1.22* (869)	1.16* (869)	1.18* (1,738)
Emphysema	1.38*(89)	1.32 (59)	1.31*(148)

[1] Age-adjusted Standard Morbidity Ratio (SMR) compared to the Ontario rate. Statistically significant differences with the province are indicated by *

Source: Lambton Public Health Unit, March 21, 2000.

A recent study of the Sarnia area reported by Health Canada (1998b) found increased rates of specific cancer morbidity and mortality. For example, there was a statistically significant four-fold excess mortality among men aged twenty-five to forty-four from non-Hodgkin's lymphoma.

It is important to understand the nature of the petrochemical industry in terms of its potential impact on health as it helps to illuminate the issues and contradictions facing the community. While the health statistics have not been attributed to any specific factors, it is not unreasonable to speculate that industrial emissions and occupational exposures have played a role in some of Sarnia-Lambton's ill health. For example, in the year 2000, industry in the Sarnia area reported the highest toxic air releases in Canada (Pollution Watch, 2001, np). The largest hazardous waste operation in Canada, euphemistically named *Safety-Kleen* (and more recently *Clean Harbours*) operates in the Sarnia area, not only storing and incinerating the area's

toxic waste, but importing waste from all parts of Canada and the U.S. Safety-Kleen was named as the source of the highest releases of carcinogenic pollutants in the country in 2001; it also ranked number one for releases of reproductive and developmental toxicants (Pollution Watch, 2003). Three Sarnia area industries were among the top ten emitters of benzene in Canada in 1996: Bayer Rubber released 72 tonnes; Shell Canada, 68 tonnes; and Nova Chemicals, 62 tonnes. National first place for cyclohexane emissions went to Nova Chemicals' Sarnia area facility, which released 2,101 tonnes, four times as much as the second place Bayer Rubber operation in Sarnia with 528 tonnes (Canadian Institute for Business and the Environment, 1998). Neighbouring industry has so heavily polluted the St. Clair River, it has been designated as an *Area of Concern* under the Great Lakes Water Quality Agreement (International Joint Commission, 1995; Health Canada, 1998b).

In the 1960s occupational and environmental health issues became a focus for a handful of union activists and a larger community contingent (Adkin, 1998). One of the larger industries in Sarnia, Dow Chemical, operated two chloralkali plants that produced mercury waste. Workers were exposed in the plants and the community was exposed through spills into the environment. It is estimated that, over a thirty-year period, Dow used four hundred tons of mercury, which ultimately ended up in the air, land, and water (Gilbertson, 2003). A damning report on mercury contamination in the river sediment resulted in a Canada-U.S. ban on commercial fishing in the area and a parliamentary investigation (Adkin, 1998).

Sarnia's industrial workforce is largely unionised. The Communications, Energy and Paperworkers Union (CEP) is the predominant union. The Building Trades also

have a strong presence, providing skilled labour for the petrochemical industry's construction and maintenance needs. The Canadian Auto Workers union (CAW) has members in a few small plants but its numbers were diminished following the closure of the Holmes and Prestolite plants.

There is a history of antagonism between community-based environmental organisations and the unions in Sarnia (Adkin, 1998). Industry has nurtured a loyal, compliant and well-paid workforce. Industry regularly provides philanthropic support for community services and recreational opportunities. The unions in Sarnia have historically been non-militant around issues related to occupational and environmental health. They have tended to avoid coalition-building with community organisations, fearing that advocating for a cleaner industry would result in job loss (Adkin, 1998). During the 1980's the unions were openly hostile toward environmental advocacy organisations. They voiced loyalty and trust for their employers, some even in the face of illness:

> The ideas about necessary trade-offs and reasonable risks which underpin workers' acceptance of both dangerous occupational health situations and environmental degradation were expressed by the wife of a Dow worker [with asbestosis]..."The way we look at it, sure he's going to die...but Dow has provided for our family very well. He always had a steady job, the money was always coming in, nobody ever went hungry," she said. "Dow's been good to us" (Adkin, 1998, p 207).

It was accepted that there were risks involved in working in the petrochemical industry. According to a spokesperson for the Ontario Federation of Labour, "'Our men just die young' was a common phrase around Sarnia" (Peters, 1999). *(The trade-off of health versus employment (Kazis and Grossman, 1982) was discussed in Chapter 2.)*

There is also evidence that union members were complicit in the illegal dumping of toxic chemicals into the environment and that "whistle-blowers" were dealt with harshly by their employers and co-workers (Adkin, 1998):

> The union has carved out its territory in the economic realm...its particular sector of the economy is dominated by free market principles and multinational corporations. On this turf, and without politically forged alliances, it has few options but to play the game by the rules of employers (pp 220-221).

It is important to understand the relationship between workers and their employers because it follows that such unquestioning subservience would also deter efforts to challenge employers about occupational health issues. In such a climate broad-based efforts would be difficult to launch, further indicating that innovative, alternative methods (such as participatory mapping) may be required to gather evidence, raise awareness, and bring about change.

Further adding to the difficulties, there was a significant downsizing of the petrochemical industry in the 1980s and 1990s. "A short, sharp recession in 1980-81 was followed by a severe downturn in 1983...Red ink spread over company balance sheets" (Ford, 2000). Plant closures and job loss led to further reticence on the part of the unions to make demands on employers or government regarding occupational or environmental health issues.

Sarnia's industrial development marketers boast of the cooperative relationship between industry and its workforce that was nurtured during the period of restructuring in the 1990s:

> ... local plants now have extremely flexible work forces and modern Collective Agreements where they apply. In all cases, these positive changes were achieved without work stoppages. This innovative approach to labour management relations is indicative of the productive and co-operative labour climate within Sarnia-Lambton. Sarnia-Lambton companies can attest to the productivity of their workers. In 1999, over 90% of companies surveyed rated their employees as good or excellent with respect to productivity and work attitude. Also, in recent competitiveness studies, local firms have rated highly on various productivity measurements in comparison to other North American manufacturing sites (Sarnia-Lambton Economic Partnership, 2003, np).

As one union member described it, "There's a lot of complacency and these are difficult times...It's a very conservative community, politically and otherwise. It has been an affluent community, but the growth stopped...Those who are still receiving a good income become extremely complacent" (Adkin, 1998, p 219).

Sarnia is not industrially diversified; it is very dependent on the petrochemical and related industries for its economic wellbeing. Despite its downturn, in 2002, forty-four percent of employment in Sarnia's manufacturing sector was still in the petrochemical industry (Industry Canada, 2002). This dependency hampers workers' efforts to challenge employers around issues of occupational or environmental health. Within this environment of union-employer cooperation and worker apathy the Holmes Foundry, Caposite, and Insulation complex case study was located. Participatory action research and mapping played a significant role in the emergence of an ultimately broad-based, successful campaign for workers' occupational health and compensation services.

8.2 Holmes Foundry, Caposite and Insulation complex

The case study demonstrating the use of mapping and a participatory action research approach was undertaken with former workers of the Holmes Foundry, Caposite and Insulation complex in Sarnia, Ontario. While not directly involved in petrochemical processing, the complex provided materials used in its infrastructure, in particular, asbestos and rockwool insulation products.

8.2.1 Holmes complex: background

The Holmes complex opened in Sarnia in 1919 (Sarnia Historical Museum, 2003). The foundry cast automobile engines for Ford Motor Company and parts for the agricultural and defence industries. The Holmes Insulation plant produced rockwool products. The Caposite production facility produced asbestos products for the petrochemical industry and beyond, using amosite asbestos (Finkelstein, 1989). The Caposite plant closed in 1974 and the foundry closed in 1988 (Smith, 2000). The Holmes Insulation plant was sold and began operations under new ownership at another location. During its full production years, the Holmes complex employed 300 to 625 workers at a time (Mayville and Gilroy, 1999).

The Occupational Health Clinics for Ontario Workers in neighbouring Windsor, Ontario (approximately 160 kilometres/100 miles from Sarnia) began to provide medical diagnostic services to workers in the Sarnia community in 1993. Satellite clinic days were held only once or twice per month as very few Sarnia workers were coming forward at that time with their occupational health concerns.

The Windsor clinic staff first heard of the illnesses and deaths among former Holmes workers in the mid 1990s when Bob Clarke, a former union plant chairperson and member of the Canadian Auto Workers (CAW) union, approached the clinic staff with a list of his co-workers who had died of cancers he believed to be work-related (Workers Health and Safety Centre, 1999, p 8). He explained that he and his workmates at the now closed Holmes Foundry and associated Caposite and Rockwool Insulation plants in Sarnia, Ontario had been exposed to high levels of asbestos dust in the course of their employment (Keith, 2003a). Clarke had earlier supported fifty-one successful compensation claims on behalf of Holmes workers (Smith, 2000), many of which had been submitted following disease detection by the provincial government's Occupational Chest Disease Service mobile surveillance x-ray unit.

The Canadian Auto Workers union represented the Holmes Foundry workers; the Caposite and Insulation workers were not unionised. There are accounts of an eleven-day labour dispute in 1937 in which workers, seeking to unionise, occupied the plant demanding improved health and safety conditions (Snow, 1977; Drimmie, 1978). At the time, most of the foundry workers were first generation "Central European" immigrants. Replacement workers, made up of "Anglo-Saxon" Canadian citizens, were brought in and violence erupted. The union was broken and the striking foundry workers were permanently replaced. This event may have led, in part, to the ensuing Holmes occupational health and safety tragedy as it is reasonable to assume that the resulting intimidation may have discouraged workers' efforts to successfully challenge the unsafe conditions that existed for the remainder of the plant's operating years.

8.2.2 Collaborative occupational health study

Following the information brought forward by Bob Clarke regarding the apparently high incidence of occupational disease among former Holmes workers, the occupational health clinic staff and the CAW agreed to collaboratively conduct an investigation. The goals were:

- to identify former Holmes workers who were suffering from occupational disease or injury;
- to identify surviving family members of former Holmes workers who had died from occupational disease;
- to gather evidence to support compensation claims for Holmes victims.

It was agreed that the occupational health clinic would gather evidence and provide medical diagnostic services. The union would take responsibility for contacting former Holmes workers and family members and would support compensation claims on their behalf.

8.2.3 Hazard mapping of the Holmes complex

The process of gathering evidence regarding occupational exposures began in 1998 with a series of hazard mapping sessions. Hazard mapping (as discussed in Chapter 5) was used to gather and record the workers' collective recollections of their working conditions as they had existed in decades past.

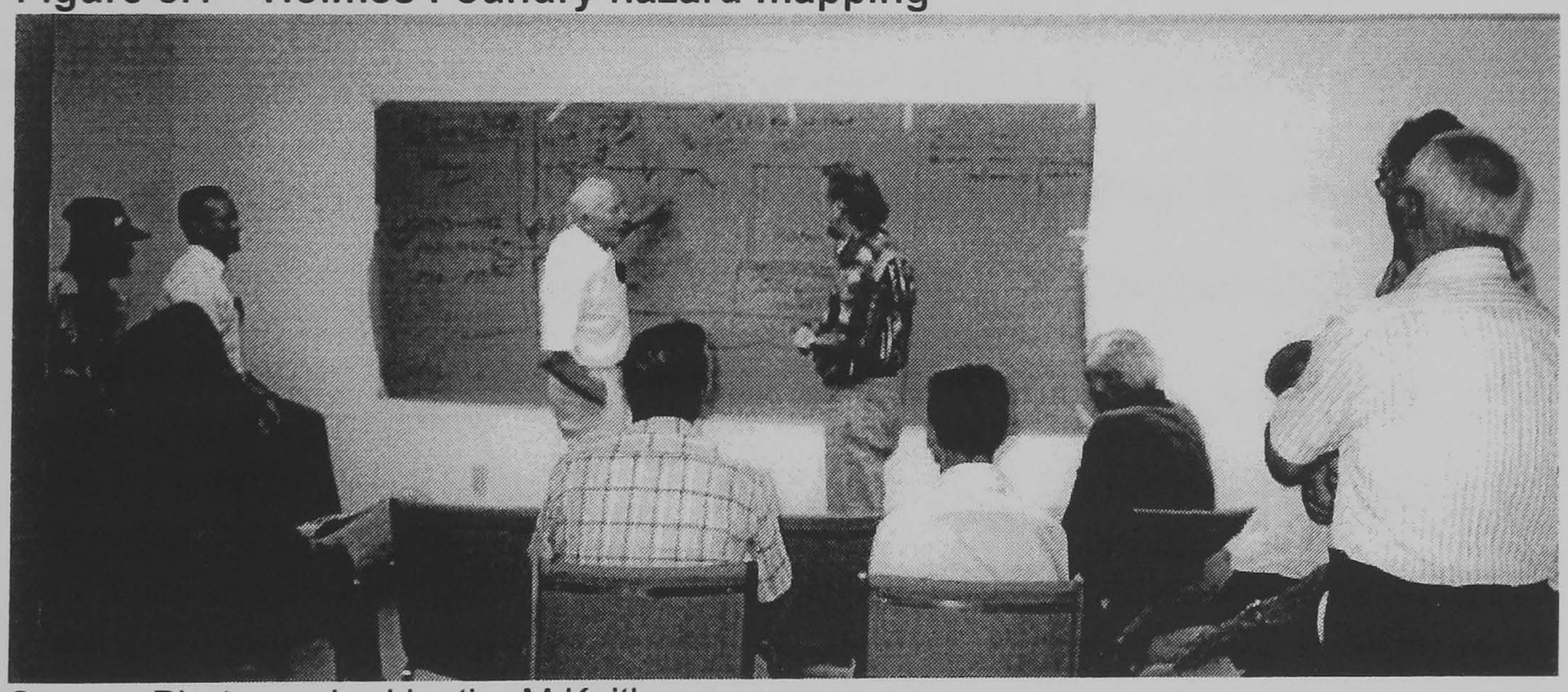
The initial hazard mapping process took place with former Holmes Caposite and Insulation workers in one workshop room and the Holmes Foundry workers in

another. Facilitated by occupational health clinic staff (including the author of this dissertation), the workers created retrospective hazard maps for their respective workplaces on large sheets of craft paper posted on the wall. Because most of the Holmes buildings are no longer standing, the facilities and features had to be drawn strictly from memory. The Holmes workers' collective memories provided very detailed descriptions of the workplace layout, processes, controls and worker exposures.

8.2.3.1 Holmes Foundry

The workers described the foundry as it had existed during various time periods. They described how "operations moved around." They remembered that they "used to store piles of raw asbestos and silica sand in the yard -- left uncovered." The asbestos and silica would be gathered in scoops and placed into open dump trucks "two or three times a week" and would be transported "uncovered."

Figure 8.1 – Holmes Foundry hazard mapping



Source: Photographed by the M Keith

They recalled that, in the foundry, "the smoke was often so thick workers couldn't breathe - especially in the summertime;" "workers would have to run outside to get a breath of air." The workers drew and described the characteristics of the core room where isocyanates were used, the shake out room where shot blast was used, the mill room, the iron pouring area, moulding areas, grinding departments, the paint room, and the shipping department. One of the dirtier processes included chipping metal from the engine blocks. They agreed that smoke, silica, and asbestos dust were everywhere as were numerous chemicals *(see Figure 8.1).*

8.2.3.2 Holmes Caposite facility

The Caposite workers drew the exterior grounds and interior of the facility on a large wall-sized map. They included railway tracks and truck paths upon which asbestos materials were imported, exported, or transported from building to building. They reported that the materials were often left uncovered during transport and would blow loose from the rail cars and trucks. Workers described the manufacturing process whereby asbestos was dumped from bags into hoppers, then fed onto conveyors, which led to forming areas, and so on. One worker described the appearance of asbestos dust in the air as looking like "feathers floating" or "diamonds sparkling in the sunshine". "During the day you would have a light dust on you."

The dust was "worse at night" after it had been cleaned off machinery by two men whose regular job it was to clean using a "two-inch air hose". After the blowing, it "looked like a bad snowstorm." Workers said there was "at least half an inch of

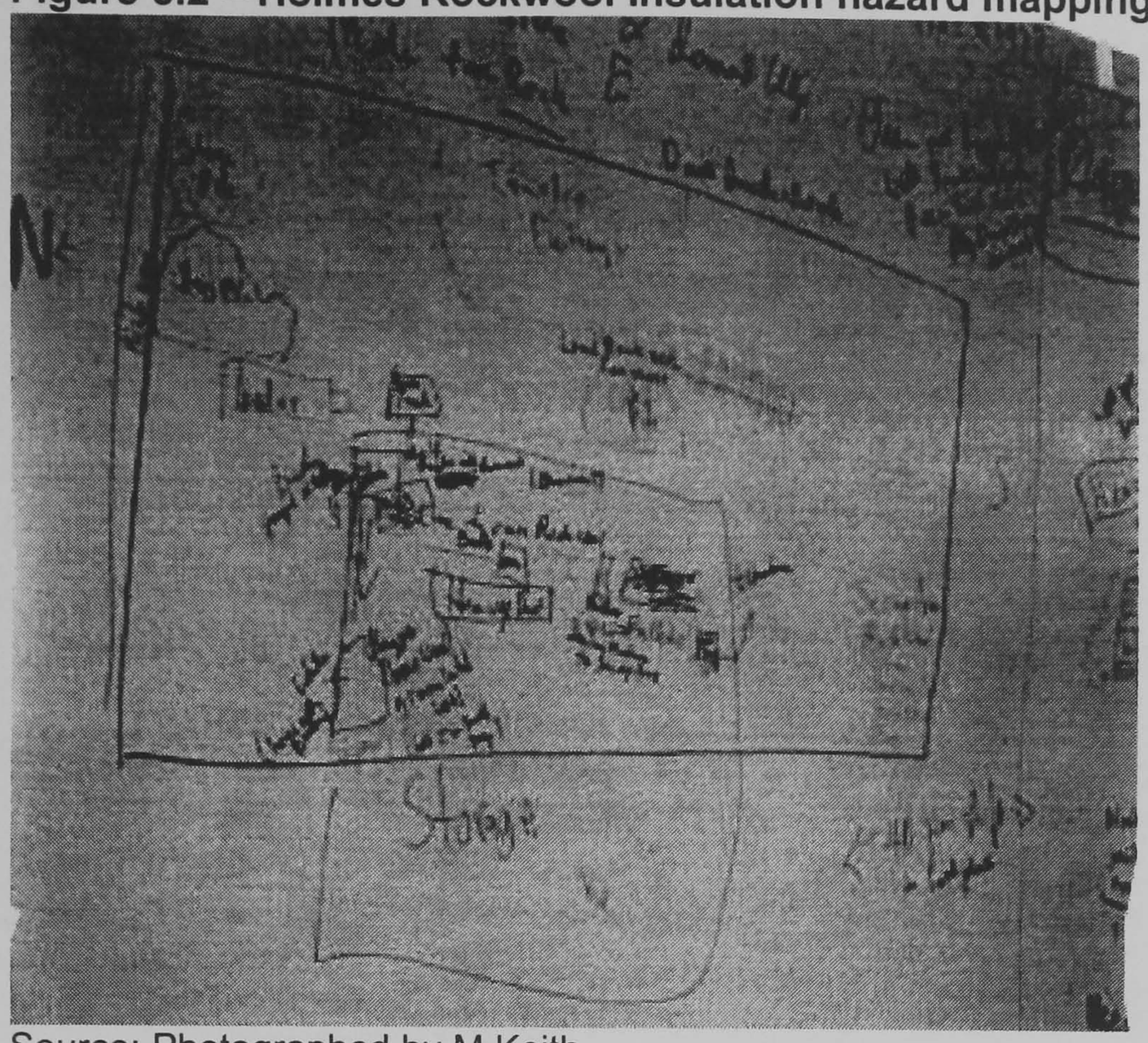
dust" on their shoulders which they brushed off. Some used the air hose to clean the dust off themselves.

They recalled that workers would "cut Caposite [amosite asbestos composite] with a mitre saw out in the open" and there was "no ventilation over the saw". The sawing operation was "later moved to the warehouse". There were "no real partitions" between work areas and no local ventilation; "the hood for the ventilation was high". The asbestos area was so thick where it was dumped into the hoppers that "in the hopper area it was the same as night." The work process included an oiling area where "oil was sprayed in the open." Workers remembered that they would often "eat lunch at their work stations" or would sometimes go into the Holmes foundry lunchroom to eat. Workers recalled that they had "no respirators" and they were "not told that asbestos was dangerous".

8.2.3.3 Holmes Insulation facility

The workers drew the Holmes rockwool insulation production facility adjacent to the other Holmes facilities. It was comprised of "two domed buildings". They explained that the insulation fibres were "made from rock". In the yard were a "stone pile," a "slag pile," a "coke pile," "scrap from rockwool," and "foundry castings." The rock was loaded onto a conveyor and carried into a processor where it was "melted" and then mixed with "resin."

Figure 8.2 – Holmes Rockwool Insulation hazard mapping



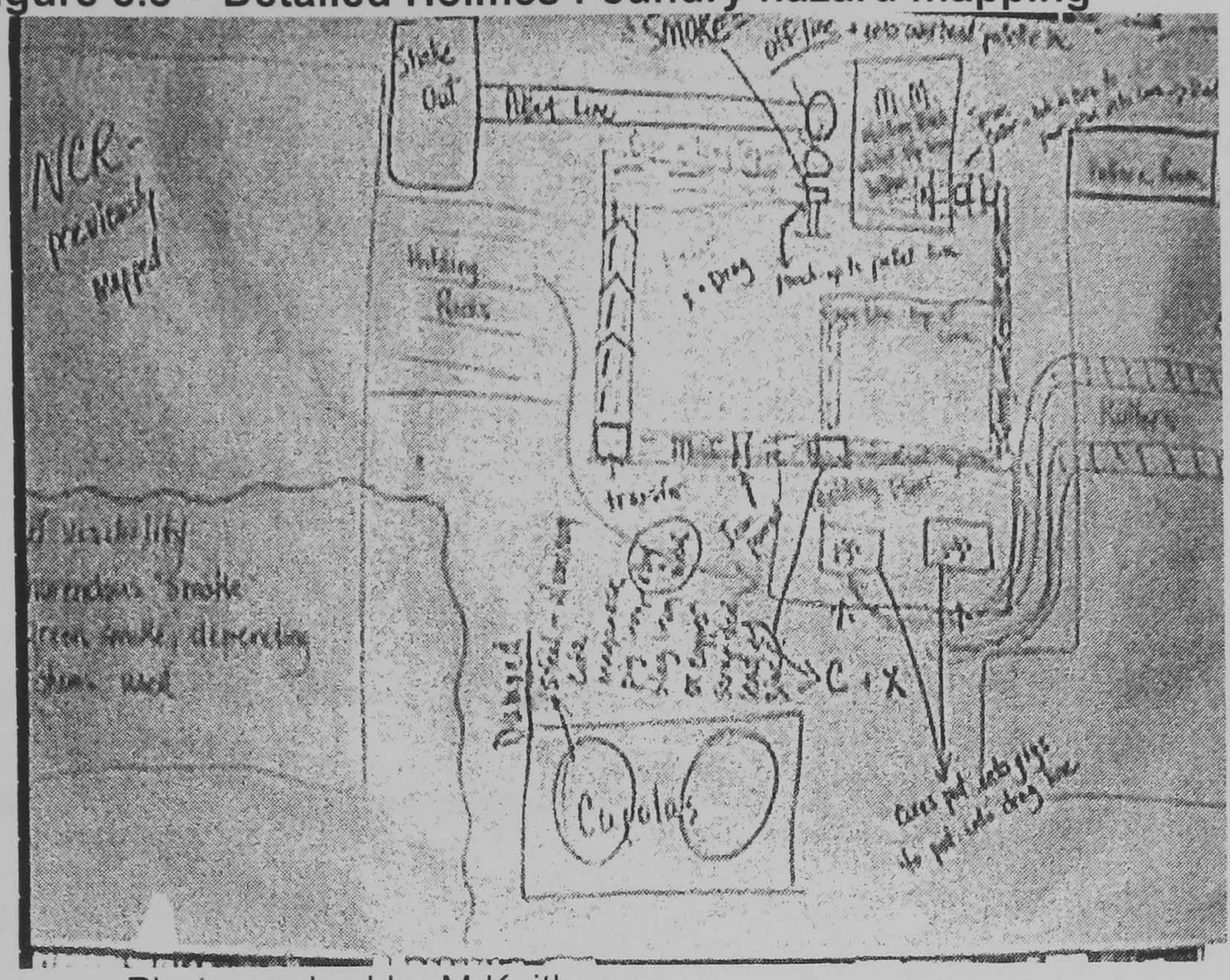
Source: Photographed by M Keith

Insulation "batts" were created on a production line generating "heavy dust" and were subsequently packaged using a "baler." Some of the rockwool fibres were left in the form of "loose wool." "Granulated wool" was produced by adding a "binder." The loose and granulated product was fed into a "bagger" and "sold in small bags," which were stitched closed in the "sewing machine" area. The production process created considerable "dust inside and out" *(see Figure 8.2)*

8.2.4 Hazard mapping report

Following the initial hazard mapping sessions, occupational health clinic nursing and administrative staff conducted four additional sessions with two dozen former Holmes workers to provide more detailed retrospective exposure profiles *(see Figure 8.3 and Appendices ZG, ZH, ZI).*

Figure 8.3 – Detailed Holmes Foundry hazard mapping



Source: Photographed by M Keith

According to the workers who participated in the detailed hazard mapping sessions, asbestos dust was ubiquitous:

> … the workers carried asbestos from the Insulation plants to the Foundry. Huge piles of asbestos waste were piled directly outside the foundry, allowing the winds to carry it into the plant and, in fact, all over the surrounding neighborhood. The plants were so hot in the summer that both the insulation plant and the foundry were forced to keep their doors open. This allowed not only air into the foundry but unfortunately, since the plants were so close, asbestos as well. One practice of the insulation plant was that of blowing the asbestos off the equipment with air hoses. This of course increased the amount of airborne asbestos particles (Mayville and Gilroy, 1999, p 6).

The hazard mapping data gathered during the initial sessions along with the more comprehensive information from the detailed sessions formed the basis of a descriptive report of the processes carried out in the Holmes complex and of workers' subjective recollections regarding exposures. An Occupational Health Clinic for Ontario Workers report described the process:

In August, Margaret Keith, Kathy Mayville, Janice Holland and I assisted the CAW in hazard mapping exercises to locate the potential exposures and learn more about the actual work process. About 25 workers participated along with representatives of the CAW national office and an OWA [Office of the Worker Advisor] representative. It was shocking to learn about the almost uncontrolled exposures to asbestos, silica, burning coke, ammonia and isocyanates to name only a few of their exposures. Workers told about exposures so substantial that the employer would actually stop production so that people could go outside to get "some air". The former union health and safety rep has died at the age of 52 from mesothelioma (Brophy, 1998a, np).

The collective account of exposures resulting from the hazard mapping was subsequently accepted as evidence in support of workers' compensation claims (Brophy, 1999, np).

8.2.5 Evidence to support hazard mapping data

The hazard mapping data were corroborated by evidence of exposures provided by other sources: published interviews, government documents, and a peer reviewed published mortality study.

Subsequent media reports of heavy dust exposure supported the data provided by workers during the hazard mapping sessions:

> Asbestos was everywhere in the Holmes facilities. Former Holmes workers tell horror stories of asbestos in the air so thick they could hardly see, of asbestos on the floor that billowed up whenever anyone walked through, and of asbestos on machines and on shelves. There was asbestos dust on the workers, on clothing, on exposed skin and in their hair (McLaughlin, 1999, p 29).

One of the participants in the Caposite hazard mapping sessions, said later in a published interview, "You couldn't even see about three feet in front of you…On top of your hair, it used to be pure white; you would think you were going white. It used to be like cotton candy, used to fly around in the air" (Smith, 2000, pp 82-83).

The working conditions and exposures described by the workers during the hazard mapping sessions were also corroborated by historical government inspection reports obtained through *freedom of information* legislation. Occupational health clinic staff reviewed the documents and reported that extraordinarily high levels of asbestos and other cancer-causing agents had been present throughout the years of production (Brophy and Keith, 1999; Brophy and Parent, 1999). Inspection documents for the Caposite plant reported that asbestos "counts were the highest ever encountered by this Branch in any of the plants in Ontario" (Brophy and Parent, 1999), p 301). The few orders that were written by government inspectors were not enforced.

Besides the government documents, there is a small published epidemiological study of the Holmes Caposite plant (Finkelstein, 1989). The study found excess cancers, including lung cancer and mesothelioma, and asbestosis among exposed workers. "These observations confirm the extreme risk to workers in factories with poorly controlled exposures to amosite asbestos" (p 481).

Despite the overwhelming evidence, according to Jim Brophy (director of the Sarnia occupational health clinic), "In the over thirty-five years…that they looked at Caposite and the Holmes Insulation plant there was only one prosecution and that was over a case in the mid-seventies when a worker lost his finger in an accident" (Canadian Auto Workers, 1999, np).

8.2.6 Holmes intake clinic body mapping

In order to identify former Holmes workers who had been stricken with occupational disease, the CAW, the Ontario Federation of Labour, and the occupational health clinic, held a compensation intake clinic. A flyer was sent out by the union to "All Former Holmes Workers and their Family Members" announcing an "Important Meeting and Registration" on September 18, 1998 *(see Appendix ZE)*. The union stated that it wanted to:

> ...make sure we have enough information about your work history at Holmes Foundry, Holmes Insulation or the Caposite plant to enable us to register you for a possible workers' compensation claim or help you with an appeal. We want to ensure we have enough health information about you to ensure we can process a claim and, if necessary, to arrange a visit with the Occupational Health Clinic for Ontario Workers (Marek and Clout, 1998, np).

Over two hundred and sixty former Holmes workers and their families attended the event. Occupational health clinic staff and volunteer union compensation advocates conducted confidential interviews with each attendee to gather work and medical histories.

Workers were then invited to participate in a body mapping exercise. There were approximately one hundred and twenty participants representing approximately half the attendees. Because the union and occupational health clinic had not anticipated such a large attendance, there were long waits to be registered and then again to be interviewed by volunteers. It appeared that some attendees did not take part in the body mapping when there were long line-ups. This likely did not result in any particular bias as the decision of whether or not to participate depended primarily on the length of the wait for body mapping at any given time.

A screen provided a degree of privacy for body mapping participants and no names or other personal identifiers were used on the maps. The health problems of workers were recorded using self-sticking dots on life-sized outlines of the human body posted on the wall. There was one body map for general health problems and another for cancers. The body mapping was done by one worker or family member at a time, facilitated by clinic staff (including the author of this dissertation).

Colour-coding was used to categorise the health problems using the legend shown in Table 8.2.

Table 8.2 Body mapping colour-coding

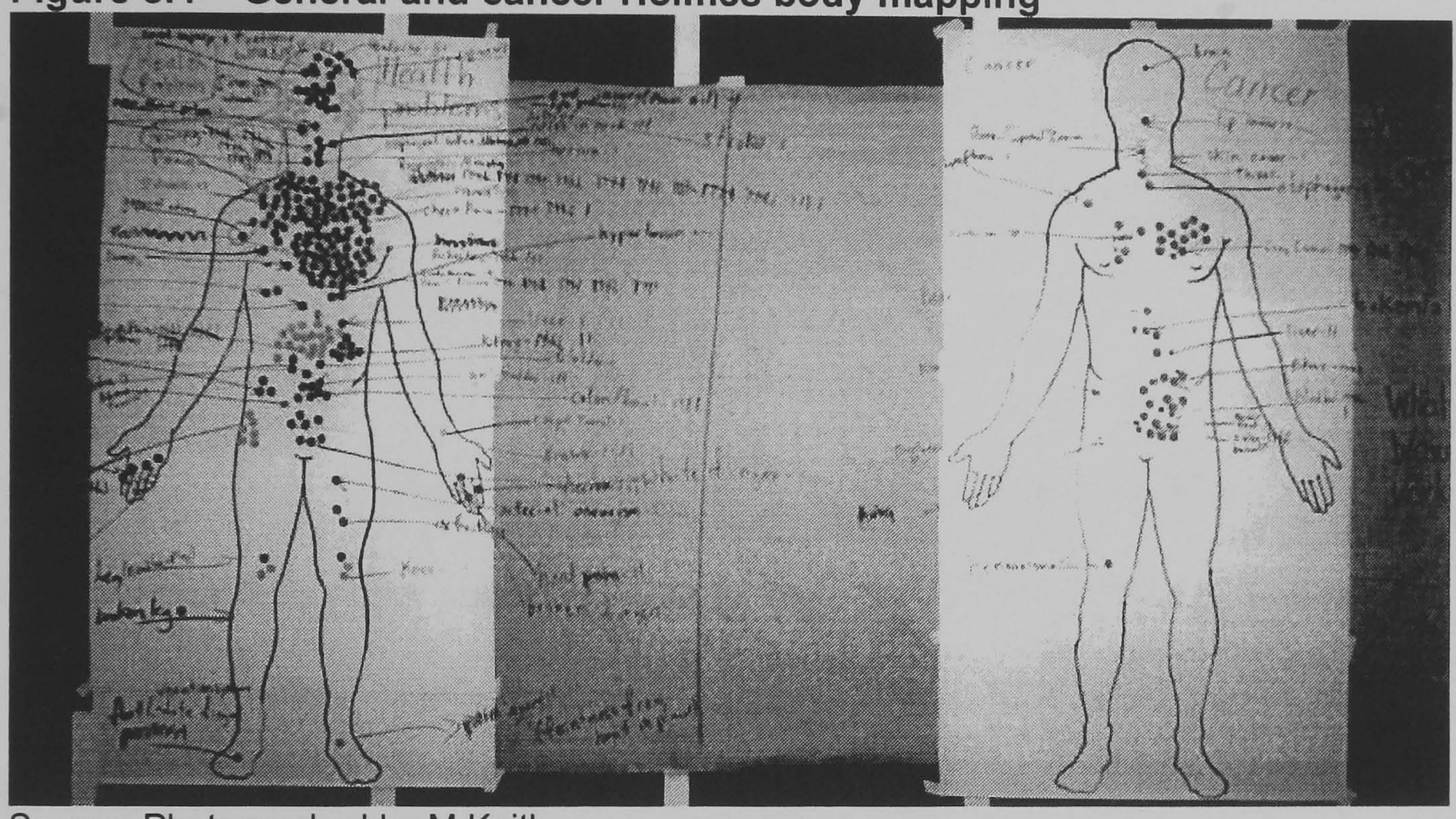
Light Green	Hearing loss
Orange	Conditions causing pain (such as musculoskeletal injuries)
Black	Diseases
Dark Green	Cardiovascular (heart)
Red	Respiratory
Blue	Primary cancers
Small Red	Metastatic cancers

Source: M Keith

As body mapping participants reported and pointed out the symptoms and diseases, they were recorded on the maps as described. The health problems were also recorded on a separate log in which participants were identified only by the numbers they had been assigned upon registration.

The body maps, produced during the day-long session, resulted in a disturbing snap-shot of the collective ill health of the workers *(see Figure 8.4)*. The body maps displayed a significant clustering of dots representing respiratory disease, cancers and cardiovascular disease *(see Appendix ZF for detailed self or proxy-reported health data)*.

Figure 8.4 – General and cancer Holmes body mapping



Source: Photographed by M Keith

Along with the previous hazard mapping, which established that workers had been subjected to very heavy asbestos and silica exposures, the body mapping provided a strong argument of associations between the workers' current health problems and their past working conditions. It became clear to the CAW union representatives and the occupational health clinic staff that a historically significant event had just occurred and that resources would have to be found to service the scores of ailing Holmes workers or their survivors (Brophy, 1998b, np).

8.2.7 Outcomes

News of the Holmes tragedy, along with subsequent and widely publicised mapping-based investigations of building trades workers (as described in Chapter 5) and Owens Corning fibreglass workers, had a major impact on the community.

Evidence that bystanders – the spouses and children of Holmes workers – had also contracted asbestos-related diseases created further concerns. The occupational health clinic discovered that "the milkman for instance that went into the plant once a day or once every couple of days has asbestosis, the guy that just loaded up the machine" (O'Neill, 1999, p 1).

The community learned that the sixteen-year old son of a former Holmes worker had died of mesothelioma – his only exposure apparently having been to his father's clothing (McLaughlin, 1999). As a Sarnia social worker observed, workers were now becoming aware not only of their own occupational risks, but of the risks to their families as well:

> I think the other piece of information that probably has been just as traumatizing to the community is that family members have been put at risk by substances that have been brought into the home – kids – adult kids maybe who recognize that their dad brought home asbestos on their clothing. There is a certain amount of guilt and terror about what that means for workers (Shrigley, 2000, np).

National journalists reported on the human aspects of the second-hand asbestos exposure:

> The men went to work every morning, proud to earn a livelihood for their families, and they came back each evening carrying death on their clothes. The women shook out the clothes and washed and ironed them, and were proud to be taking care of their families… In the park, across the street

> where the children played, the benches were coated with a layer of asbestos dust (Landsberg, 1999, p A2).

The second-hand exposures and resulting disease broadened the coalition that called for occupational health services in the Sarnia community. In particular, the community demanded its own local occupational health clinic. The community-based lobby included injured workers and widows, the local news media, local politicians and the unions.

A group of widows and injured workers called, *Victims of Chemical Valley* (VOCV), actively advocated for a full-time local workers' occupational health clinic and for local compensation services (Workers Health and Safety Centre, 1999, p 6). With the support of the unions, members of the group took their demands directly to the provincial government legislature where they were ill-received:

> A group of dying workers, widows and children sat in the visitor's gallery of the Ontario legislature as the NDP [New Democratic Party] introduced them and spoke of their plight. Instantly, loud barracking broke out. The Tory MPPs hurled shouts, catcalls and merry jests across the floor" (Landsberg, 1999, np).

Not to be deterred, the VOCV continued its lobby, speaking and campaigning across the province (Workers Health and Safety Centre, 1999, p 9). The group was not without allies. The Sarnia City Council passed a unanimous resolution of support (Churchill, 1999). The Sarnia District Labour Council, Building Trades, CAW, Ontario Federation of Labour, and other unions and community organisations enthusiastically communicated their support. In fact, hundreds of survivors and community members lent their signatures to a petition for a full-time

local occupational health clinic. The demand for a clinic was even supported by local members of provincial parliament.

During a meeting with the Minister of Labour, the chairperson of the workers' compensation board, local government officials and union representatives, community members and the Victims of Chemical Valley argued that they had waited long enough for justice and wanted a process put into place that would expedite the adjudication of compensation claims (Keith and Brophy, 2000b, pp 1-2). Following much debate, the government and compensation board representatives agreed to fund a local workers' occupational health clinic in Sarnia (Occupational Health Clinic for Ontario Workers, 2000c; Churchill, 2000).

Another precedent setting outcome was the establishment by the Workplace Safety and Insurance Board of a special task force to review evidence for the Holmes compensation claims in order to streamline the process of determining work-relatedness. Several presentations summarising medical and scientific literature were made to the task force by the Sarnia occupational health clinic staff. They included evidence of associations between foundry work and bladder cancer, pancreatic cancer and heart disease (Brophy, Reinhartz and Keith, 1999, 2000, 2001; Hansen, 1991; Kauppinen et al., 1995; Sorahan et al., 1994; Vena et al., 1985).

8.2.8 Resulting compensation claims demonstrate the value of body mapping

Following the Holmes intake clinic, ensuing publicity, and the establishment of a fully funded local occupational health clinic, hundreds more former Holmes

workers registered with the clinic to be medically assessed. After gathering occupational histories and medical evidence, conducting diagnostic tests, and evaluating over five hundred former Holmes workers, by 2003 the clinic nurses, hygienists and physicians had supported three hundred and twenty-six compensation claims for a range of diseases as shown in the following figures and table.

Figures 8.6 and 8.7 show a simple comparison of the original self-reported body mapping data gathered during the intake clinic in 1998 versus the compensation claims filed by the physicians at the Sarnia occupational health clinic by 2003.

Table 8.3 provides the breakdown of health problems showing actual numbers and percentages in each category. Some individuals may have had more than one health problem. Each health problem is included separately.

The illnesses and injuries reported during body mapping are grouped according to the compensation claim categories. Note that not all health problems recorded during body mapping are included, as many are not considered to be compensable under the current compensation board criteria. For example, the body mapped heart disease is not included in the comparison as it is still generally considered by the compensation board to be a *disease of everyday life*. Heart disease is usually considered to be compensable only if a direct contemporaneous association with an aetiological agent can be demonstrated, such as a heart attack directly associated with an acute exposure.

Table 8.3 Comparison of mapped problems and medically supported claims submitted

	Body Mapped Health Data (from maps) N=139	Compensation Claims Submitted N=326
Respiratory disease	36% (49)	37% (122)
Respiratory cancer	10% (14)	12% (40)
Asbestosis	6% (8)	7% (23)
Gastrointestinal cancer	7% (10)	9% (29)
Mesothelioma	2% (3)	2% (6)
Hearing loss	20% (28)	19% (62)
Other cancers	10% (14)	8% (25)
Musculoskeletal injuries, hand-arm vibration, carpal tunnel syndrome	4% (6)	4% (14)
Renal disease	5% (7)	2% (5)

Source: M Keith

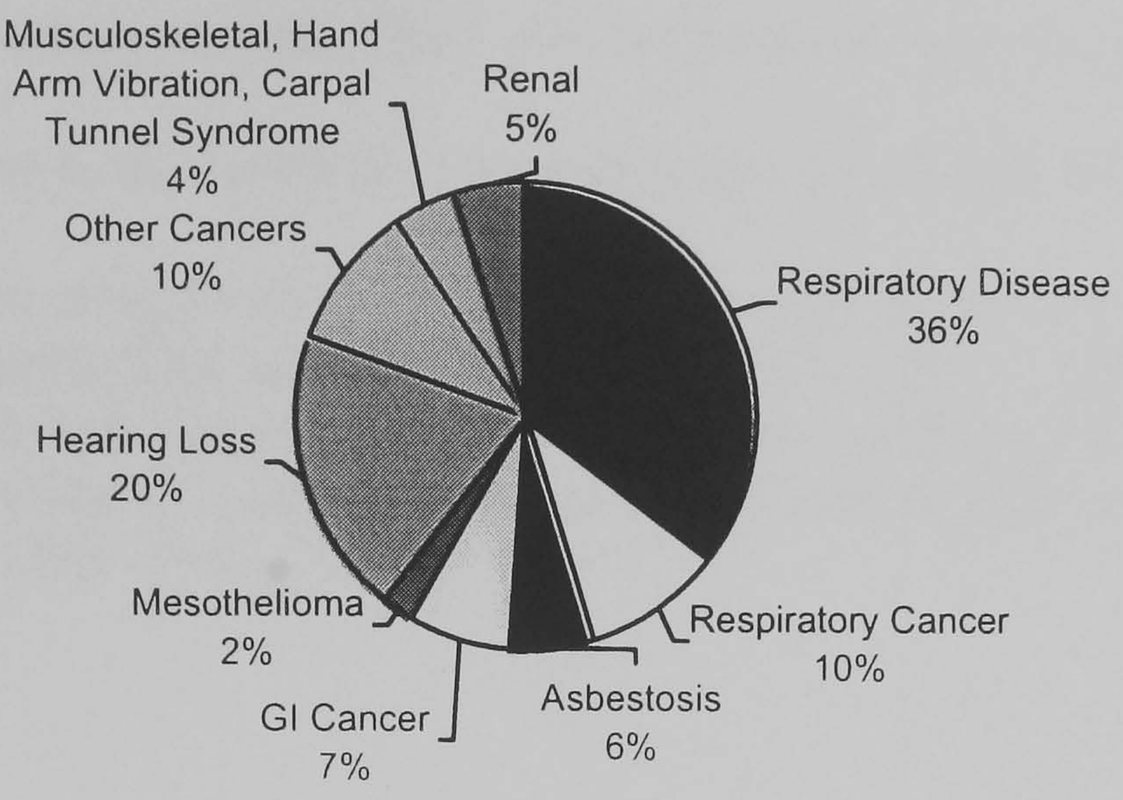
Interestingly, the pattern of diseases initially revealed through the process of body mapping closely resembles the patterns seen in the clinically validated diagnoses of Holmes workers whose claims have been submitted for compensation. There are almost three times as many clinically validated claims as self-reported body mapped health problems. However, the proportional similarities contribute to the argument that self-reported body mapped data provide a reliable gross indicator of occupational health problems. A local occupational health clinic physician noted:

> The ailments documented by the mapping process closely resembled the overall pattern of diagnoses we made upon examination of the patients and review of their medical records. A search of the medical literature regarding occupational diseases and injuries associated with foundry work and similar exposures corroborated our own clinical findings (Keith, 2003a, np).

Based on the combined evidence of mapping results, scientific literature, government inspection reports, job records, and medical diagnoses, many of the workers or their surviving family members were granted compensation. In the summer of 2003, it was reported that:

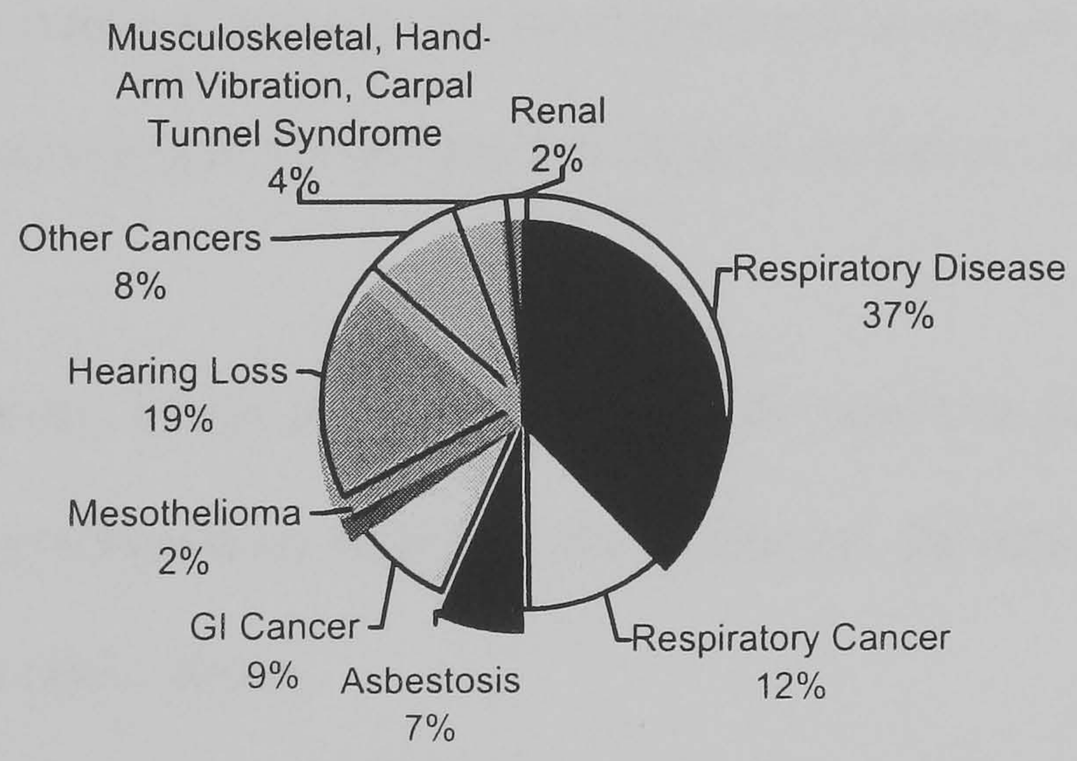
> Success with Holmes Foundry, Sarnia, Ontario claims for workers who suffered from occupational diseases from exposure to asbestos, silica, and other harmful substances continues with total claim payouts approaching $16,000,000 in lump sum payments and $1,115,000 per year in monthly benefits (Canadian Auto Workers, 2003, p 1).

Figure 8.5 Holmes body mapping data



Source: M Keith

8.6 Medically supported compensation claims filed



Source: M Keith

The union, along with the staff of the occupational health clinic in Sarnia, are continuing to file claims as new cases of occupational disease arise among the surviving former Holmes workers. The CAW attributes the success of the compensation claims to the collaborative investigative effort launched in 1998:

> I can tell you categorically that our success to date would not have been possible without their [occupational health clinic] efforts. And here is why. The clinic first alerted us to the immensity of the problem at Holmes and assisted in bringing to light, documenting and analyzing the exposures at the Holmes facilities (DeCarlo, 2001, np).

8.3 Discussion

The Holmes findings have shaken the foundations of a historically complacent, subordinate labour force and a trusting, culturally and politically conservative community (as discussed earlier in the chapter). Fear of job loss had likely constrained workers' demands for occupational health and safety improvements (Adkin, 1998). The workers' struggle for fair compensation was no doubt aided by the fact that the plant was now closed and fear of job loss was no longer a deterrent.

The Sarnia occupational health story is ongoing. In his report on the Holmes intake clinic in 1998 during which body mapping was conducted, the director of the occupational health clinic stated:

> ...I believe that what is unfolding in Sarnia today has the historical potential to play a role similar to the one the uranium miners did in the 1970s. It can be a defining moment, which will trigger a movement that demands societal reform to reduce the level of cancer and other diseases arising from the workplace (Brophy, 1998b, np).

The full ramifications of the Holmes study are as yet unknown but it is evident that a sea change has taken place locally. An editorial in the Sarnia *Observer* attributed

an emerging community distrust for industry to the exposé of the Holmes tragedy. He called it the "Holmes Foundry factor" (DeGurse, 1999, np).

The Holmes study has also had effects far beyond the Chemical Valley. As a social worker who has been dealing with Sarnia's stricken families observed:

> People are looking at Sarnia and I think initially thinking of Sarnia as an isolated incident but as the story unfolds recognising that the Sarnia experience is alive in their own community. I think that is evidenced just in the number of calls that the clinic gets or I have gotten at home from people in other communities who have read articles and are thinking about their own work experience, their own exposure or those of family members (Shrigley, 2000, np).

Possibilities have now opened up that the Sarnia community will begin to challenge the priorities set for them by industry.

8.4 Conclusion

Conventional occupational health approaches largely failed the Holmes workers. Clearly, as the study's findings and corroborating industrial hygiene evidence show, the workers' health was not a priority for their employer. Nor did the government inspectors who visited the facilities throughout the years enforce orders that could have prevented exposures and subsequent disease (Brophy and Keith, 1999; Brophy and Parent, 1999). The one epidemiological study that was conducted of the Holmes Caposite workers suggesting that workers were suffering from asbestos-related disease, took place after the facility closed – too late to protect them (Finkelstein, 1989).

The workers' compensation board, which is funded by employers and, in many ways, represents their interests, was not eager to identify former Holmes workers with compensable occupational diseases or injuries. While fifty-one workers were earlier compensated following disease detection by the Occupational Chest Disease Service mobile surveillance x-ray unit, the majority of the Holmes workers with occupational disease were not compensated until the collaborative, participatory mapping effort was undertaken. The widely publicised workers' initiative to demonstrate that they were suffering in large numbers from occupationally related disease and injury compelled the compensation board to address their claims.

The Holmes case study demonstrates the successful use of participatory mapping as an alternative method for exploring the health impacts on workers from past exposure. Mapping proved to be an effective tool for data gathering. The hazard mapping recreated on paper the intricate details of an industrial complex that no longer exists in brick and mortar. The body mapping created an illuminating collective portrait of a workforce subjected to asbestos and other industrial exposures. The process proved to be empowering; it helped to mobilise workers and community members, who had been previously splintered and complacent, to join in lobbying the government and compensation board for workers' occupational health services and fair compensation.

The Holmes case study will be further discussed and evaluated in Chapter 9 in relation to the multi-part research question.

CHAPTER 9: EVALUATION OF CASE STUDIES

9.0 Introduction

This chapter provides a critical evaluation of the extensive amount of material that has been generated by the case studies. It first compares and contrasts the case studies in terms of the multi-part case study-related research question. Secondly it examines the cases studies with reference to an adapted set of criteria set out for participatory action research (PAR) by Hall (Hagey, 1991) as outlined in Chapter 4. Thirdly it compares the approaches taken in the case studies to conventional approaches. Fourthly it situates the case studies with reference to the various tendencies described in the literature on PAR. Finally it examines the case studies in relation to the strengths and limitations of participatory action research and mapping as outlined in Chapters 4 and 5.

9.1 Utility of mapping in terms of research questions

The utility of mapping is compared and contrasted in detail in Table 9.1 below to show how the technique has served to address the major questions posed within the thesis. As explained, the case studies differ in terms of timeframes, settings, work organisation, and goals.

The outcomes of the case studies demonstrate that mapping, as a data collection method used within a participatory action research approach, has value. It can accomplish a broad range of objectives. The case studies achieved the shared objectives of gathering valuable data, raising worker and public awareness, and empowering the less powerful.

Table 9.1 – The utility of mapping as illustrated in the case studies

Can mapping within worker-based participatory action research be used to:	Casino workers case study (Chapter 6)	Holmes Foundry case study (Chapter 7)
• explore current occupational health and safety conditions?	Yes	No
• contribute to occupational health and safety improvements at a local level and beyond?	Yes	Not applicable
• establish workers' previous exposures for compensation purposes?	Not studied	Yes
• support efforts to bring about justice through compensation for workers affected by unsafe working conditions?	Not studied	Yes
• raise worker and public awareness of health and safety?	Yes	Yes

Source: M Keith

The case studies also met their unique objectives, which differed in terms of time period (past versus present) and concrete outcomes (improvements versus compensation).

9.2 Evaluation of case studies as participatory action research

While evaluation of the case studies can be conducted in a number of different ways, Hall's criteria (Hagey, 1991, pp 1-2) for evaluating participatory action research provide a useful organisational structure. These criteria are applied to the case studies in Table 9.2.

Table 9.2 Case studies evaluated using PAR criteria

Evaluation Criteria (Hagey, 1991, pp 1-2)	**Casino case study (Chapter 7)**	**Holmes Foundry case study (Chapter 8)**
The "problem" originates within the community or workplace itself.	Gaming workers as individual patients of the occupational health clinic along with the union health and safety representatives initiated the participatory action research process when they approached the health clinic staff about a broad range of occupational health issues in both Windsor and Winnipeg. The theory of the participatory action research approach and the mapping tools were introduced to the union representatives of the gaming workers (Canadian Auto Workers in Windsor and Manitoba Government Employees Union in Winnipeg) by clinic staff and, following discussion, were mutually accepted in both the locales.	A union representative of the former Holmes workers approached the occupational health clinic seeking help in establishing compensation claims, in particular for workers who had developed a range of cancers he believed to be work-related. The investigation was launched as a collaborative effort with the Canadian Auto Workers (CAW) union and mapping was an agreed upon investigative tool.
The research goal is to fundamentally improve the lives of those involved, through structural transformation.	The gaming workers sought not only improvements to their working conditions, but also empowerment. The improved union solidarity and collectively agreed upon set of demands helped in their negotiations for improvements with their employers. The study is credited by the workers with making occupational health and more of a priority.	The Holmes workers achieved some justice through the success of compensation claims. The compensation board was compelled to accept claims it had previously denied in the face of overwhelming evidence and broad community and labour support. This opened the doors for future claims among similarly exposed workers.

Evaluation Criteria (Hagey, 1991, pp 1-2)	**Casino case study (Chapter 7)**	**Holmes Foundry case study (Chapter 8)**
The people in the community or workplace are involved in controlling the entire research process.	The gaming workers were closely involved and in control of the process from beginning to end. They provided the direction and priorities in planning and evaluation meetings. They decided when and how the results would be released, disseminated, and utilised. They participated in media interviews, made presentations, and co-authored the resulting reports and the peer-reviewed article (Keith et al., 2001a).	Holmes workers initiated and supported the process. The union representing the workers acted in collaboration with the clinic staff to plan and carry out the research. The detailed hazard mapping was organised by former workers. Union representatives organised the intake clinic, participated in the compensation task force, made decisions about when and how the study's findings would be released, participated in media interviews, and made presentations.
The focus of PAR is on oppressed groups whose issues include inaccessibility, colonization, marginalization, exploitation, racism, sexism, cultural disaffection, etc.	The focus of the gaming workers study was on the myriad occupational health and safety problems experienced by the gaming workers themselves. The participatory action research and mapping put them in a stronger position to collectively fight for improved conditions for themselves and their co-workers.	Justice for the Holmes workers was at the centre of the participatory action research process. The workers were disconnected, invisible, and powerless prior to the process but made personal and collective gains together. It empowered other industrial workers in the Sarnia community (building trades and chemical workers pursued similar claims).
Participatory research plays a role in enabling by strengthening people's awareness of their own capabilities.	The gaming workers gained new skills and were empowered by the process. They were trained to facilitate the focus groups and gained self-assurance as the process went along. They learned together what the top priority health and safety issues were. Union representatives gained confidence that their health and safety demands reflected the opinions and experience of their co-workers.	Prior to the process, individual workers or their survivors suffered alone. The collaborative effort undertaken by the union and occupational health clinic staff provided workers with power and confidence to pursue compensation. The resulting media coverage of the Holmes tragedy further empowered the workers as public pressure mounted in support of compensation for the victims.

Evaluation Criteria (Hagey, 1991, pp 1-2)	**Casino case study (Chapter 7)**	**Holmes Foundry case study (Chapter 8)**
The people themselves are researchers, as are those who have specialised research training.	The gaming workers were co-researchers. They determined, along with the outsiders, what the goals would be of the research. They participated in all aspects of the research: they facilitated the focus groups; they attended planning and evaluation meetings and made all major decisions; they co-authored and distributed reports, articles, and so on.	The Holmes workers themselves were less involved as hands-on co-researchers. They were organisers and participants in the mapping sessions but did not facilitate as the gaming workers had. They were however, through their union representatives, party to all aspects of the research. The union accessed, through freedom of information legislation, archival industrial hygiene reports which were reviewed by clinic staff.
The researchers with specialised training may be outsiders to the community, but are committed learners in a process that leads to militancy (fighting for change) rather than detachment.	The outside researchers were occupational health and safety advocates from a workers' clinic whose orientation was towards empowering workers. They were cautious not to control the process. Furthermore, they attempted to set aside prior assumptions about occupational health and safety problems in the casino environment in order not to influence outcomes. They were co-learners along with the gaming workers – the information about the occupational health and safety problems in the casino provided by the study participants provided new information that enlightened all of the researchers (insiders and outsiders). They were also co-advocates. They shared in publicising the study's findings (although the gaming workers were solely responsible for negotiating improvements with their employers.)	The outside researchers were occupational health and safety advocates from a workers' clinic whose orientation was towards empowering workers. They were cautious not to control the process. Furthermore, they attempted to set aside prior assumptions in order not to influence outcomes. They were co-learners along with the Holmes workers – the information about the occupational health and safety problems in the Holmes complex provided by the study participants provided new information that enlightened all of the researchers (insiders and outsiders). They were also co-advocates, sharing in publicising the study's findings and pressuring the government and compensation board for change.

Source: M Keith

Both case studies met the assigned criteria. They originated in the community; resulted in improvements; were controlled by the workers themselves; challenged oppression of workers by their employers (casino workers) or the compensation

board (Holmes workers); and brought workers and action-oriented outside professionals together in a collaborative and equitable process.

The casino gaming workers study was a somewhat more developed participatory action research project than the Holmes study, as the gaming workers themselves were hands-on, direct co-researchers. The gaming workers were more aware of the fundamental principles of the approach; they were involved more intimately in the planning, carrying out of the research, and the dissemination and utilisation of the results. Agreements and roles were also more formally developed and documented in the casino gaming study. The Holmes case study, while less formally structured as a research study, followed the principles of PAR.

Participation, action, and research were fundamental components of both case studies. Mapping enhanced the approach by providing a clear and tangible venue for participation and by providing a lasting graphic and written record of the data gathered. In the case of the casino gaming workers, whose goal it was to improve current health and safety conditions, the inclusion of the "Your World" life mapping and "Priorities and Action" plan exercises added further awareness-raising and empowerment elements. The linking of health, work, and life through the mapping exercises helped workers to better understand the importance of addressing working conditions. This meets a key participatory action research principle, that of striving to "fundamentally improve the lives of those involved" (Hagey, 1991, pp 1-2).

9.2.1 Approaches of case studies compared to conventional research

Another basis for evaluation of the case studies is provided by a table created by Cornwall and Jewkes (1995) which was discussed in Chapter 4 *(see Table 4.4)*. The table provides a comparison of participatory versus conventional research.

As discussed in the previous section, the case studies met the criteria of participatory research as described by Hagey (1991) and which are similarly presented by Cornwall and Jewkes (1995). The case studies were carried out in order to bring about change, stressing "action," as opposed to the conventional goal of developing "understanding with perhaps action later." The gaming worker and foundry worker research was for the "local people" (the workers themselves) as opposed to the "institutional, personal and professional interests" that direct conventional research. The knowledge of the "local people" that is, the gaming and foundry workers, was of paramount value; in contrast, the knowledge of the "scientists" is most highly regarded in conventional research. "Local priorities" guided the research questions in the case studies as opposed to "funding priorities, institutional agendas, and professional interests" that often guide conventional research. The research methods were chosen in the case studies for the "empowerment" of the workers and "mutual learning" of collaborators and workers; the methods in conventional research are usually chosen for their "disciplinary conventions, 'objectivity' and 'truth.'" In the case studies, the "problem identification," data collection, and analysis were carried out by the workers; in conventional research these areas are the domain of the "researchers" and "enumerators." Interpretation of the findings of the case studies was based on the workers' own "concepts and frameworks" as opposed to the conventional

"disciplinary concepts and frameworks." The findings of the case studies were presented in a form that was "locally accessible and useful" such as the maps and plain language summary reports; in conventional research the findings are often accessible only to researchers or "to other academics" or a "funding body." Action was "integral to the process" of the case studies and was carried out by the workers or their representatives; in conventional research, action is "separate and may not happen;" if it does happen, it is likely to be carried out by "external agencies." In the case studies ownership of the results was shared by the workers and collaborators; in conventional research the results are owned by the researchers. The "process" was a critical component of the case studies whereas "outcomes" are the primary focus of conventional research (Cornwall and Jewkes, 1995).

9.3 Case studies reflect models of occupational health and safety PAR

Several models of participatory action research have been used in occupational health and safety. They were discussed and referenced in Chapter 4. The following briefly examines the case studies in terms of those models as this sheds further light both on the applicability of the mapping method and on the influence that larger political, social and economic forces have on occupational health and safety developments.

The case studies have little in common with the *Swedish model,* as Canada is less socially democratic than Sweden and the corporatist hierarchy dominates. Bipartism has largely failed Canadian workers who suffer some of the highest rates of occupational injury and disease in the developed world. Bipartism promotes collusion, technicalisation, and cooperative approaches. It has put an end to the

collective militancy required to win significant widespread improvements in a corporatist environment.

The case studies both had elements in common with the *Italian model*: there was conflict between the workers and their employers (in the case of the casino gaming workers) or the workers' compensation board (in the case of the former Holmes workers). The research studies were meant to challenge existing power relationships. They also used mapping, as did the study in the Italian Fiat plant and the findings were similarly supported by professionals or corroborating evidence.

The case studies are perhaps most similar, however, to the *Latin American model*; the workers initiated the studies but engaged in collaboration with worker-friendly professionals for support; the studies were empowering; they strengthened the unions' bargaining power; and they raised awareness of occupational health and safety issues within the industries studied. These findings are important in terms of developing effective policies and practices in the future that address the pressing occupational health and safety problems in Canada.

9.3.1 Tendencies of PAR reflected in case studies

There are two dominant tendencies in participatory action research: *reformist* and *political empowerment* (Greenwood and Levin, 1998; Cornwall and Jewkes, 1995) *(see Chapter 4)*. Categorisation of the case studies within these tendencies is not straightforward. Certainly there were empowerment elements in the case studies – workers sought and gained the power they needed to win improvements or compensation.

It can be argued that the process did, in fact, result in structural transformation. The gaming study helped to level the playing field for the gaming workers. It led to the prioritising of occupational health and safety issues by joint worker-management committees, which represents a structural advance within the casinos involved. In the case of Holmes, a local workers' occupational health clinic and compensation task forces were established by the government and workers' compensation board. Workers were granted compensation for previously disregarded occupational diseases. Again, this might be considered a structural advance as it resulted in diagnostic and compensation services for workers who had previously received little or no attention. In terms of the union hierarchy, there was no real structural transformation. While those in the upper levels of the unions supported the workers' efforts (which had been initiated and driven by local union representatives), they did not take full advantage of the opportunity to utilise the information gained by the gaming or Holmes workers to expose similar injustices in other unionised workplaces.

9.4 Strengths and limitations of PAR and mapping in case studies

Conventional research approaches fall short as catalysts for occupational health and safety change in a corporatist environment *(see Chapter 3)*. There are biases in its orientation and limitations to its relevance and validity. It is largely quantitative and technical, thereby making it and its findings inaccessible to many workers. The quest for the appearance of neutrality and objectivity preclude the advocacy element that is often needed to advance findings to the stage of improvements through regulatory change.

Participatory action research and occupational health and safety mapping, on the other hand, while valuing dependability and accuracy of findings, generally use subjective qualitative data reflective of workers' own reality. Furthermore they are oriented towards advocacy, worker mobilisation, and influencing change.

Participatory action research and mapping are freer of corporatist influence and indoctrination. These characteristics (as further elaborated in Chapters 4 and 5) are the keys to their effectiveness in challenging corporatist barriers to change. Participatory action research is locally relevant, empowering, enlightening, and oriented towards mobilisation. Similarly, mapping is participatory; it enhances awareness and it encourages collective action. Mapping exercises, such as "Your World" life mapping, can make links to the broader psychosocial impacts of work, which can raise awareness and politicise workers. Mapping is also accessible and awareness-raising; it builds solidarity and group cohesiveness; it provides visual evidence that can be used to garner media attention, public support, and union support; it is practical and utilitarian; and it can influence employers, compensation boards, and regulators.

Table 9.3 briefly evaluates the case studies in reference to the limitations and strengths of PAR and mapping as outlined in Chapters 4 and 5.

Table 9.3 Strengths and limitations of PAR and mapping as per case studies

	Casino case study (Chapter 7)	Holmes Foundry case study (Chapter 8)
Limitations		
Difficult to satisfy needs of collaborating parties	Not a problem as outsiders were trusted, worker-friendly professionals with no vested interests, who accepted that workers needed to provide direction.	Not a problem as outsiders were trusted, worker-friendly professionals with no vested interests, who accepted that workers needed to provide direction.
Time-consuming	Lengthy democratic, reflective process; training of facilitators; focus groups took 2 to 3 hours each; analysis of data tedious; report writing time-consuming.	Detailed mapping sessions were lengthy; analysis and write up of hazard mapping data, in particular, was time-consuming.
Accurate recording difficult	Sometimes there were overlapping conversations in focus groups that made recording difficult; had tape recording and observer as back up to improve accuracy.	Sometimes there were overlapping conversations in focus groups that made recording difficult; facilitators were able to ask participants to repeat themselves or restate.
Open sharing threatens confidentiality	Gaming workers and facilitators signed pledges of confidentiality as they would be privy to co-workers' health and personal problems during focus groups; no known breaches occurred. Facilitators reinforced the message to participants. Written records, tape recordings, and participant forms were stored in a secure location.	Clinic staff and worker advocates signed pledges of confidentiality. Hazard mapping, while done collectively, did not reveal intimate personal details. Body mapping was done individually behind a screen. Written records were stored in a secure location.
Subjective data may not be accepted as valid	The findings were not challenged by employers, the media, or the public-at-large. Workers used the findings to support their demands for health and safety improvements. The findings were also accepted for peer-reviewed scientific publication.	The findings were not challenged by the workers' compensation board when used as evidence of workers' past exposures nor were they challenged by the media or public-at-large. Findings were also accepted for peer-reviewed scientific publication.
Lack of generalisability	Generalisability is not necessarily an aim of PAR; however, in this case, Windsor and Winnipeg findings were very similar and a later GMB study in Scotland yielded similar results.	Generalisability is not necessarily an aim of PAR. However, the findings were compatible with the available literature on foundries and asbestos, as well as with existing hygiene reports and a published study.

	Casino case study (Chapter 7)	Holmes Foundry case study (Chapter 8)
Follow-up by collaborators cannot be guaranteed	The specific project and directly related follow-up was completed by all parties. No ensuing study has been carried out to date. although it had been part of the original plan to pursue further research on the prioritised issues.	All project tasks and related follow-up was carried out by all parties. Compensation claims continue to be submitted and processed as new cases emerge among former Holmes workers.
Strengths		
Powerful investigative tool	Mapping and participatory action research proved to be effective for gathering data and achieving desired results.	Mapping and participatory action research proved to be effective for gathering data and achieving desired results.
Non-technical; uses visuals instead of difficult language; overcomes demobilisation resulting from technicalisation	The process and findings were accessible to all participating gaming workers regardless of their technical knowledge or literacy skills. The drawing of maps and verbal descriptions used for data gathering overcame potential literacy problems.	The process and findings were accessible to all participating Holmes workers regardless of their technical knowledge or literacy skills. The drawing of maps and verbal descriptions used for data gathering overcame potential literacy problems.
Participatory; encourages collective analysis and discussion	All participants were actively involved in the mapping and discussion. The hands-on visual elements enhanced participation and comfort levels.	All participants were actively involved in the mapping and discussion. The hands-on visual elements enhanced participation and comfort levels.
Values workers' subjective knowledge	The data was derived from the workers' own knowledge, providing rich descriptions that reflected their experience.	The data was derived from workers' own knowledge (along with inspection reports). It provided rich descriptions that reflected their experience.
Collective knowledge	Workers freely shared information and built from each other's comments.	Workers freely shared information and built from each other's comments.
Shows openness to hearing workers' concerns	The process demonstrated that the union and collaborating clinic staff respected the workers' knowledge. In formal evaluations, gaming workers expressed gratitude that someone cared.	The process demonstrated that the union and collaborating workers' clinic staff respected the workers' knowledge and concerns.
Empowering	The process and results empowered workers to seek improvements. It provided them with added leverage within the bipartite (employer-worker) health and safety structure.	The process and results empowered workers to pursue justice. It assisted them in challenging the government and employer-dominated compensation board.

	Casino case study (Chapter 7)	**Holmes Foundry case study (Chapter 8)**
Local, site specific	The findings reflected the gaming workers' health and safety problems in their specific workplaces, making it more difficult for their employers to dismiss the workers' concerns as irrelevant.	The findings reflected the Holmes workers' health and safety problems in their former workplace, making it difficult for the workers' compensation board to dismiss workers' evidence as irrelevant.
Protection against reprisal	Workers made collective decisions and collective submissions to their employers thus reducing opportunities for employers or co-workers to target individuals.	The Holmes workplace is no longer open so employer and co-worker reprisal was not an issue.
Creates sense of ownership or "buy in"	Workers took pride in the study; it represented their data, their findings, and their demands.	Workers took interest and pride in recreating their former workplaces and many were willing to speak publicly.
Publicity provides protective effect	The findings were widely publicised making it more difficult for the casino management to ignore the findings and workers' demands. It was important to be responsive to maintain good public relations.	The findings were widely publicised making it more difficult for the workers' compensation board to ignore the findings or deny claims. It was important to be responsive to maintain good public relations.
Opens up communication	The research revealed that health, hazard, and psychosocial problems faced by individual gaming workers were common concerns; individuals became less isolated.	The research revealed that health problems were being experienced by a large number of former Holmes workers. It revealed that they had common exposures and concerns. Individuals became less isolated.
Builds cohesiveness and solidarity	The process strengthened union solidarity among the gaming workers, broke down divisions, and challenged the occupational hierarchy (such as dealers at the top and cleaners at the lower end). Workers gained power and influence by uniting.	Former Holmes workers became united with each other and the community in a collective effort to win some justice through compensation and enhanced services. Their situation has received broad attention and support.

Source: M Keith

The case studies demonstrate that the use of mapping techniques by workers in collaborative participatory action research undertakings with occupational health professionals and researchers can contribute knowledge regarding occupational

health and safety, largely through workers' own experience. Furthermore, such techniques are shown to have practical implications for positive change.

Concluding remarks are provided in the following chapter.

CHAPTER 10: CONCLUSION

10.0 Introduction

The aims and objectives of the dissertation were to explore some of the problems with conventional, institutional approaches to occupational health and safety and to explore the value of utilising alternative research strategies, particularly worker-based participatory action research approaches using mapping techniques.

The dissertation first explored the following general research questions in Chapters 2 and 3:

What has influenced occupational health and safety policies and practices, especially in Canada? What are some of the limitations of conventional occupational health and safety research and practices? To what extent can participatory action research and mapping address the identified limitations?

These questions are explored from the perspective of the population potentially at risk.

The following multi-part question was then explored through the literature on participatory action research and mapping in Chapters 4 and 5, and through the case studies as introduced in Chapter 6, presented in Chapters 7 and 8, and evaluated in Chapter 9:

Can mapping within worker-based participatory action research be used to:

- *explore current occupational health and safety conditions?*
- *contribute to occupational health and safety improvements at a local level and beyond?*
- *establish workers' previous exposures for compensation purposes?*

- *support efforts to bring about justice through compensation for workers affected by unsafe working conditions?*
- *raise worker and public awareness of health and safety?*

This concluding chapter summarises the dissertation. It reviews the need for alternative research and outlines barriers to change. Secondly it analyses the value of mapping as a tool for challenging barriers. Finally it explores ideas for the future application of PAR-based mapping in occupational health and safety.

10.1 Need for alternative research approaches

Occupational disease and injury are a continuing problem internationally (World Health Organization, 1999) and, in particular, in Canada (Osberg and Sharpe, 2003). An analysis of the barriers to achieving progress in the field of occupational health and safety revealed various ways in which it is impacted by the broader socio-political environment *(see Chapters 2 and 3).*

Corporatism affects the directions, ideas, and practices of regulators, educators, the labour movement, scientists, medical professionals, and society as a whole, thereby inhibiting workers' power to influence change. In order to bring about occupational health and safety improvements or achieve an element of justice through fair workers' compensation, numerous barriers must be overcome. The most daunting, perhaps, is the unequal power relationship that exists in society, and in turn, in the workplace. In this environment workers have little control over the decisions that affect their health, safety, and general wellbeing.

The current policies and practices fall short as a means to overcoming barriers to improvement. As is evidenced, there are limitations to the conventional approaches to occupational health and safety research, medical practices, and technical industrial hygiene and ergonomics practices. These institutions may in fact, create additional barriers. Their limitations may result in inadequate or inaccurate information. They themselves have no intrinsic change agent and may serve to disempower workers who potentially have the collective power to implement change if their efforts are organised and focussed. Approaches are required that effectively empower workers to gain improvements and justice, issues that are now often determined by employers and institutional elites.

The case studies demonstrate that workplace mapping, paired with worker-based participatory action research, can empower and thereby assist workers in overcoming some of the barriers to change. As evidenced in the case studies, mapping can raise workers' awareness, facilitate communication, build solidarity and cohesiveness, foster community support, and mobilise workers to take action to reduce hazards or gain compensation -- in turn influencing employers, the compensation board and government agencies.

10.2 Participatory action research and mapping challenge corporatist barriers

The socio-political climate in Canada is described as corporatist in earlier chapters (Saul, 1995). Corporatism is essentially the domination of the economy and social structures by an alliance of big business, the union hierarchy, and government. Corporatism works against progressive change; it maintains the interests of capital;

it is hierarchical and counter-democratic; it discourages worker awareness and mobilisation.

There is evidence that some intellectuals, scientists, medical establishment, industry, governments, and to a certain extent the labour movement, have at times and at different levels maintained the delicate economic and political balance, where profit, status quo, employment, and freedom from strife take precedence over the protection of human health. As the case studies demonstrate, workers were successful in achieving their specific goals despite the obstacles posed by corporatism, albeit sometimes in small ways.

For example, the record shows that the government and occupational hygiene professionals had done little to protect the lives of the Holmes workers. The documents acquired through *freedom of information* legislation provided evidence that government inspectors and hygienists had repeatedly visited the facilities, found extremely hazardous conditions, and then failed to issue or enforce clean-up orders. Although hundreds of workers eventually fell ill, very few were compensated until the workers took up the cause, and in collaboration with workers' clinic staff, conducted their own investigation. Following the Holmes study and mounting public pressure, the provincial government and workers' compensation board were compelled to provide financial support for a full-time workers' clinic to assist the workers in establishing medical evidence for their compensation claims. Furthermore, the compensation board accepted the work-relatedness of claims it had previously denied.

In the case of the casino gaming workers, no scientific research had been done on the occupational health and safety problems in the casino environment. The government likewise provided little assistance. In Manitoba, the gaming workers were directly employed by the provincial government's Gaming Commission; in Ontario the workers were employed by the Casino Windsor Corporation, which is regulated by the provincial Gaming Commission. Despite this connection to the provincial governments, gaming workers faced many hazards that were unaddressed until the study was undertaken.

The union hierarchy can also be influenced by the economic realities of the corporatist culture in which they operate. This, in turn, can pose barriers to occupational health and safety improvements. PAR and mapping can be used by rank and file workers and local level union representatives to demonstrate to their union officials that occupational health and safety is a priority for them. In both cases (casino study and Holmes study), the occupational health and safety issues leading to the research studies were brought forward by local union representatives. With the help of the collaborating worker-friendly clinic professionals, the local union representatives were able to bring higher-ranking union officials on side.

After the local union representatives of the casino gaming workers in both locales joined with clinic staff in an organised collaborative project, the union officials gave the workers' concerns due recognition and support. The Canadian Auto Workers (CAW) national office and the provincial office of the Manitoba Government Employees Union (MGEU) provided funding to cover expenses incurred by the gaming worker-researchers attending meetings, and in the case of the MGEU,

covered the mapping participants' lost time wages. The CAW provided some staff support and covered printing costs for the report summary. Both unions supported the public release and broad dissemination of the findings.

In the case of Holmes, it was a local union representative who documented the cancers of dozens of co-workers and described to the workers' clinic staff the working conditions they had faced – particularly the high levels of asbestos. Although, on his own, he had not made any headway in gaining the support of the union hierarchy, it would seem that, once he joined forces with the workers' health clinic staff, the union officials became convinced that this was not an issue they could dismiss. The national office of the CAW provided personnel and funds to support the Holmes workers' efforts.

This success in winning over the union hierarchy in both cases is likely due, in part, to the organised manner in which the worker-researchers approached the studies and, in part, to the fact that workers' health clinics were involved as collaborators.

The research experience, enhanced solidarity, increased worker and community awareness, and research findings also empowered the casino gaming workers to confront some of the barriers posed by the bipartite internal responsibility system. They achieved a more *level playing field* in joint worker-management interactions and negotiations for health and safety improvements. Similarly, the former Holmes workers, bolstered by findings, solidarity, publicity, and community support, successfully challenged the government and employer run workers compensation system.

10.3 The future of mapping in occupational health and safety PAR

The research methodology used in the gaming workers' and Holmes case studies, in particular the use of mapping for data collection in adherence with participatory action research principles, is transferable to any number of other industries and occupational settings. Experimentation with its use is encouraged.

Understudied worker populations, such as women, immigrants, youth, and workers in new industries, such as information technology (as discussed in Chapter 3), would benefit from undertaking their own participatory action research using mapping, perhaps in collaboration with worker-friendly professionals. Professional collaboration provides worker-led projects with such advantages as enhanced credibility, resources, and opportunities for scholarly publication, thereby engendering broader acceptance of the approach. This, in turn, may increase the opportunities for further such collaborative efforts as well as improving the availability of funding.

It is ironic that the casino gaming study, undertaken with an unconventional research approach, has become the seminal piece on occupational health and safety in the casino gaming industry. The author has received requests for reprints of the published article presenting the study's findings (Keith et al, 2001a) from workers, employers, consultants, insurance companies, and researchers from such countries as the United States, the UK, New Zealand, Germany, France, and Canada. Requests frequently include inquiries into other possible sources of information as so little research is available on the subject.

Sharing of successful studies is also encouraged, whether through formal publication, or through less formal channels, such as newsletters and the Internet. Such communication informs other workers and potential collaborators of the methodology's potential, as was illustrated by the previously mentioned study of gaming workers in Scotland which was carried out by the GMB union (GMB, 2001). Such sharing of information has the added benefit of providing a basis of comparison of findings within like industries.

The adoption by unions of PAR-based mapping as a mandatory part of training for health and safety representatives, as is now the case with Canadian Union of Public Employees (Keith et al., 2001b), has the potential to strengthen the unions' capacity to respond to the particular health and safety needs of their members. Just as potential professional and academic collaborators need to become aware of the merits of the approach, unions and other groups of workers need to know how it might be used to strengthen their occupational health and safety efforts.

While the barriers analysed in Chapters 2 and 3, including those related to the global economy, cannot possibly be overcome with one method or one approach, mapping as a participatory action research tool is making a practical contribution in many countries. Worker-led projects may succeed in counteracting some of the oppressive aspects of globalisation.

A manual on barefoot research produced by the International Labour Organization (Keith et al., 2002), which promotes worker-led research using mapping and other

lay techniques, is enjoying wide international distribution. Over the nineteen-month period immediately following its publication, an average of 3,500 copies were downloaded from the ILO web site each month; 16,710 were downloaded in the month of September, 2002. The demand is such that an effort is underway to translate the manual into fifteen languages (Rosskam, 2003). This may help to spawn worker-led mapping projects in workplaces worldwide.

Labor Notes, an organisation in the United States dedicated to improving union democratisation, is reissuing its *Troublemakers Handbook* (LaBotz, 1991). Mapping is highlighted as an organising tool in the new edition (Niemeijer, 2004; Keith, 2004).

There are some promising worker-led mapping projects being initiated and carried out in Brazil and Germany with the support of the Transnationals Information Exchange (TIE) *(see Chapter 5)*. The TIE projects are using mapping for participatory action research into current occupational health and safety problems. The TIE supported efforts are using the full *four-step mapping process* in focus group settings (as described in Chapter 5 and utilised in the gaming workers' case study). In this combination of mapping exercises, each exercise builds from the previous one; body mapping, hazard mapping, and life mapping culminate in a collectively developed *priorities and action plan.*

It would appear, on the other hand, that many of the union-sponsored mapping projects in North America and Europe are using the mapping exercises selectively, often conducting only body or hazard (risk) mapping. While effective in gaining

specific improvements, the selective use of individual mapping exercises may be less empowering and less able to bring about more general structural change. There are advantages to including psychosocial life mapping exercises, which can enlighten and mobilise workers by showing them the connections between personal issues and work, and a collective priorities and action planning exercise, which can encourage creative ideas and commitment to action.

10.4 Conclusion

The extent of the suffering caused by unsafe working conditions throughout the world and the barriers to achieving positive change require efforts on many fronts and by a broad stratum of lay and occupational health and safety proponents.

This research reveals that participatory action research-based mapping can provide a legitimate and effective complementary alternative to conventional occupational health and safety research and practices. It can also pave the way to more effective conventional research by pointing out gaps in existing knowledge and identifying priority issues.

The case studies demonstrate that mapping is a very effective technique. Mapping facilitated the process of data gathering, increased worker-to-worker communication, raised awareness, built solidarity, and provided a graphic record of workers' experiences and concerns.

The research further shows that the use of mapping techniques by workers in collaborative participatory action research undertakings with occupational health

professionals and researchers can contribute to our understanding of occupational health and safety by drawing upon workers' own experience and knowledge. The active involvement at the initial stages and throughout the research of the population-at-risk and/or those already affected by dangerous working conditions can provide the leverage needed for change. This has important policy implications as it further reinforces the need for and value of worker consultation and active involvement in decisions that can directly affect their health and wellbeing.

The case studies and the supporting evidence from the literature make a strong case for the reorientation by occupational health and safety professionals and academics, whose predominant orientation is towards conventional hierarchical scientific, medical and technical approaches, towards collaborative undertakings that respect the importance of workers' involvement and direction.

As the case studies demonstrate, empowerment-oriented participatory action research-based mapping can help workers to break through the inertia, indoctrination, misplaced trust, and hopelessness induced and exploited by the corporatist culture. It encourages critical thinking and questioning. It spawns creativity and practical ideas.

Participatory action research and mapping have the potential to bring workers together in a common challenge to corporatism. United and enlightened, workers can more effectively demand protections and justice.

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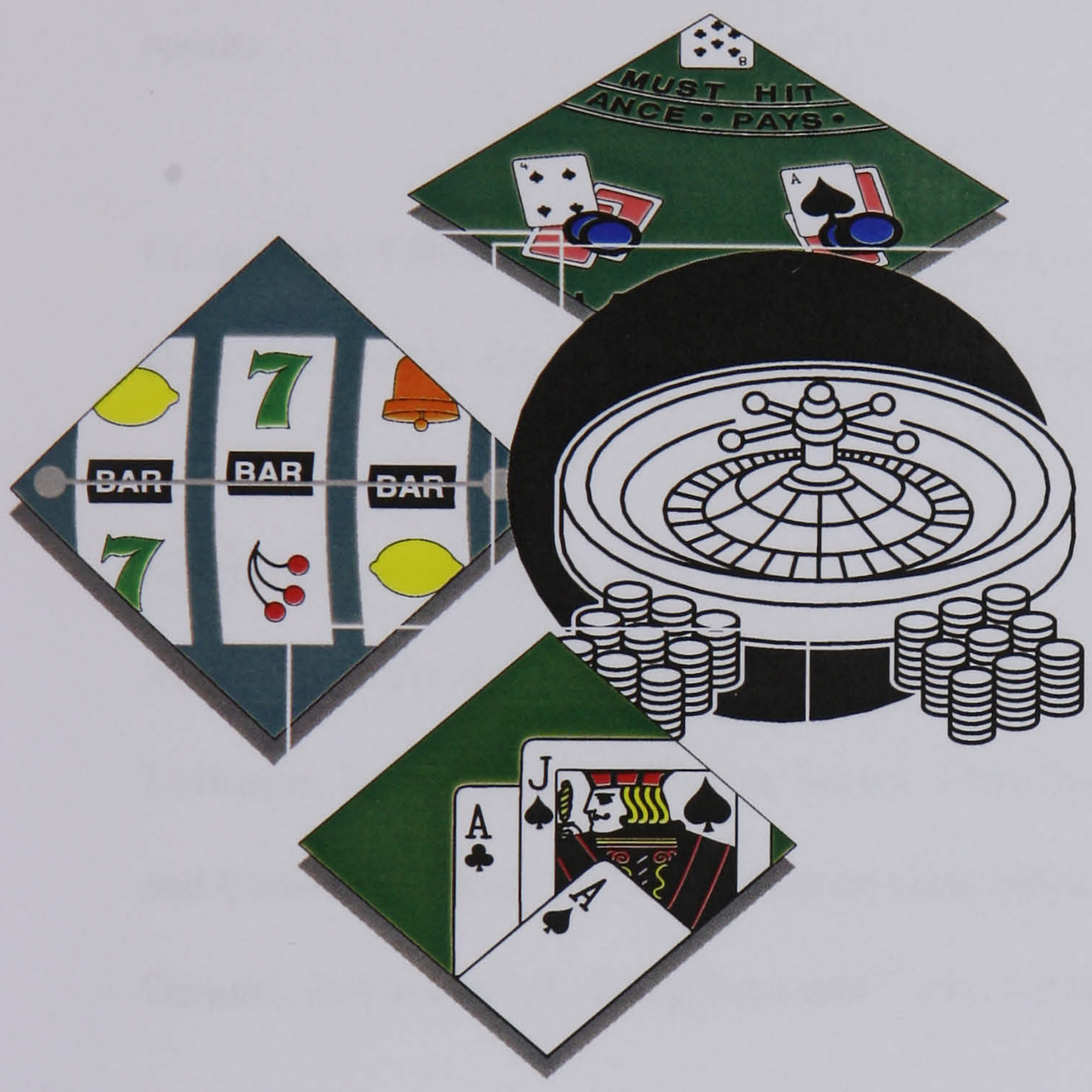
Gaming Workers' Health & Safety Research Project



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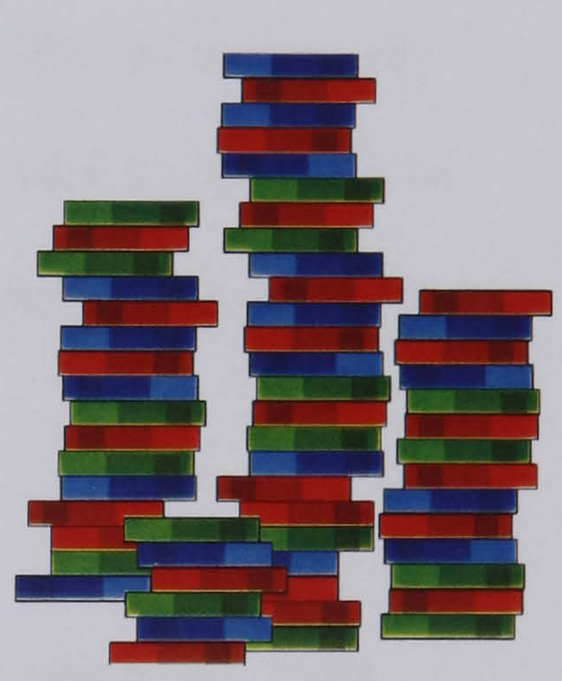


Focus Group Leaders' Guide

Prepared by WOHIS/OHCOW
with support from CAW Local 444, MFLOHC, MGEU

If you have any questions about the material, contact:
Margaret Keith, WOHIS - 254-5157
Kathy Mayville, OHCOW - 973-4800
Jim Brophy, OHCOW - 973-4800

Appendix B: Contributors to Gaming Workers' Health and Safety Research

Beverley Cann, an occupational health nurse from the Manitoba Federation of Labour Occupational Health Centre, coordinated activities in the Winnipeg, Manitoba location and drafted sections of the final report. She and the Winnipeg team provided their local results.

Co-authors of the research findings were: Beverley Cann, James Brophy, Deborah Hellyer, Margaret Day, Shirley Egan, Kathy Mayville, and Andrew Watterson.

Several casino gaming workers helped to plan and/or facilitate workshops: Canadian Auto Workers (CAW) union members Ron Delmore, Pat Easter, Thomas Hayes, Guy Levesque, Larry Patterson, Warren Skyers, Flora Spada, Tenease White, Carol Wilson, and Catherine Wilson; Manitoba Government Employees Union (MGEU) members Irene Demski, Robin Drylick, Doug Peter and Terry Turcan.

Other individuals were involved in various aspects of the study: Craig Axler, Lynn Bueckert, Judy Cook, Diane Gagnon, Mary Cook, Cathy Walker, Patricia Noonan, and Perry Gilmore.

Several research consultants lent their advice to the project: Anne Forrest, Karen Messing, Dorothy Wigmore, and Rory O'Neill.

Appendix C: Gaming consent form

Joint Windsor-Winnipeg

GAMING WORKERS' HEALTH & SAFETY RESEARCH PROJECT

Consent Form

You are invited to participate in a research project. The purpose of the project is to learn more about how working conditions in gaming facilities may affect workers' health and safety so that those working conditions may be changed for the better.

The project is jointly conducted by the:

- **CAW Local 444 in Windsor**
- **Occupational Health Clinic for Ontario Workers - Windsor**
- **Windsor Occupational Health Information Service**
- **Manitoba Government Employees Union (MGEU) in Winnipeg**
- **MFL Occupational Health Centre in Winnipeg.**

There are also a number of university-based advisors from the University of Quebec in Montreal, University of Windsor and DeMontfort University in England.

This project involves Participatory Action Research with the workers being the key and central players as members of the research team from the beginning to the end. This is why your participation is needed.

In this phase of the project we want to learn about any health and safety problems workers may have. We will be holding meetings with workers in different job groupings as well as in groups such as women, visible minorities, injured workers, part time or casual workers, and gays and lesbians. We are hoping to get a representative population sample that reflects the workplace.

The meetings are being conducted by a trained CAW union member(s) in conjunction with a representative from the Occupational Health Clinic for Ontario Workers (Windsor)/Windsor Occupational Health Information Service. Written notes will be taken during the session. The meetings may be tape recorded to ensure that the written notes are accurate. You will be informed if the meetings are to be tape-recorded and you may request that the tape recorder be turned off at any time. All written notes and audiotapes will be stored in a secure place on the premises of the Occupational Health Clinic for Ontario Workers/Windsor Occupational Health Information Service.

You have the right to be treated with respect by the researchers and other participants in the project. To the best of our ability, we will represent accurately what you tell us in written or verbal summaries of these meetings. Specific identifiers (names, descriptions) will not be used.

Your participation in this project is voluntary. You may withdraw from the group meeting at any time without jeopardizing service to you from your union or the Occupational Health Clinics for Ontario Workers/Windsor Occupational Health Information Service.

Any benefits of this research may come to you as an individual or to you and your coworkers as a whole. Benefits may occur in the short term or in the long term and may include:

- **increased awareness of health and safety concerns by workers, union, and management;**
- **more communication among workers about workplace health and safety;**
- **greater knowledge of the health and safety concerns of gaming workers in the larger community;**
- **action to reduce job hazards.**

The researchers will keep all person information strictly confidential. Information will be released outside the project only in ways which do not identify individuals. Summary reports will be made public and may be published in academic papers and scientific journals. If you choose to share information which you hear from other workers in this group meeting, you are expected to protect the identity of individuals.

Although controls regarding confidentiality are in place, the researchers cannot guarantee that there will not be a breach. Because information is being gathered in group meetings, the possibility exists that confidential information may be released by a participant. *Participants are hereby reminded of their obligation to maintain confidentiality*. No other risks to you are anticipated.

When the focus groups are completed, the information gathered will be summarized in a report which will be made available to you from the CAW Local 444. This information will be used to help set the course for action and/or more in-depth study.

This phase of the research is expected to be completed by the fall of 1997. Further research is expected to follow, based on the findings of this phase.

Your signature below indicates that you understand and agree to participate in the project as described. You are entitled to a copy of this form, by request.

_____

I understand and agree to participate in the project described.

Your Name: *(Please Print)* _____

Your Signature: _____

Focus Group Leader's Signature: _____

Date: _____

Appendix D: Contributors to Holmes Foundry and Insulation Complex Occupational Health and Safety Research Study

Bob Clarke, a local CAW union representative, helped to initiate the research process. Former Holmes worker, Clare Hall, helped to coordinate the detailed hazard mapping sessions.

OHCOW clinic staff Kathy Mayville, James Brophy, Janice Holland, and Margo Gilroy, along with the author facilitated and reported on the hazard mapping sessions. Numerous worker advocates volunteered their time to assist with the Holmes compensation intake clinic where the body mapping took place. Kathy Mayville, James Brophy, and Dorothy Wigmore participated with the author in collecting body mapping data. Rory O'Neill provided ideas and support.

CAW representatives Frank Marek, Kim Clout, Bill Hicks, Karen Willsey, and others supported the Holmes intake clinic and ensuing compensation efforts. Representatives of the Ontario Federation of Labour, Office of the Worker Advisor, and injured workers organisations facilitated the intake. Jim Brophy, Mark Parent, Dr. Abraham Reinhartz, Jenny Schieman, and other OHCOW staff provided corroborating evidence.

Appendix E: Letter from Margaret Day, MGEU

MGEU

Manitoba
Government
Employees'
Union

601-275 Broadway
Winnipeg, Manitoba
Canada R3C 4M6

Tel: (204) 982-6432
Fax: (204) 942-2146
1-800-262-8891
www.mgeu.mb.ca

The Pas
Tel: (204) 623-6766
Fax: (204) 623-3229
1-800-390-4954

Dauphin
Tel: (204) 638-5322
Fax: (204) 638-9825
1-800-251-4381

Brandon
Tel: (204) 725-0580
Fax: (204) 726-5802
1-800-848-7074

Portage la Prairie
Tel: (204) 857-3529
Fax: (204) 239-5734
1-800-204-4186

Selkirk
Tel: (204) 482-7801
Fax: (204) 785-8653
1-800-882-9613

Thompson
Tel: (204) 778-4383
Fax: (204) 677-2924
1-800-250-2244

April 20th, 1999.

Ms. Margaret Keith,
WOHIS,
547 Victoria Avenue,
Windsor, Ontario,
N9A 4N1.

Dear Margie:

RE: Gaming Workers Research Case Study

I would be pleased and proud to agree for you to utilize our gaming workers participatory research as a case study in your thesis dissertation.

This project was a wonderful example of something meaningful being accomplished by different unions, different clinic staff, and a huge committee. The geographical distance was not a huge stumbling block either.

It was a wonderful opportunity to have worked with you and I hope I have the privilege again.

Sincerely,

Margaret Day,
Health and Safety Officer.

MD/la
acte 1725

Appendix F – Letter from Beverley Cann, MFL OHC

MFL OCCUPATIONAL HEALTH CENTRE INC.
102-275 Broadway, • Winnipeg, Manitoba • R3C 4M6
Telephone: (204) 949-0811 Fax: (204) 956-0848

April 8, 1999

Ms Margaret Keith
Executive Director
WOHIS
547 Victoria Avenue
Windsor, Ontario
N9A 4N1

Dear Marg:

Subject: Use of Gaming Workers Health and Safety Research Project in PhD Work

This is to advise Dr. Andrew Watterson of DeMontfort University that, as a member of the gaming workers research team, I am aware and fully supportive of Margaret Keith's use of the Gaming Workers Health and Safety Research Project as a case study in her dissertation.

Sincerely,

Beverley J. Cann
Acting Executive Director

Appendix G: Letter from Jim Brophy, OHCOW

Occupational Health Clinics for Ontario Workers Inc.
Centres de santé des travailleurs (ses) de l'Ontario Inc.

Sarnia Clinic
171 Kendall Street
Point Edward, ON N7V 4G6
Tel: (519) 337-4627
Fax: (519) 337-9442
E-mail: sarnia@ohcow.on.ca
www.ohcow.on.ca

February 10, 2004

Margaret Keith
341 Aloha Drive
Windsor, ON N8N 1K1

Dear Margaret,

As a co-researcher, I acknowledge your role as principal coordinator of the Gaming Workers' Health and Safety participatory action research (PAR) mapping study in Windsor and the Holmes Foundry PAR mapping study in Sarnia. I also acknowledge your role as principal author of related published articles which I co-authored.

I am pleased that you will be including the case studies in your PhD dissertation at the University of Stirling.

Sincerely,

James Brophy
Executive Director

Appendix H: Letter from Kathy Mayville

Lifetime Histories Research

6038 Empress, Unit 500
Ph: (519) 974-2979
Fax: (519) 974-6499
Email: kmayville@lifetimehistories.ca

February 10, 2004

Margaret Keith
341 Aloha Drive
Tecumseh, ON
N8N 1K1

Re: Casino and Holmes research studies

Dear Margaret,

As a co-researcher in both the Casino Gaming Workers and the Holmes Foundry and Insulation complex PAR mapping projects, I am pleased that you will be highlighting them in your dissertation for the University of Stirling.

I acknowledge that you played a key role in both projects. It was a pleasure to have worked with you in these innovative and important studies.

Sincerely,

Kathy Mayville

Kathy Mayville
Research Coordinator
(On leave from the OHCOW)

Joint Windsor-Winnipeg

GAMING WORKERS' HEALTH & SAFETY RESEARCH PROJECT

Ethical Conduct Pledge

As a researcher in the Joint Windsor-Winnipeg Gaming Workers' Health and Safety Research Project, I pledge to conduct myself in accordance with standard research ethics. In particular, I pledge to:

- accurately inform research participants of the purpose of the research project, who is conducting the research, and how information will be collected;
- identify, as far as possible, for research participants the potential benefits and risks of participating in the research; create an atmosphere where no worker feels blamed for any action s/he has or has not taken in regard to existing hazards;
- respectfully communicate with the research participants and record and summarize their information as accurately as possible;
- maintain the security of any written notes or tape recordings entrusted to my care;
- refrain from any actions which might unduly influence participation in the study or responses to questions;
- protect the identity of individuals participating in the study, releasing information from the project only in ways which do not identify individuals;
- provide union or clinic service without prejudice to individuals choosing not to participate in the project;
- excuse myself from group meetings where my work or personal relationship with a research participant could unduly influence his or her participation in the project.

Your Name: (*Please Print*): _____

Your Signature: _____

Witness: _____

Date: _____

Appendix J: OHCOW oath of confidentiality

OATH OF CONFIDENTIALITY

I,_____, the undersigned, hereby pledge that I shall treat as strictly confidential any client information to which I become privy during as well as after the rendering of services to the Occupational Health Clinics for Ontario Workers (OHCOW) Inc.

By so pledging, I will not divulge details or entertain discussions regarding clients of the Occupational Health Clinics for Ontario Workers (OHCOW) Inc. related to health records or any other information in accordance with OHCOW policy, with persons outside of OHCOW, unless specifically authorized.

I also pledge myself to observe strict confidentiality on the aforementioned upon cessation of my relationship with the Occupational Health Clinics for Ontario Workers (OHCOW) Inc.

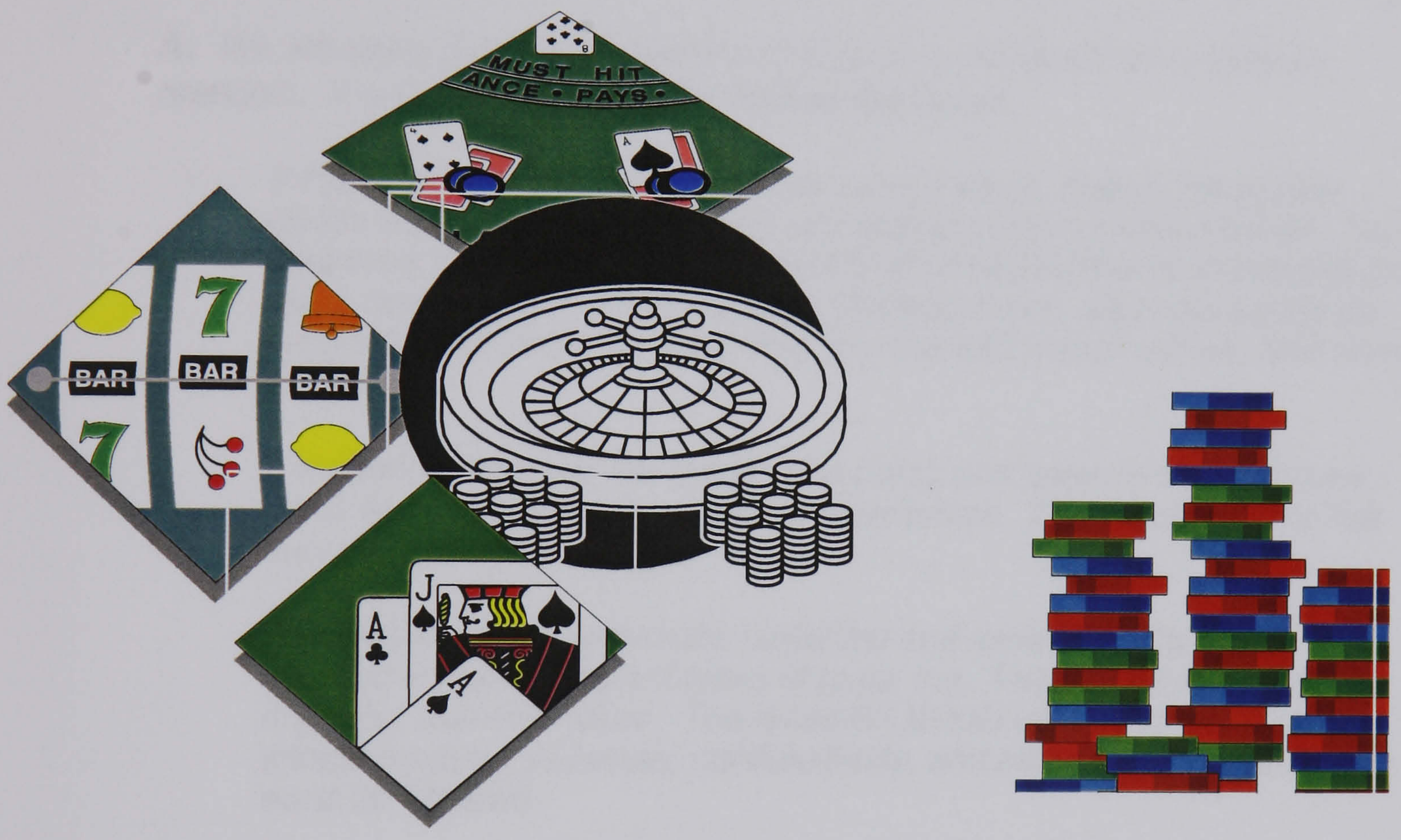
_____
Signature

_____
Witness

Dated:_____

/opeiu:343

Gaming Workers' Health & Safety Research Project



Information Packet

Questions &Answers

for Focus Group Participants

For more information about the research project, contact:

Shirley Egan, CAW Local 444 - 258-7878 Ext. 20762
Jim Brophy, OHCOW - 973-4800
Margaret Keith, WOHIS - 254-5157

Q. Who is Sponsoring the Research?

A. *This research project is being jointly sponsored by the CAW Local 444 and the Manitoba Government Employees Union, along with the Manitoba Federation of Labour Occupational Health Centre, the Occupational Health Clinics for Ontario Workers and the Windsor Occupational Health Information Service.*

Q. What is Participatory Action Research?

A. *We are using a model of research that is quite different from traditional research. It is called* ***Participatory Action Research.***

Y ***Participatory*** *means that the concerned group, that is, the people whose health is directly affected, are central players in the process - from beginning to end. The workers decide what information or knowledge they need, how to obtain the knowledge, the time frame, what resources are required, who will be involved, and how the information will be used once it is gathered.*

Y ***Action*** *implies that the research is being conducted in order to meet goals that the workers have set for themselves. The assumption is that they want to effect change.*

Y ***Research*** *is the systematic collection and analysis of data or information using different types of tools, e.g., focus groups, interviews, mapping, questionnaires. The research should be able to stand up to critical scrutiny. Accuracy, confidentiality, and other research guidelines must be followed.*

Q. Who is Involved in the Research?

A. *The research team is made up of members of the Health and Safety Committees of* ***CAW Local 444****, and* ***MGEU*** *in Winnipeg, employees of the Windsor and Winnipeg gaming facilities, along with staff from the* ***Occupational Health Clinics for Ontario Workers (Windsor), Windsor Occupational Health Information Service****, and the* ***Manitoba Federation of Labour Occupational Health Centre.*** *There are also a number of university-based advisors from DeMontfort University, England, the University of Quebec, Montreal, and the University of Windsor. The employer is not involved.*

Q. Who is Paying for this Research?

A. *This is a joint project. It is being financed by the CAW Local 444 and the Manitoba Government Employees Union along with significant staff and material supports from the Windsor Occupational Health Information Service (WOHIS), the Occupational Health Clinic for Ontario Workers (OHCOW) in Windsor and the Manitoba Federation of Labour Occupational Health Centre.*

Q. What are the Goals of this Phase of the Project

A. *It is expected that there will be a number of phases to this research project.* ***The Goals of <u>this</u> Phase are:***

- *to* ***identify three to five priority concerns for action and/or more in-depth study****;*
- *to find out about any workplace* ***health and safety concerns*** *of workers in gaming facilities;*
- *to help gaming workers become more* ***aware of their own workplace health and safety issues****;*
- *and to see how membership in* ***certain groups (occupational and non-occupational groups)*** *affects workers= experience of health and safety.*

Some of the focus groups are made up of gaming workers from similar job classifications. Others are made up of ***non-occupational*** *groupings, such as minority workers, injured workers, etc. These occupational and <u>non</u>-occupational groups were set up in order that the participants= particular issues could be* ***freely discussed.*** *This focus group is meant to find out about your health and safety concerns and to determine which issues you consider to be most important or pressing, in other words, your priority issues.*

A ***priority issue*** *is one which, for a variety of reasons, is Aat the top of the list@ of health and safety concerns. Something that is high priority, by definition, is one which deserves attention ahead of others. Priority issues may be dealt with by* ***remedial action*** *or by* ***further research*** *which could then lead to positive change.*

Q. What are the Overall Goals of the Research Project?

A. *The prioritizing phase is only part of the overall health and safety research project.* ***The Overall Goals of the Research Project are:***

- *to **identify any health and safety hazards** in gaming facilities;*
- *to **identify any barriers** to overcoming these health and safety hazards;*
- *to **develop strategies** for addressing any persistent health and safety problems;*
- *to **open up lines of communication** between co-workers and between workers and their union regarding health and safety issues, thereby strengthening union solidarity;*
- *to use the findings generated from the project as a **lever** for demanding improvements to current working conditions.*

Q. How will the Results of this Research Phase be Used?

A. *The unions and clinic staff want to know the health and safety priorities of the Casino workers. This stage of the research is designed to determine which problems should be further investigated and which might require some other action. Summary information of the findings and process of this and other phases of the research may be made available to the public or published in scientific or academic papers.*

Q. How Long will this Phase of the Project Take?

A. *The various focus groups will be meeting during August and September. Early in October the two unions and clinic staffs will meet to discuss the priorities identified in these sessions and determine how best to continue the research. The length of the overall research project will depend on the outcome of this and other phases.*

Q. Will We Get the Results of the Research?

A. *A summary report of this phase of the project is expected to be made available through your union in the fall of 1997.*

Q. How Do I know that this is Confidential?

A*. Each facilitator and participant is asked to sign a Pledge of Confidentiality. We are collectively promising not to discuss the specific comments made by any individuals in our focus group or to identify anyone in our group. The research team is not requesting that you put your name on any of the health and safety information that you provide. Any forms which you have signed, such as your Pledge of Confidentiality, along with any written or tape-recorded information, will be kept in a locked facility at the WOHIS/OHCOW Office.*

Q. What Should I Say if my Supervisor Asks about the Project?

A*. You can assume that your employer knows that the research project is being undertaken by the union. If you are asked about your participation, how you answer depends on your own level of comfort. You need not answer at all. However, if you choose to tell your employer/supervisor that you are participating in the project, you are free to do so. Just remember that you are bound rules of confidentiality not to identify, in any way, the other participants.*

Remember

YConfidentiality: *Confidentiality is essential when conducting research. If participants are not convinced that their identity can and will be kept secret, their willingness to be open and frank may be diminished. All of the participants and the research team, including the facilitators, are bound by* ***Pledges of Confidentiality*** *not to discuss the individual identities, names or descriptions of any of the participants.*

YHonesty: *In order for the research to be meaningful and useful, it is essential that all information provided to the research team be as accurate as possible.*

Appendix L: Flyer informing former Holmes workers and survivors of the purpose of the intake clinic

CAW TCA
CANADA

TO: ALL FORMER WORKERS AND THEIR FAMILY MEMBERS AT:

- ✓ ***HOLMES FOUNDRY***
- ✓ ***HOLMES INSULATION***
- ✓ ***CAPOSITE***

IMPORTANT MEETING AND REGISTRATION

DATE: **FRIDAY, SEPTEMBER 18, 1998**

TIME: **1:00 PM - 4:00 PM**

LOCATION: **CEP HALL**
900 DEVINE (AT INDIAN ROAD)
SARNIA

Dear Brothers, Sisters and Family Members:

You are all encouraged to attend an important meeting and registration.

The purpose of the meeting is to let you know what we are trying to do on your behalf.

We also want to make sure we have enough information about your work history at Holmes Foundry, Holmes Insulation or the Caposite plant to enable us to register you for a possible workers' compensation claim or help you with an appeal. We want to ensure we have enough health information about you to ensure we can process a claim and, if necessary, to arrange a visit with the Occupational Health Clinic for Ontario Workers. If you have already successfully established a WCB claim, let us know so we can use it as a precedent. Please bring with you any WCB decisions or file information.

We look forward to seeing you there if your health or your personal circumstances permits. If you are not able to travel or to get time off work, don't worry. We will be in touch with you when we need more information. In the meantime, please fill in registration forms for us and return them. Please give us a call if you need more information at 1-800-268-5763. We work in the Health and Safety Department of the CAW office in Toronto.

Thanks very much.

In solidarity,

FRANK MAREK **KIM CLOUT**

Formatted by: lcopeiu343
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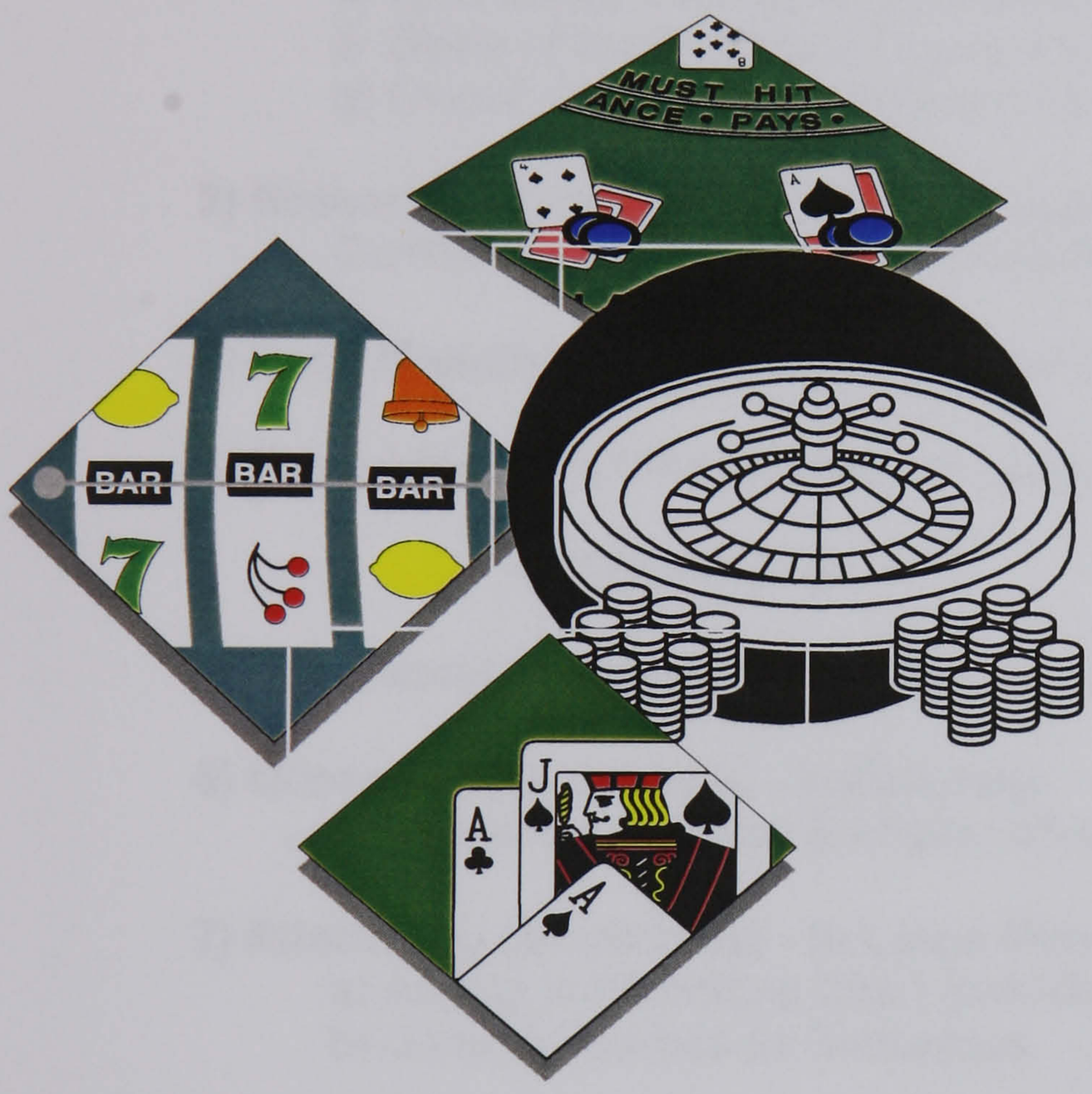
Gaming Workers' Health & Safety Research Project



1997

Focus Group Leaders' Guide

Prepared by WOHIS/OHCOW
with support from CAW Local 444, MFLOHC, MGEU

If you have any questions about the material, contact:
Margaret Keith, WOHIS - 254-5157
Kathy Mayville, OHCOW - 973-4800
Jim Brophy, OHCOW - 973-4800

Focus Group Leaders' Guide

Table of Contents

Appendix N: Casino gaming workers demographics questionnaire

Demographics Questionnaire

Please fill out and return to Focus Group Leader. This information is being collected to ensure that our research sample (participants of the focus groups) is representative of the casino worker population. Do not put your name on this form.

PLEASE PRINT CLEARLY

Your Job Classification: _____

Age:_____

Gender: F __ **M** __

Seniority Date: _____

How Long Have You Been in Your Current Job Classification at the Casino: ___

Which Facility Do You Work In?:_____

Would You Identify Yourself as a (Please Check One or More):

Full-Time Worker __
Part-Time Worker __
Injured Worker on WCB Benefits __
Injured Worker <u>not</u> on WCB Benefits __
Minority __
e.g. sexual preference/orientation, racial minority, immigrant, aboriginal, physically disabled, other (please identify)

Do You Have Dependent Children? Yes __ **No** __ **How Many?** __

Appendix O: Characteristics of the gaming focus group participants

Windsor and Winnipeg Participant Demographics

	Windsor, Ontario	Winnipeg, Manitoba
# of Focus Group Participants	**51**	**20**
Gender		
Women	26	10
Men	25	10
Employment		
Full-Time	41	15
Part-Time	9	4
Casual	0	1
Personal Characteristics		
Sexual Minority	2	0
Racial Minority	4	2
Immigrant Minority	0	1
Injured/Collecting Workers Comp.	1	0
Injured/ Not Collecting Workers	13	4
Have Dependant Children		
Yes	20	4
No	30	16
Age Group		
Age 21-30	15	11
Age 31-40	20	6
Age 41-50	12	3
Age 51-60	3	0
Gaming Facility		
McPhillips Street Station	N/A	5
Club Regent	N/A	5
Crystal Casino	N/A	10
Interim Casino Windsor	29	N/A
Northern Belle	18	N/A
Multiple Sites	3	N/A
Compri	1	N/A
Length of Employment		
Less than 1 year	5	1
>1 □3 years	24	9
>3 □5 years	22	6
Greater than 5 years	N/A	4
Occupation		
Cashiers	1	6
Change Attendants	2	0
Cooks	1	N/A
Dealers	10	7
Engineers	2	N/A
Impressment Attendants	3	N/A
Liquor Room Attendants	1	N/A
Marketing Clerks	1	0
Pit Clerks	3	0
Porters	10	3
Promotional Reps	1	0
Security	5	1
Servers	2	N/A
Slot Attendants	3	3
Slot Technicians	5	0
Transportation Attendants	1	N/A

Appendix P: Windsor gaming workers' hazard mapping data

Windsor Hazard Mapping Data

The following are the key descriptive results summarised from each of the Windsor Hazard Mapping sessions as reported in the Windsor Focus Group Findings report (Keith et al, 1997b). They are categorised by gaming facility, i.e., "Interim" (largest facility), "Northern Belle" (docked gambling riverboat); "Compri" (office in hotel):

Windsor Session #1 - August 19, 1997 - Porters, i.e. Cleaners (6)

Interim

- stressful
- second hand smoke
- crowded condition - aisle too narrow
- patron abuse
- section F - quarter slots, "worst nightmare"
- incline on ramp
- patrons spit cups have to be cleaned - spit tobacco
- every 20 minutes expected to clean washrooms
- must do general cleaning 3-4 times a day
- 7 pairs of gloves allowed for each shift - wear one glove only on the hand used for cleaning
- only 4 functioning vacuums in whole casino
- work design inconsistencies and policy changes

Northern Belle

- "Porterville" - work area very, very small
- supplies need to be carried downstairs
- congested, stressful, shift change very congested
- doors open into each other
- loose bricks physical hazard
- inclement weather
- toilets not flushed - urine, feces
- some doors have no window
- women's washroom has no heat
- incline into bathroom, difficulty getting buckets in and out
- single unisex bathroom - female cleaner locked in by male patron
- working alone in bathroom doors should be locked
- ramp incline increases/decreases with river water levels, hard to push buckets, etc.
- physical stress walking up and down
- stressful to get into areas where patrons are - elbowed, spit on, kicked, yelled at, stepped on and threatened with violence, very stressful
- stool area (stools not attached), patrons further away from slot machines in aisleway
- elevator service not maintained, 20 minutes before they can get equipment down at end of the day
- loud noise in cafeteria, noise everywhere, no quiet anywhere, the only quiet spot is outside
- supervisor harassment
- boat is overcrowded, they don't keep careful track of the number of patrons but keep an eye on the depth of the boat
- co-workers lack common sense

Windsor Session #2 - August 21, 1997 - Dealers (4)

Interim

- noise from slots
- verbal abuse and threats from patrons
- insecticides
- second hand smoke
- fleas
- germs from chips
- stress from patrons banging on tables
- prolonged standing
- bomb threats, weapons
- fire escape procedures
- threat of physical violence
- stairs

Northern Belle

- cold temperature
- air quality (cold and smoke)
- stress - customers, supervisor, 20 minute breaks for lunch, from boat to base walking outdoors
- perfume, smoke
- "shuffle master" - "bang" arm on it, constant repetitive work
- chairs - body odours remain from patrons, blood
- doors not safe
- noise level from slots
- dirty chips
- fleas
- odour from walls (nicotine build-up)
- scent from air system (insecticide/deodorizer)
- stress - threat of violence, physical attack always in back of mind
- fire escape procedures
- bomb threats, weapons
- lose time going for breaks (long distance)
- stairs
- motion sickness
- medication ("Gravol") given out for motion sickness

Windsor Session #3 - September 2, 1997 - Beverage Department (1)

Interim

- wants gloves
- needles in cups
- unsanitary conditions, cleaning ashtrays and serving drinks at same time
- spit cups
- temperature either too hot or too cold
- high noise levels patrons calling "Ms" and slot machines ringing constantly
- narrow space, poor work design, lack of space
- fighting crowds

- heavy work load
- harassment and discrimination from patrons and supervisors
- shift work, hours of work
- air quality, second hand smoke
- lack of respect
- fear of violence
- vibration
- door to hide dishwasher very dangerous
- needles, germs, infections diseases, chewing tobacco and body fluids
- chaotic set-up work design
- chairs pulled out where shouldn't be
- shift work start time 3:00 am., weekly basis schedule given out one week before can't schedule appointments and personal safety and violence from coming in at 3:00 am alone
- fleas
- management "evilnesss", and incompetence harassment, stress, abuse
- supervisors don't let them do their job
- part-time workers working 7 days straight
- stress/fears short career span

<u>Windsor Session #4 - September 3, 1997 - Pit Clerk (1), Slot Attendant (1)</u>

Interim - Pit Clerk

- heavy workload, constant typing
- shifts worked alone, no cooperation from pit manager
- computer screen angled, neck constantly bent forward
- printer too high
- work area too small, very crowded
- bad attitude toward pit clerk from pit manager, lack of cooperation, executive host
- too few breaks, travel time lessens break time
- filth in women washrooms
- 7 sets of doors between workstation and locker, needs to go through these 3-4 times per day
- chairs too close
- lifting, carrying stationery up and down stairs
- work station never cleaned in over three years
- pit stand crowded with people, pit managers, shift managers, esp. VIP pits

Interim - Slot Attendant

- fleas
- aisles too narrow bumped into by others
- temperature hot/cold
- cleaning agents used on machines
- second hand smoke
- indoor air quality very poor
- bacteria
- needles have been found
- body fluids
- discrimination by supervisor

Slot Attendant/Pit Clerk

- overcrowded (staff), congested, dealers, players, management
- working alone, overworked, short-staffed
- noise, closed in area, patrons, echo from slots, table pounding
- favouritism, supervisor, shift, discrimination
- ringing in ears, humming in body from slots, constant

<u>Windsor Session #5 - September 4, 1997 - Mixed (5)</u>

Multiple Facilities - Impressment Clerk/Instructor

- heavy lifting, back injuries
- abuse from co-workers, classmates, each other, disrupting verbal abuse
- supplies, lift products up stairs
- stress, personal work station "survival techniques", non physical, 2 union people working with 82 management - disrespect under the surface
- "big brother" always watching (security camera everywhere)
- skills are questioned, the right to belong, level of intelligence, needs to be validated every day
- union people not seen as intelligent ?
- mental stuff, not physical

Northern Belle - Porter

- public areas, needles in garbage
- chemicals everyday
- must cross "train tracks" to take garbage out
- stress from supervision, people nervous, people scared, do more work
- co-workers frightened of each other, work under people with more seniority or your on the outs
- cold, danger of injury from quick movements, need warm up exercises before work
- loading dock supervisor says move all stock upstairs quickly, safety should be number one instead of running upstairs, slow down to avoid injury
- discrimination between departments and seniority levels
- supervisors yelling at co-workers

Interim - Pit Clerk

- pit bosses yelling especially on "fight night" in VIP high spenders, not working fast enough, egos high
- small work space, very cramped, too many bodies, dealers, pit bosses, executive hosts, shift managers, security
- no wrist supports, no foot rests, monitor doesn't adjust
- very cold when sorting cards on "islands"
- stressful - light switch accessible, do not touch
- noise
- patrons cussing, swearing
- eye strain, having to look through haze of smoke
- hot dry air
- bumped by people
- likes job
- "Watch everything egos ride too high", "I am your boss you listen to me"
- keep a memo book of what you did wrong
- VDT's possible radiation

Compri - Marketing Clerk and Promotions Rep

- manager personal problems, depends on her day how your day goes
- internal audit, no union
- management surveillance
- management completely surrounds union workers
- poor air quality
- odours, washrooms filthy, no air fresheners only in patrons washrooms
- work area cramped, pole behind chair difficult to get out
- no one to go to for computer problems
- manager calls the worker, info lost in transaction, off for a month no one to do work
- chemicals in kitchen and bathroom
- unlocked doors to office
- hole in middle of desk, school desk, girl working at it
- smell of photocopy machine, headaches, nausea
- boxes in the aisle way
- smoke
- small area for number of workers
- fan to blow odour back to bathrooms, buy our own deodorizers
- temperature is up and down constantly, no control
- storage across hall
- 10 inch hole in floor now covered with steel
- inadequate equipment for moving boxes, bending, lifting, take outside to Interim
- heavy lifting
- no place to sit for lunch, one block to Interim for lunch
- likes job but not made easy for worker to complete tasks
- customer service booth 4 feet wide for 6-8 people, hosts, managers booking hotels
- smoke blowing in your face
- 8 hours of standing, no foot rests, static position
- high stress
- parking lot, women put out at night, no security guard
- verbal abuse from patrons
- pouring rain
- customer service reps run up and down stairs carrying supplies, can't use elevators
- called in don't know what they will be doing
- favouritism
- stress unbelievable in several areas, no training
- money making company, no provisions for workers, no money spent on workforce
- stress from management because of work design problems - work design takes care of decreased stress

<u>Windsor Session #6 - September 8, 1997 - Mixed (3)</u>

Northern Belle - Porter/Public Areas

- cut hands on screws at base of toilets
- bathroom chemicals, breathing, sprays back in face
- needles a problem, 8 people stuck, hepatitis B, AIDS threat, very stressful
- sign in bathroom says sharps disposal at medical office

- blood, body fluids, vomit
- 7 pairs of gloves and 6 rags allowed per shift, if you need more, very stressful to ask
- every 15 minutes must completely clean, wash sinks, toilets, floors
- gaming tables very busy and stressful
- people sneezing on them
- bending in towards patrons
- brooms, dust pans must be held and never put down even while moving chairs, wet rag, no cleaning cart
- very noisy
- too hot because of movement factor
- second hand smoke
- clean gum off rugs, vomit, bloody noses
- lifting chairs constantly
- stress from verbal abuse
- slot machine area very confined
- cleaning in between chairs constantly, constantly reaching
- spit at, spit on brooms (superstition regarding brooms)
- people get angry when you try to get papers and empty cups
- harassment from patrons "get the hell away from me", threat of violence
- lifting chairs and buckets of water
- very repetitious, very stressful
- infectious disease, cough, sneeze, "You are right in their face"
- ramps going onto boat and downstairs for supplies very difficult to push a full bucket of water up ramp, hurts arms, legs, back

Interim - Security

- card drill work table 36" high, lots of stooping, lots of pinch points, put holes in cards
- slot machines very loud, the trays that coins drop into very loud, "They are designed that way to attract customers"
- biological hazard from sick patrons, viruses, bacteria, transfer and collect sharps, no shots, only groundskeeper gets hepatitis B shot
- over 10 hours a day standing on feet out of 12 hours
- should replace chairs more often
- stress from lack of respect from patrons and supervision in own department and other departments
- second hand smoke
- door positions have five rotations
- hard count bin, must move coins across floor, get pinched between walls and heavy bins
- working alone in van, "The job was designed for two people but they have cut back"
- "We get very little respect from the patrons, they fight it out in the middle of the floor, we have to intervene, we are the fall guys."
- "Huge amount of turnover especially in public areas"
- re: air quality, "There is the technology out there to take care of everything in the building. They just don't want to spend the money. They don't want to break into the piggy bank."

Interim - First Cook

- congested aisleways, elevator, washroom
- chemicals in dishroom, speedball was used, lot of bleach
- small kitchen area, appliances open into each other

- "sham" keeps food warm, oven very hot
- lots of bending
- high pressured steamer very dangerous - burns
- must reach to get pans, pans constantly falling
- pan of onions fell on worker, Comp was denied
- grate in floor sticks up, fall, torn shoe
- food court stressful, customers, area very small, lots of heat, open grill
- entire kitchen bad for health, physical and mental
- poor equipment, knives not sharp, RSI, burns and cuts, tongs, flipping burgers, cutting and turning basket over very repetitious
- 11 hours of standing
- lots of asthma
- sciatica from standing
- "I thought I was the only one having all of these pains"
- dreaded the thought of going to work when pregnant and miscarried at 7 months

Windsor Session #7 - September 10, 1997 - Pit Clerk (1) Porter (1)

Interim - Porter

- fear of violence
- cleaning agents
- small spaces for cleaning
- people - stressful, don't want you in their way
- second hand smoke
- patrons - crowded conditions
- crowded in pits for cleaning
- bathrooms - blow dryers too hot, patron burned arm, too hot to work
- chemicals in bathroom
- potential violence, patrons pushing
- poor lighting, can't see to clean inside container (tampon/pad boxes, can't see needles or broken glass
- repetitive sweeping increases arm and back injuries
- very noisy
- working outside, inclement weather
- stress hazards, robbery, violence, etc
- garbage disposal dangerous
- cold, hot, wet weather
- lack of fresh air, no windows
- stairwells - dangerous - falls
- 3rd floor to basement for breaks
- supplies in basement
- neon signs have to be cleaned - use ladders
- must hold broom and dust pan all the time
- right hand is "dead weight", tingling, numbness, cold sensation
- wheezing from bronchial asthma - physician thought she smoked

Interim/Northern Belle - Pit Clerk

- second hand smoke

- no windows - dark, gloomy, closed in feeling
- eye strain, bad lighting, glare
- noise from slots very loud on boat
- crowded work station, constantly being bumped
- stock area - cupboards too high, no step stool
- heavy lifting
- stock 3rd floor to 1st floor - dangerous
- work station not cleaned
- more computers - stress - time management issue
- stairs at boat up and down
- stand to enter data - prolonged
- keyboards not adjustable
- uniforms too restrictive, need looser fit, confining for breathing (bows on neck too tight)
- no proper fit, don't want unisex; want comfortable casual, stretchy materials that stretch when you move

<u>Windsor Session #8 - September 12, 1997 - Impressment Attendant (1) Slot Technician (1)</u>

Interim - Slot Technician

- two foot square area to work in - very limited space
- customers, stress
- increased noise
- up and down constantly - 20 times per day
- move heavy machines (with dolly)
- repetitive bending and lifting
- stock piled under benches - need to bend to get parts
- poor lighting - one magnifying light
- exhaust for fumes and cleaners - have fumes from soldering and cleaning
- chipper champ - sorts chips, not tokens - machine dirty with oil from hands, 90% of dirt on chips is oil from hands
- air quality, smoke, chemicals
- some days working non-stop all day when on floor - unpredictable workload, don't know what may break down
- "lucky oil" squirted in slot machines for luck, very strong perfume (like patchouli)
- soda water is used to clean the chips which cuts sugar products, not oil

Northern Belle - Impressment Attendant

- confined work area - five foot work area for 3 to 5 people
- stress, confinement, rushed
- second hand smoke
- 400 plus lb. coins transferred through crowds very stressful
- impress change bank, too low and too high reach from waist to above shoulder
- push cart up ramp, dangerous angle ramp
- exposed to cold weather
- carry bags containing $10,000 with escort, stress, fear of violence

Windsor Session #9 - September 15, 1997 - Dealers (3)

Northern Belle - Dealer

- body fluids, germs
- shift work
- patron harassment
- noise
- smoke
- repetition
- crowding

Northern Belle - Dealer

- cash - germs, filthy, dirty
- chips, germs, body fluids
- ergonomics, repetitive games (every day)
- cigarette smoke
- cold air
- workload
- customer abuse
- lack of respect
- air quality
- noise, vibration
- germs airborne
- stairs - danger of falling
- vibration, rocking of boat
- weather conditions between landbase and boat
- stomach aches from food at cafeteria

Northern Belle - Dealer (Incomplete - had to leave early)

- Excessive Noise
- Temperature - Cold & Hot

Windsor Session #10 - September 17, 1997 - Mixed (9)

Interim - Porter

- chemicals in storage closet
- smoke on all 3 floors
- indoor air quality problems from dust, hot, cold
- noise from the slots
- biological hazards in the bathrooms, blood, human waste, infectious disease
- stress - in the bathrooms, patrons pee on floors, a fear of violence, harassment
- sick patrons, other employees
- repetition, lifting
- stress from people bumping, overcrowding, tight aisles
- working alone, need "buddy system" or radio for help
- workload too heavy
- lack of respect for your job from other employees

Interim - Security Officer

- entrances, greeting patrons, not knowing who they are, fear of violence from people who have been turned away because too young, too drunk - "pissed off", upset, attitude, "think they are god's gift"
- uniforms - temperature change, short sleeve, long sleeve, doors 3 hours, inside 2 hours (12 hour shifts)
- need "back up", fear co-workers drowsy
- traffic, wrong way on one way, wheelchairs, patrons walking, skateboarding
- certain door increased responsibility, answering phones, workload too much, 700 per hour, weapons, needles, bottles - meet buses
- "Pitt Street" canopy - vehicles, fumes incredible, cars leaking gasoline, oils, transmission fluid, urinate in garbage cans - animals
- chemical hazard, slips, falls, vehicles leaking
- stress from patrons, co-workers, supervisor
- supervisors second guess each other, inconsistency in policies and procedures
- Ontario Provincial Police
- fraud
- poor radio, video cameras
- 20 people, one at each door
- in van alone
- traffic
- pedestrians
- hit and run accidents
- kids left in vehicles
- blind areas
- winter, darkness, sunlight, outdoor elements
- parking lots dangerous, people drive through the gates
- too much traffic
- employee escorts, patron escorts, crowd control
- need to know cardiopulmonary resuscitation techniques
- vomit, biological hazard
- dirty patrons
- overcrowding
- cleaning agents
- poor walkways
- too many "one ways"

Northern Belle - Change Attendant

- physical hazard from door and fire hose
- small areas
- stools
- work design is poor
- food, use hands for serving, biological hazard
- chips, use hands, biological hazard
- ramp, rain, wet, slippery, carpet curled
- push cart up hill
- open chemicals unlabelled and carried
- customer stress, want money, very rude

- don't kick out customers for being rude, lack of policy
- patron harassment
- second hand smoke
- tokens dirty, germs, colds
- no window on doors
- garbage between lockers, dirty
- bank money held in has terrible design, standard height, horrible work design
- increased stress, variances and policies
- carts, no preventative maintenance, wheels don't move on cart
- carts not ergonomically correct
- filth of coins, tokens, fine powder comes off

Interim - Slot Attendant

- lifting coin bags
- noise
- temperature
- infectious disease, garbage, mesh bags leak
- cleaning agents, asthma
- going up and down stairs
- potential violence
- overcrowding, too many customers
- poor indoor air quality
- stress from hours of work, midnights
- patrons cough, smoke, etc.
- needles in cups between machines
- body fluids, urine in cups
- second hand smoke
- patron abuse
- working alone, too physically demanding

Interim - 2 Slot Technicians

- second hand smoke
- indoor air quality
- must lie on floor to fix wiring underneath machines
- overcrowded areas
- biological hazards from customers, money, coins, colds
- stress, pressure from patrons
- hot and cold
- noise
- stress from noise
- glass, soldering, heat, burns in Tech shop
- CFC cleaners, solvents, lead
- stress from job expectations, pressure from boss
- use of unidentified "Lucky Oil" by patrons

Interim - Change Attendant

- stress from customers, aggravating

- stress from supervisor
- threat of robbery
- inconsistent policies
- stress from money transactions
- allergic reaction to cleaning material, rashes, etc.
- bad ergonomics on change carts, repetition
- too much bending, walking, standing
- breaks are too infrequent and short
- biological hazard, pneumonia, allergies, asthma

Interim - Cage Cashier

- chip bank, shelves too high or low, bad ergonomics
- brass cleaner causes headaches
- repetition from counting money
- excessive noise
- biological hazard from germs on money and blood
- stress from standing, can't stand in some cages
- breaks too short

Interim - Slot Attendant

- stress from chairs in VIP being too big
- biological hazard from picking up cans between slots, urine in cups, etc.
- loose chairs pulled out
- bank, keys don't fit in lock
- doors open into patrons
- stress, pouch and radio too heavy on waist
- air vent, temperature, hot and cold
- doors on slot machines stick open, doors at bottom don't open, have to bend
- plastics bags for garbage from third floor to first
- fleas
- cleaning people for carpet do not use warning signs, cleaning agents, "smells like wet dog"

<u>Windsor Session #11 - September 19, 1997 - Mixed (2)</u>

Northern Belle - Dealer

- paint fumes
- wash riverboat with diesel fuel
- noise very loud
- 2nd hand smoke
- temperature, too cold or too hot
- biological, coughing, sneezing (patrons)
- stress, verbal abuse patrons, supervisors don't back workers
- patron swung hand at dealer
- repetitive movements
- pits narrow, bumped
- crowded work areas
- wet floors, smell from chemicals
- sexually harassed by co-worker

Interim - Impressment Attendant (Rec #40)

- vault
- repetitive lifting from carts
- poor work flow
- small space, crowded area
- diesel fumes sucked into work area
- somebody always on modified, workload increased due to increased modified
- stress, social pressure get things done quickly
- increased noise
- dealing with co-workers (stress)
- stress from security officers
- pushing heavy cart
- careful not to hit patrons
- smoke
- poor traffic flow
- "under stairs" - coin bank
- repetitive lifting - drawers above shoulder
- lift from knee level to over shoulder
- loud machines
- doors open into workspace
- constantly having to say "excuse me"
- stress - cashiers - supervisors - if bags get mixed up cashiers get angry with impressment - cashiers get days off - impressment doesn't
- who counts - cashier or impressment, depends on supervisor
- coin dust
- coins are very dirty, biological
- co-workers joke re: sexuality
-

<u>Windsor Session #12 - September 23, 1997 - Mixed (3)</u>

Interim - Dealer

- climate conditions, hot inside, cold outside
- vent- air conditioning blowing on neck
- drunk customers changes flow of game (also biological hazard)
- vomit
- spills on table tops
- patrons coughing, spit cups for chewing tobacco
- slots - too close to tables - crowded conditions
- increased noise
- second hand smoke in face
- pit stand/table - very crowded
- supervisor harassment
- repetitive movements - diagnosed tendonitis
- customer stress abuse no support from supervisor
- tables too close - patrons back to back
- supervisor - "nit Picks" about games and procedures
- unclean patrons

- germs from chips
- cards filthy - patrons open sores, open cuts
- co-worker - card shoots - germs from each other
- chipper-champ recycled germs - sorts roulettes
- pad under table top never changed
- "shuffle master" automatic shuffling device - no maintenance - dirt

Interim - Engineer

- sun, ice, snow, extreme temperature
- moving machines
- exhaust fans
- hot water heaters
- electric panels, high voltage, work alone on high voltage
- lack of railings and platforms
- overcrowding, cramped, low duct work
- carbon monoxide poisoning, boilers, natural gas, solder, welding, refrigerants, natural gas
- need to maintain filters in air system

Northern Belle - Security

- coins, chips filthy
- constant standing
- stand on mat or get written up for 8 hours at a time
- stress from standing in one position
- fleas from slot area, reported fleas, no bite marks couldn't do anything
- patrons are very dirty
- security stall at Land Base, employees entrance, very unclean, fleas
- stress, chips, coin drops at tables
- very dirty tables, patrons vomit on tables
- foam between table and table top never changed
- patron abuse from drunk customers
- watch what you say to patrons
- fear of violence
- patron shooting up at the machine, syringe at slot machine - black Detroit patron, his friend was from the "Addiction Research Council"
- washroom, diabetic syringes
- 2nd hand smoke, smoke on walls, covers everything
- uniforms given were used
- parking lots - patrons throw beer bottles, patrons try to run over security with cars
- slot machine drops
- worker yelled "Hey"; patron didn't like it, only trying to maintain "crowd control" while slot machine was being emptied
- boat rocks, motion sickness
- working alone
- supervision harassment
- co-workers "cut each others throats' - do not work together

Windsor Session #13 - September 25, 1997 - Mixed (7)

Interim - Liquor Room Attendant

- moving kegs at 45 degree angles
- 5 foot tall ceilings
- slide kegs, 45-60 lbs - slide and lift

Interim - Server

- "half the girls wear support bands around their wrist"
- work design very badly set-up, no servers area, no place to put down tray, etc
- spit cups (patrons use cups as spittoons)
- chemicals in dishwasher, leak out
- hot water only to wash hands, no soap
- stress from bartender
- bars are too high, poor work design
- "bug" problem
- blind corners, get burned from hot coffee
- must reach overhead to pour coffee can't see how full cups are
- lots of stress
- patrons take money out of nooks and crannies
- smoke blown in face
- spit in face when patrons talk to them
- change carts - bruised ribs from walking into them
- bend backwards to pick up cups from slots
- customers - stress - rude, "Give me"
- assaulted by customer
- punched by customer
- "Land of the Great Unwashed" referring to the patrons
- supervisors always in way stressful - always on them
- crowded work area
- 2 cigarette butts per ashtray or written up depending on supervisor

Multiple Sites - Engineer

- power tools
- dust
- paint fumes
- vibration
- noise
- chemicals, solvents
- lifting
- electrical
- working alone in workshop
- eye injuries

- broken glass
- work on floor, ceiling, electricity has own hazard
- working alone
- "different hazard, different day, different location"
- don't have to deal with patrons
- danger of needle sticks
- hot and cold temperatures
- needles in toilets
- "every job and every inch of Casino is a hazard"

Interim - Transportation Attendant

- fear of being hit by cars
- hole in cement, can wist ankle
- must be careful not to hit patrons walking between cars
- accidents in VIP are because of blind spots
- fear skin cancer from ultraviolet rays
- gas fumes, spills, "Prestone" anti-freeze, oil
- drugged, drunk patrons
- hot/cold temperatures
- urine from patrons in cars , they "pee in cars"
- ice/snow in winter
- needles in cars
- guns/bullets in cars
- Ontario Provincial Police confiscate vehicles if marijuana joints, etc. found in car

Interim - Slot Technician

- motion sickness, real choppy, lose balance when water rough
- slant top slot machines, big, heavy, clunky, when lifting top dangerous, belly door heavy
- lighting bad
- lots of noise
- copper coin is heavy - awkward - heavy for lifting
- bad flow of work - store stuff in aisles
- mall amount of work area
- same slots always break down "stressful" proper parts not ordered - "1 million dollar budget won't fix equipment properly
- second hand smoke
- general heavy equipment
- aisles narrow
- patrons bump into you
- machines covered in germs, urine, feces, viruses, slime, cleaning agents
- "sure" biological glove
- buckets of coins covered in germs
- coin dust in every machine
- cleaning agents - Speedball still being used, use torpedo to clean drains, smells like sulphur
- fumes from painting

- stressed patrons - "usually miserable - if you find a happy one - hug them"
- lot of bending
- large amount of people
- design hazard - very crowded
- stress from supervisor
- work in confined areas - bad chemicals, cleaners
- sharp edges on tables, screws, worn bumpers, etc
- stools, work hazard

Northern Belle - Dealer

- repetition from dealing
- work design - stand for 8 hours, small work area
- choppy waves - lose balance, motion sickness
- second hand smoke
- dust
- stress, noise
- patrons threaten
- patron grabbed dealer by hand and spit on it
- narrow, crowded work area, bump into supervisors
- blood on cards
- chips dirty with who knows what
- cup holders used for spit tobacco
- noise slot machines
- porters clean - asthma attack from chemicals
- cut hand on card shuffling machine - "shuffle master"

Northern Belle - Slot Technician

- stress steady midnights
- co-worker bad vibes
- managers stress
- chemicals to clean circuit board
- room filled with stock - very dangerous
- move heavy machines often
- customer complaint - patron abuse - breathe on you
- hit head on machines
- smoke
- bomb threats

Appendix Q: Winnipeg gaming workers' hazard mapping data

Winnipeg Hazard Mapping Data

A) WINNIPEG CASHIERS

Club Regent

Chemical hazards

- air full of smoke. Customers smoke right in our faces at the wickets. No smoking signs are ignored.
- cooking smells from McDonald's, gas fumes, sewer smells at wickets. Bathrooms stink. Bad smells in slot room.
- Coin dust from machines in the slot room.

Stress hazards

- customers line up at wickets and stress us out
- managers are forceful, have no compassion, harass people when they're sick, unprofessional, lack management skills
- constantly being checked up on in the Slot Room.

Work design hazards

- wickets - sit in small area with computer on the right; body not properly aligned to computer. Repetition on the key pad. Machines on the side. Cupboards are very low. Improper lifting techniques. Bend to the left to reach different sized product (bingo tickets). Excessive reaching to hand customer the product. Desks all the same height, not adjustable. Poor lighting. Chairs not adjustable - sitting for 8-10 hours.
- one bathroom for 200 women, not allowed to use public washroom

Biological hazards

- bathroom floors constantly wet so fungus and molds grow
- lunchroom constantly dirty, tables not wiped down. Sink has stuff growing in it. Fridge, microwave dirty
- many insects - flies, little black bugs, spiders

McPhillips Street Station

Chemical hazards

- in winter, diesel fumes from CP Rail brought in by HVAC unit over the barn and wickets
- no air circulation in the slot room
- customers smoking at the wickets, smoking allowed right next to satellite station
- air freshener used in bathrooms

Stress hazards

- satellite stations open to the public on all sides, risk of being attacked

Work design hazards

- workstations too high in satellite stations
- wicket work surface too low
- gift store poorly laid out
- jet sorts - lots of twisting

Physical hazards

- poor temperature control at cashier station in non-smoking area and at wickets

Crystal Casino

Chemical hazards

- coin dust
- poor air quality
- smoke from stubble burning comes in the HVAC system

Stress hazards

- inconsistent rules, always kept off balance, insecure

Work design hazards

- bank counter too high, need to use ladders to count chips, storage shelves very high
- safes located on floor, lifting coin bags to the back of safes with one arm
- lifting coin to the top of coin hoppers - too high
- relief cart weighs a lot when full of coins, hard to push over carpet and anti-fatigue mats

Physical hazards

- noise
- hot, need fans, soaking wet from sweat

B) WINNIPEG PORTERS

Crystal Casino

Chemical hazards

- poor ventilation
- second hand smoke
- chemical smells linger
- washroom has terrible ventilation
- harsh, toxic chemicals
- brass chemical ("Wenol") - worst smell, hard to breathe when using

Stress hazards

- frequently short-staffed
- receptionist frequently paging, taking staff away and leaving others to do work

Work design hazards

- walking up 3-4 flights of stairs for break or to work on mezzanine
- crowding, especially in Piagow room
- tables very large, have to bend/over to clean
- repetitive cleaning

- handling 40-50 lbs. chairs in slot room; move and stack
- difficult to get between slot machines to clean, twisting
- carrying dust pan buckets for 4-6 hrs., sore shoulders

Physical hazards

- poor temperature control
- noise exposure from customers screaming and slot machines. Worst areas: mezzanine Blackjack and Paigow room.

Biological hazards

- colds, flu
- older building, pipes bursting, have to turn off water - waste smells
- have to clean moulds
- have to clean spit, urine, faeces, vomit, sanitary products off floor and surface areas - potential infectious disease(s)

Entertainment Centres

Chemical hazards

- poor ventilation
- second hand smoke

Stress hazards

- inconsistent rules between facilities, for example no garbage bins on floor
- clients attitude, rude, swearing - porters wear same uniforms as slot attendants, clients want change right away (at Crystal, porters wear different colour bow ties)
- shiftwork, can only switch in 7 day period
- frequently short-staffed, some managers will try to get staff, also not communicating if extra staff comes in or not

Work design

- backroom access blocked by McDonalds, trip hazard
- bingo area and slot room - narrow aisles, bumping into customers and machines
- no garbage bins or carts allowed, have to carry garbage bags attached to belt loops (employees sometimes break this rule)

Physical hazards

- backroom - cold, can't wear sweaters over uniforms
- snow shovelling - could be outside all day if snowing, parkas not adequate, female workers get same pay but not expected to shovel

C) WINNIPEG CUSTOMER SERVICE REPRESENTATIVES

Physical hazards

- temperature – have to wear sports jacket year round and its very hot in the summer
- noise from the machines
- smoke- you can't even breathe, the air is so thick with smoke – irritates the throat and eyes

Biological hazards

- main concern is people coming in with colds and other contagious diseases, people come pretty close to the staff.

Work design hazards

- the condition of the coin pulls. Workers in a bending position the whole time of the pull, up to one hour. The buckets weigh 150 lbs. The nickels are especially heavy.

D) WINNIPEG DEALERS

Crystal Room

Physical hazards

- temperature – too hot or too cold
- noise from the machines

Chemical hazards

- second hand smoke
- indoor air quality sucks – for a few days could smell the smoke from the stubble burning this fall

Biological hazards

- germs on the chip trays
- people come with open wounds and get germs on the tables
- germs from the ventilation system
- dirty customers – germs and potential diseases, open sores, bleeding, lice

Work design hazards

- there's too much repetition and awkward reaching on the games
- shuffling machines – automated shuffling causes constant repetition
- sharp objects on the tables, the chip holders causes cuts
- marble stairs very slippery

Stress hazards

- obnoxious players. There have been threats and there's potential for violence. One player disbarred for a while because of threats. Players waiting for dealers in the parking lot. No help from management. He's a big guy and you wouldn't stand a chance. It was very stressful. No security in the parking lot and no escorts by security to parking lot.
- Have to use the same exit as the players. Can at times be very stressful.
- Have been threatened
- Attitude of the inspectors towards the dealers
- Dealing with the job is a stress, dealing with the customers is a stress
- Shiftwork
- Management – verbally reprimanded for sicktimes and told that your employment is in jeopardy

Mezzanine

- The whole room is a hazard

Physical hazards

- Ceiling too low and not enough lighting, too dark
- Too hot or too cold – never a good temperature

Chemical hazards

- Second hand smoke
- Poor indoor air quality - no ventilation and dusty
- Someone spilled some solvent and everyone got headaches

Biological hazards

- Customers spitting in ashtrays
- Chips are filthy, never get cleaned

Stress Hazards

- Workplace very noisy, crowded and no control. Very stressful

Work design hazards

- No room, too crowded
- Repetition of work

E) WINNIPEG SLOT ATTENDANTS

Entertainment Centre

Chemical hazards

- Second hand smoke, poor ventilation in big slot room
- Solvents, cleaning supplies in the tech room (where tools, supplies kept)
- I don't know if we have WHMIS [workplace hazardous materials information system]
- Generator in UPS room, chemicals start bubbling in containers, if problem is not rectified then the whole corner of the building will be blown up. The room is off limits to everyone except security personnel

Stress hazards

- We get bomb threats but nobody knows about these things
- Harassed by customers, one customer was banned for sexual harassment, people have tried to kiss me
- Person safety – have to walk long distance to parking lot
- Customers yell at us and poke and prod us
- Lack of respect from management and customers
- Shiftwork – can't see family and friends, miss a lot of family gatherings. It's upsetting
- Alcohol is going to be coming into the facilities. Employees aren't trained to deal with drunks.
- Crazy that customers can smoke but employees can't.
- Fear of theft.
- Rude and violent customers.

Work design hazards

- Stools very heavy, fall over, need steel toed shoes
- Crowded with customers, constantly bumping into people.
- Violent customers --push, punch, pull hair, poke.

- Booths 9, 10, 13, 14 – doors open out. While slot I am trying to fill up, gets pushed into booths by customers trying to get to slot machines.
- Tripping on cobblestones.
- Customers all want to be served at once. No cueing up. Chaotic, no control, get swamped with people.
- Very narrow aisles.

Biological hazards

- People pee [urinate], puke [vomit] wherever they want in the slot rooms, garbage.
- People pull money from their shoes.
- One guy was banned for masturbating at a machine.
- Colds, flus.
- Dirty customers.

Windsor, Ontario "Your World" Mapping Data

The following are the key descriptive results summarised from each of the Windsor "Your World" Mapping sessions. They are categorised by gaming facility, i.e. *Interim* (largest facility), *Northern Belle* (docked paddle-wheel riverboat); *Compri* (offices in hotel). The number of participants reporting each specific problem is shown in brackets:

Session # 1 -PORTERS

- back problems, likes gardening and cannot do
- headaches, stress, need to rest after shift
- breathing problems slows down activities, such as bicycle riding; believed to be a result of second hand smoke
- irritable after shift
- cannot sleep immediately, needs quiet time
- loss of hearing, talking too loud, television too loud
- depression, hate going to workplace, constant policy changes
- lack of sexual desire
- stress, anxiety, depression
- lack of respect from other employees

Additional Comments

- steel toed shoes not supplied
- discrimination from workers outside their department
- fingernails must be kept short, colour of polish, colour of socks, colour of bra, number of earrings
- wear dirty coats to take out garbage
- winter jackets for each individual
- all but one person lost weight, one gained weight
- really emphasized noise, everyone complained that there was no quiet place, not even staff room or cafeteria
- uniform uniforms, whole group thought that this was a very good idea, no class difference. Everyone would look the same, porters wouldn't be looked down on.
- most emphasized how they really liked their jobs but didn't like working conditions
- all participants felt depressed on working days but felt fine on days off, just knowing they had to go to work made them feel awful

Session # 2 -DEALERS

- now needs medication due to injury
- having repetitive strain injury is time consuming, doctors visits, physiotherapy and expenses causing stress
- driving affected
- job insecurity, needs modified work, stress
- sleep affected
- housework affected
- relationship with baby, children, daycare
- hard dealing with pain
- misses gardening

- relationship with husband/wife
- restricted time with children due to shifts
- injury affects whole life
- new job adjustment
- too tired to exercise
- exhaustion
- work affects social life
- family life, no free Sundays or holidays
- depression, stress
- cannot attend church because of work schedule
- need for counseling

Additional Comments

- everyone similarly affected
- social and family life affected
- suffer pain from work-related injuries

Session # 3 - BEVERAGE SERVER

- working all shifts interferes with sense of stability, routine, sleep
- no sense of security for present or future
- short career, chronic physical pain makes everything difficult, gardening, sewing, etc.
- future goals compromised, e.g. artist
- chronic emotional pain interferes with normal functions of everyday life
- part-time no time to heal body and brain, scheduled 7 days straight, no equity, no fairness
- no time for family or hobbies
- one 15-minute break every 6 hours

Session # 4 - PIT CLERK and SLOT ATTENDANT

- bingo, sore shoulders and arms
- eating irregularities, time
- constant sinus problems
- biking and exercising painful
- not enough energy
- can't go bowling
- don't spend enough time with partner on opposite shifts
- want to be alone after shifts
- sitting, standing, lying down too long, can't get comfortable
- gardening, raking, shoveling - arm, shoulder, back pain
- family life, no social life
- reading - wrist and neck
- housework, cooking/cleaning
- sleeping interruptions, can't sleep 8 hours

Additional Comments

- busy environment leads to excessive fatigue, injury, stress, smoke
- "Casino Cough" from second hand smoke, rattles in throat
- "Fight Night" - Friday and Saturday
- "Travel Time" - walking from work area to lounge and back during breaks
- people catch colds more often and they last longer

- musculoskeletal problems from sitting, typing, standing, walking
- headaches from noise
- tinnitus after work
- workload not enough staff

Session # 5 – IMPRESSMENT CLERK/INSTRUCTOR, PORTER, PIT CLERK, MARKETING CLERK/PROMOTIONS REPRESENTATIVE

- repressing anger and frustration (4)
- situations beyond control, piles up, cranky often, go away by self (1)
- no boating because of injury (1)
- constant pain, sleep after shifts, no time or energy for everyday activities (3)
- sponge painting, stenciling, can't do because of pain (1)
- not able to enjoy life (2)
- relationships, different shifts (2)
- suffered miscarriage (1)
- inability to enjoy new home because of sore legs - creates exhaustion, difficult to mow grass, cleaning, painting, (1)
- stress, headaches, interpersonal problems from work related problems (4)
- fatigue and stress affects crafts (1)
- fatigue and stress affect photography (1)
- lack of sleep, stress (4)
- depression, memory gone (1)
- lack of appetite (2)
- mental/psychological exhaustion (3)
- can't enjoy dogs (1)
- stress, headaches, enjoyable things (1)

Additional Comments

- three other women had miscarriages within 1-2 months in the same department working 8pm to 4 am. Or 7pm. To 3am standing for the entire shift
- second hand smoke "you work in a casino what do you expect"
- heater (cigarette) tossed into money tray
- noise identified as big problem but not showing up in priorities
- "happier workplace, happier family"
- "supervisory jobs - not qualified"
- "have two degrees but feel useless"
- "not good enough, hear all the time, start to believe it"
- "better communication, better understanding, better workplace"
- lack of air causes exhaustion
- "five years to purchase boat now unable to enjoy boat riding because of injury"

Session # 6 - PORTER, SECURITY, and FIRST COOK

- no time for grandchildren
- no time for errands, scheduling
- hobbies, no time, back pain
- chiropractor, no benefits, must cover everything $
- bring stress home
- children, no time to spend on two days off
- family life, spouse
- lack of social life

- lack of money
- lack of sleep, hard time sleeping
- depression due to work atmosphere

Session # 7 - PIT CLERK and PORTER

- fatigue due to IAQ
- repetitious work and poor indoor air quality leads to feeling tired, fatigue, hampers concentration
- not able to enjoy grandchildren due to pain
- lack of appetite at home and at work
- can no longer enjoy crafts - pain
- social life affected due to shift work - midnights
- rushed for time prior to shifts
- can't go hairdressing part-time business due to pain, misses social aspect
- much more tired due to midnight shift

Session # 8 - IMPRESSMENT ATTENDANT and SLOT TECHNICIAN

- neglecting gardening duties, remodeling, grass
- family life, too tired, stress, headaches, sometimes take out feelings on loved ones
- missing band practice, work drains you emotionally
- missing special events, scheduling, daycare
- lack of time for social outings, friends and relatives from working weekends
- because of injury can't play sports

Session # 9 - DEALERS

- legs sore, back pin, can't walk dogs
- sore hips and back prevent from enjoying time off
- social life affected
- stress level at work is quite high, anxiety, angry at everyone, "snappy"
- shift work affects family life, children
- sore back (backache) so can't play sports, housecleaning, shopping
- anxiety, lack of stability, family life, social life
- additional job affected

Additional Comments

- male dealer asked for step (footrest), told all were being used. He was told to ask for one and say it was for a female worker in order to get one from another dealer - not enough steps
- told stress counseling available for full-time only
- noise a big issue, winning machines ring for 15-20 minutes

Session # 10 - PORTER, SECURITY, CHANGE ATTENDANTS, SLOT ATTENDANTS, SLOT TECHNICIANS, CAGE CASHIER

- early morning phone "call-ins" wake entire family
- anxious to make full-time, have been 12 months as part-time
- low hours of work, more stressful than full-time hours
- chest congestion, cold, flu bugs, asthma, bronchitis, itchy eyes, allergies
- constantly thinking of workplace changes and training procedures
- co-workers with attitudes writing or saying things, stays with you all day and sometimes weeks

- breathing problems, exhaustion
- stressed out, need to unwind, unable to relay work problems to mate
- too tired to play with kids
- anxiety, adrenalin rushes, depression
- inconsistent judgment between supervisors causes excess stress and need to vent emotions
- need to recuperate for 8 hours after 12 hours work
- headaches and strains
- not able to enjoy hobbies and entertainment
- moody
- lack of social interaction
- emotionally unstable
- more time for my wife, more time for sports
- breathing problems, can't golf, play baseball
- anxiety attacks frequently
- childcare hard to find for odd shifts and times especially for single moms
- sick more often
- wrists too sore to play guitar, golf, baseball, write letters
- shifts take a toll on body, leave you feeling overly tired and sore
- feet too sore to take long walks, any sports
- no energy after work for family
- weight gain
- no social life period
- stress of shift work, lack of sleep, irritable, edgy, moody
- no family life
- no time for sports
- increased allergies and asthma
- allergies, smoke, dust, no sports, rugby, baseball, etc.
- when on nightshift for a year, light deprivation, moody, no energy, sleeping, etc.
- stupidity, ignorance of co-workers, try to find ways to educate them takes a lot of time
- lack of interest in any casino functions
- need more time for my wife, need more time for sports

Additional Comments

- "Commitment books" which are used for scheduling are abused
- there is inconsistency across the casino

<u>Session # 11 - IMPRESSMENT CLERK and DEALER</u>

- lack of money, spend money on lunches, too tired to make lunches
- sore back affects sleep
- relationships are affected due to work hours
- no free time
- hobbies affected
- no social life
- miss family functions due to shifts and weekends
- difficulty keeping up with housework due to pain, too tired
- no time for church
- mean, angry, first get home from work
- no time to volunteer

Additional Comments

- Northern Belle riverboat washed with diesel fumes, developed headaches, told by supervisors "just breathe through your mouth".

Session # 12 - SECURITY, ENGINEER, and DEALER

- night school affected
- stress, intake in alcohol consumption
- stress from shift
- physically exhausted
- too tired for family
- stress working midnight shift on marital relationship
- children
- stressed out
- no time for leisure activities and sports
- social and family life affected

Additional Comments

- April '96 coins chips tested for germs, etc. urine tested highest
- maximum 1,500 patrons on boat

Session # 13 - DEALER, SERVER, SLOT TECHNICIANS, TRANSPORTATION ATTENDANT, ENGINEER, LIQUOR ROOM ATTENDANT

- can't do yard work/housework
- lose money due to shift
- no time for sports
- couldn't hold child due to injury
- not enough time for children
- no time for family
- stress
- not enough money
- shiftwork
- co-workers relationship
- not enough money
- lack of sleep
- not enough time for everyday chores
- hours of work too much sun
- not enough time for spouse
- marital breakups/affairs
- not enough time relationship
- hours of work

Appendix S: Winnipeg gaming workers' "Your World" mapping data

Winnipeg, Manitoba "Your World" Mapping Data

CASHIERS

- can't do anything, just go to sleep
- can't do sports or activities
- when you leave, smell and dirtiness clings to you
- feet so sore can't do anything except be off them. Hobble home, can't go out after work.
- My social life is on days off. Can't do anything but work on work days.
- Shift work disrupts sleeping patterns which carries over onto days off.
- Allergies affect the quality of life generally
- shoulder pain affects ability to do housework
- stress affects family and how things work with them
- fatigue affects grocery shopping and everyday life
- going to the doctor takes time away from other activities
- shift work means my mother and I never see each other
- drugs and physio[therapy] cost money
- my family hears my coughing and are concerned about what's wrong with me
- I'm a total wreck

PORTERS

- shiftwork/hours of work - affecting participation in sports (curling) and family gatherings
- sore back - can't play hockey
- sore arm/shoulders - can't work on own vehicle
- sore knees/back - can't play football with friends

CUSTOMER SERVICE REPRESENTATIVES

- worried what second hand smoke can/will do to health in the long term.

DEALERS

- breathing difficulties means no more sports, no more running.
- Working shiftwork means lack of sleep, lack of energy and affects family life, and no social life.
- Sickness picked up at work and passed on to family. After work I'm "brain dead".
- No time for anything because of shiftwork. It uses up all your time and affects your sleeping. Being physically sore and the emotional toll of work affects family life.

SLOT ATTENDANTS

- I was on a baseball team but I couldn't play because of my shiftwork. Billiards I just can't play.
- I know I can't commit to activities because of the shift work. My life revolves around work which I think "sucks".
- If I want to go to a concert, I can't because I'm not sure if I'm working.
- I don't see my family or friends.
- I like to go for walks but if my feet hurt or knees are bothering me from work, I can't walk.
- Work-related injury prevents me from doing activities like walking.

Appendix T: Windsor body mapping results from colour coded participants *(actual numbers)*

Actual number of Windsor participants reporting specific health problems

Only includes participants specifically identifiable through colour-coding)	N=36
GENERAL	
Headaches	18
Fatigue	2
Stress	11
Depression	1
SENSORY	
Hearing	10
Eye Irritation	9
Heat Discomfort	1
Cold Discomfort	1
Dry Mouth	2
NEUROLOGICAL	
Numbness/Tingling	3
Pinched Nerve	1
MUSCULOSKELETAL	
General RSI	6
Upper Back	9
Mid Back	5
Lower Back	21
Buttock/s	4
Hip/s	9
Thigh/s	9
Knee/s	21
Lower Leg/s	10
Ankle/s	6
Foot/Feet	17
Heel/s	6
Neck	18
Shoulder/s	26
Upper Arm/s	2
Lower Arm/s	5
Elbow/s	15
Wrist/s	11
Hand/s	3
Finger/s, Thumb/s	6
Chest	2
Groin	1
Multiple Joint Pain	1
Tendonitis	8
Epicondylitis	2
Carpal Tunnel	4
Raynaud's Syndrome	1
Cold, wet painful hands from driving	1
Heel spur	1
Pulled muscles in neck and shoulder	1
Sore feet from wearing heels	1
Bruised hips	2
Wrist ganglions	1
UPPER RESPIRATORY	
Runny Nose, Sinus, Sneezing, Irritation	13
Sore Throats	11
Upper Respiratory Infections (frequent colds, etc)	6
LOWER RESPIRATORY	
Cough	3
Shortness of Breath, Wheezing	11
Asthma	2
Chest tightness Bronchitis, Pneumonia, etc.	5
CARDIOVASCULAR	
Swelling/Fluid Retention	1
Circulation	2
GASTROINTESTINAL	
Indigestion/Upset Stomach	4
Ulcers	2
Poor Appetite	1
GENITOURINARY	
Miscarriage	2
SKIN	
Irritation	2
Rash	2
Blisters on Feet	1
Chafing in Groin Area	1
Cold Sores	1
Cracked/Dry Skin	1
TRAUMA	
Cuts	2
Contusions	3
Fractures (stress fracture in foot)	1

PAGE NUMBERING AS ORIGINAL

Appendix W: Windsor gaming hazards identified by departmental or occupational groups (49 respondents)

Windsor Gaming Hazards Identified by Departmental or Occupational Groups

	Noise	Biological	Repetitive Strain / Ergo	2nd Hand Smoke	Patron Harassment / Abuse/ Fear of Violence	Super-vision Harassment	Work / Building Design	Over- Crowding	Management Inconsistency/ Incompetence / Policy Changes	Chemicals	Other Stressors e.g. *inadequate breaks*
Porters (10)	90%	100%	100%	80%	80%	40%	100%	80%	30%	40%	50%
Transportation & Engineers (3)	33%	100%	33%	0%	33%	0%	33%	33%	30%	100%	0%
Finance Dept (4)	25%	25%	75%	50%	50%	0%	50%	75%	25%	50%	50%
Servers (2)	50%	100%	50%	100%	100%	100%	50%	50%	50%	50%	100%
Office (5)	80%	20%	60%	80%	60%	40%	40%	100%	60%	40%	80%
Slots (10)	60%	90%	90%	60%	80%	60%	40%	60%	30%	100%	50%
Security (5)	20%	60%	20%	40%	60%	60%	60%	0%	20%	20%	40%
Dealers (10)	100%	90%	90%	100%	90%	30%	40%	40%	0%	20%	30%

Priorities and Needed Actions Identified by Windsor, Ontario Participants

Session #1 - PORTERS

Priority Problem	Cause(s)	Effect(s)	Votes	What Can Be Done About It?
Stress	Pressure from supervisor, policy changes, favouritism.	Anxiety	3	*(Did not complete this column due to time constraints)*
Stress	60% caused by bad supervision 40% overcrowding, pushing and shoving.	Bad attitude, anxiety Problem attacks and shaking.	1	
Body Joints	Lifting garbage cans, dragging heavy equipment, using heavy equipment.	Not capable of doing as much work. On and off pain. Stiffness and stress.	1	
Overworked	Lack of Staff Lack of Safety Equipment	Overly tired, short tempered, stressed out. Body aches.	5	
Stress	Lack of respect from supervisors. Incompetent supervisors.	Temper, headaches, nausea, diarrhoea, anxiety attacks. Lessened co-worker relationships, split in co-workers.	5	
Stress	Lack of staff, lack of respect from fellow employees from outside department. (Coworkers respect each other).	Short tempered, depressed because of what you have to face when you get to work.	3	

Session #2- DEALERS

Priority Problem	Cause(s)	Effect(s)	Votes	What Can Be Done About It?
Stress	Job	Mental/Physical Raised blood pressure.	2	Increase moral, educate patrons - no tolerance Better parking arrangements.
Pain	Job, Black Jack repetitive.	Shoulder pain, therapy, overall more stressful.	3	Masseuse on site. Remove shuffle master to slow down game. Better rotation.
Repetitive Strain Injury	Repetitive movement of dealing all games.	Pain, surgery, effects on home life.	3	As above, also longer rest periods, proper lunch breaks, shorter work weeks.
Family/Social Life	Working weekends and holidays, shiftwork, vacation (none during summer).	Stress, depression, exhaustion.	4	Rotation of major holidays (Christmas, New Years), close on Christmas. Rotate weekends. Allow shift changes.

Session #3 - BEVERAGE SERVER

Priority Problem	Cause(s)	Effect(s)	Votes	What Can Be Done About It?
Stress Depression, Fear, Anxiety	Management, mismanagement discipline.	"Uncool" workplace, unhappy workers, unhappy patrons, unhappy management, vicious cycle.	3	Hire competent management. Non union should be controlled as union workers. Too much power. No constraints. No reins. Discipline ever present. Arbitrary, targeted, maniacal, Machiavellian discipline. Permit patrons to abuse workers. No support for workers when abused by patrons. Worker wrong, patron right. Favouritism.

Session #4 - PIT CLERK and SLOT ATTENDANT

Priority Problem	Cause(s)	Effect(s)	Votes	What Can Be Done About It?
Repetitive Work	Staffing	Fatigue, injuries, stress, anxiety, lack of personal pleasure, want to be alone.	2	Hire additional staff. Correct work stations. More and longer breaks.
Second Hand Smoke/Air Quality	Poor Ventilation Ceiling too low, air quality. Cold/Hot	Nose and throat burning, sore eyes, breathing difficulties, and inconsistent body temperature.	4	Improve ventilation, maintain comfortable temperatures, raise ceiling, one floor non smoking.

Session #5 - IMPRESSMENT CLERK/INSTRUCTOR, PORTER, PIT CLERK, MARKETING CLERK/PROMOTIONS REPRESENTATIVE

Priority Problem	Cause(s)	Effect(s)	Votes	What Can Be Done About It?
Stress	Management, lack of interpersonal skills between coworkers, unionized employees and employee-employee	Not doing job to best ability. Resentment. Destroys unity, morale and respect.	7	Listen to people who do jobs and receive productive solutions. Joint Health and Mental committee would include worker, supervisor, and upper management.
Second Hand Smoke/Indoor Air Quality	Cigar smoke, poor air circulation, low ceilings, poor ventilation - worse in some areas.	Headaches, nausea, burning eyes, nose, and throat.	3	Company needs to address problems. Not only an issue for pregnant women. Need non smoking floors and enforcement. Customer service is given too much weight.
Confinement (Over-crowding)	Packed like sardines. People and equipment. Area is too small.	Stress. Personal space invaded. Physical - can't move, get stiff, causes injuries.	5	Increase work space. Eliminate a few money making machines. Plan traffic flow. Include workers when decisions are being made. Listen to workers.

Session #6 - PORTER, SECURITY, and FIRST COOK

Priority Problem	Cause(s)	Effect(s)	Votes	What Can Be Done About It?
Respiratory Problems	Second hand smoke, viruses, infections, IAQ	Always battling bugs. Missed time. Lose money - out of pocket expenses. Loss of lifestyle enjoyment.	3	Move into new building. Open doors on boat decks. Increase filtering of air. More air exchange. Better air filtering system.
Repetitive strain injuries	Repetitive work. Flip burgers. Heavy lifting. Constant cutting, constant pinching movements with tongs.	Swelling in wrist and fingers. Lots of pain. Numbness. Wake up at night because of pain.	3	More rotation of work duties and work stations. Better utensils. Ergonomically designed knives, etc. Sharper knives.
Tendonitis	Repetitive sweeping. Constantly holding broom and dust pan.	Working short staffed on weekends. Can't sleep due to pain.	3	More staff, "floaters" to give relief. Team of 2 people to clean, 1 sweep - 1 pull. alternating job. Implement exercise programs. Take breaks to stretch. Extra breaks.

Session #7 - PIT CLERK and PORTER

Priority Problem	Cause(s)	Effect(s)	Votes	What Can Be Done About It?
Indoor Air Quality	Second hand smoke	Wheezing, lung congestion, allergies, nasal congestion.	4	Eliminate smoking. HVAC improved. More non smoking areas. Regular testing. Better ventilation system, improved work design to remove smoke more quickly. Management should enforce non-smoking policies. More non smoking signs. Signs on bathroom doors.
Repetitive Jobs	Overwork same muscles.	Pain, inflammation, swelling. No longer can use injured limb. Time off work.	2	Work design. Ergonomic work stations. More variations in jobs. Gyms at work. Exercise, physiotherapist on site, ortho designed equipment. More relief time, more rest breaks every hour. "Sanity" stress breaks. Extra breaks sometimes saves "sanity".

Session #8 - IMPRESSMENT ATTENDANT and SLOT TECHNICIAN

Priority Problem	Cause(s)	Effect(s)	Votes	What Can Be Done About It?
Stress	Job in general, customers, time frame to complete work (job requirements). Management stress carried out through ranks. Increase in discipline starts at top goes down to workers. Lack of training - management. No comfort level with shift managers - changes every three months.	Physical, mental, emotional. Headaches. Lot of complaints of headaches due to ? stress from co-workers.	4	Education for company, employees. Increase relationship between employer-employee, management, worker (positive). Standardizing policy, consistency between O.C.G. policy and company policy.
Stress/ Repetitive Strain Injuries	Lifting heavy cans, repetitive movement.	Tendonitis, bursitis, general aches and pains.	2	Lifting device, aids but not back braces. Proper work stations. Increase staff level to reduce workload.

Session #9 - DEALERS

Priority Problem	Cause(s)	Effect(s)	Votes	What Can Be Done About It?
Cigarette smoke	Patrons smoking.	Sinuses, lungs (breathing difficulties, cancer), redness of eyes, headaches.	3	Tables that take smoke down (filtered smoking tables). Better filter system (HVAC). Clean air with use of filters - clean out cigarette particles.
Repetitive Work	Repetition, twisting and turning of body and body parts.	Shoulder and neck injuries. Back injuries.	3	Game rotation. Anti-fatigue mats. Step-ups. Proper shoes "ortho shoes".

Session #10 - PORTER, SECURITY, CHANGE ATTENDANTS, SLOT ATTENDANTS, SLOT TECHNICIANS, CAGE CASHIER

Priority Problem	Cause(s)	Effect(s)	Votes	What Can Be Done About It?
Basic Equipment	Cart, change cart, change banks, weight of tokens in cart, lack of equipment.	Back pain, major stress, neck stress and pain. Legs and feet pain from constant walking.	5	Additional breaks to be able to rest. Light weight adjustable carts. Banks - drawers more accessible. Inventory control (proper) tools and parts.
Air Quality	Smoke and chemicals, cleaning agents, customer odours, HVAC system.	Inability to breathe, asthma, long term health effects.	11	Move to permanent. Adequate HVAC system hopefully. More non smoking areas. Proper use and education of chemicals. Regulate command centre.
Heat/cold stress. Temperature.	Improper design. HVAC system not adequate.	Sick more often. Tiredness.	5	Proper HVAC system.
Work design.	Spacing between aisles and slot machines and traffic pattern.	More bending and stretching. Stress levels higher.	2	Better design, ergonomically correct in permanent and proper equipment.
Stress	Job expectations. Expected to do it right. Customer contact - physical, verbal, emotional. Possibility of weapons. Customer health unknown. Supervisor indecision. Short staffed. Back up not available when necessary. Favouritism. Need co-worker training on consistent and regular basis. Emergency response not enough training.	Tremendous stress. Not focussing, i.e. safety issues, possible accidents, mistakes. Disciplinary action. High stress. Poor consistency. Lax attitude. Poor response to "patron down" call.	3	Better communication, understanding, more team work approach. Consistency.

Equipment - Ergonomics	Change bank and cart. Poor design. Height, weight, bending, reaching, angles when loading and unloading. Repetition coins from cart.	Injuries, shoulders, arms, and fingers.	1	Change design. Implement preventative maintenance on wheels, doors, etc.

Session #11 - IMPRESSMENT CLERK and DEALER

Priority Problem	Cause(s)	Effect(s)	Votes	What Can Be Done About It?
Second Hand Smoke	Cigarette smokers.	Asthma, emphysema, bronchitis, lung disease.	2	Filter air better. Total non smoking floors and tables. Get people to quit smoking. Smoking cessation for co-workers.
Stress	Co-workers (sexuality). Whole place is stressful. Constant noise, constant light changes.	Tension, gossip re: sexuality. Feel separated from everyone else. Must be careful to edit what one is saying re one's social and personal life for fear of discrimination and harassment.	4	Educate co-workers, sensitivity training. Make Ontario Human Rights Code known. Educate management.

Session #12 - SECURITY, ENGINEER, and DEALER

Priority Problem	Cause(s)	Effect(s)	Votes	What Can Be Done About It?
Physical Aspects of Job	Falling off ladders, electrocution, danger involved. Work design.	Stress. Lung cancer in future. Injured - physically disabled.	3	Awareness of hazards, training, education. Respect from fellow workers regarding safety.
Biological Hazards	Germs from table top, chips, patrons, chipper champ.	Colds, flu, congestion, potential for communicable disease.	3	Proper maintenance. Gaming equipment cleaned.
Infectious Disease	Fleas, syringes, patrons.	Stress, flea bites.	3	Inspector to ensure cleanliness. Health person, safety engineer, or public official.

Session #13 - DEALER, SERVER, SLOT TECHNICIANS, TRANSPORTATION ATTENDANT, ENGINEER, LIQUOR ROOM ATTENDANT

Priority Problem	Cause(s)	Effect(s)	Votes	What Can Be Done About It?
Lack of Common Sense	Managements Lack of Skills	Increased Stress, Low Morale, and Employee Injury	7	Management - Interactive Training Union - Management
Lack of Education and Training	Can Injure Co-worker, i.e. Flying Material, Electrocution	Death, Loss of Limbs	3	Training Programme Level, Training Provided for Necessary Skills
Second-Hand Smoke	People Smoking Cigarettes, Cigars, Poor Ventilation	Asthma Attacks, Lung/Sinus Problems, Headaches, Cancer, Upset Stomaches	3	More Non-smoking Areas in Casino, Increase Mechanics of Building to Bring More Fresh Air, and Larger Smoking Area for Staff

Weather	Rain, Snow, Sun, Ice, Wind Lightning, Booth Given to Supervisors for Office	Wet Feet, Colds, Sun Burn, Frost, Frost Bite	0	Supply Proper Personal Protective Equipment, Boots, Give Booth Back
Negative Morale	Management, Pit Worker against Worker, Building and Facilities	Not Treated Like Humans, Cramped Working Conditions, Working On Top of Each Other	5	Training and Education for Management, Worker Training, Don't All Know About Right to Refuse
Stress	Abusive Supervisors, Lack of Security, Inconsistency in Supervision, Don't Follow Collective Agreement - Only to Their Advantage, Favouritism	Don't Sleep, Hostile Work Environment	2	Train Management

Priorities and Needed Actions Identified by Winnipeg, Manitoba Participants

Occupational Groups	Priority Problem	Causes	Effects	Votes	Solutions
Cashiers	air quality	• smoke • lack of air filtration • temperature control variation	• allergy-type symptoms	7	• better filtration • government inspection every month • doctor check gaming workers • improve HVAC system • eliminate smoking • better vacuum on coin machines to suck up dust
	stress	• management • customers	• general health and well-being	7	• train managers how to treat employees • instead of promotion from the floor, hire professionally trained people into management • don't hire families i.e. nepotism • use cameras to watch customers, not employees • don't use co-workers and cameras for evaluation purposes • better organization and consistency of rules • uniform rules for customers
	inadequate workstation design	• poor design • poor equipment • outdated machines	• aches and pains • repetitive strain injury	2	• replace all machines with updated equipment • ask for worker input on workstation design • get more space per worker
	noise	• slot machines • coin sorts • coin hoppers	• hearing loss • headaches	1	
	lack of sleep	• shift work • stress	• irritability • sick • exhaustion • making mistakes at work • poor concentration	1	
Slot Attendants	second hand smoke	• bad ventilation	• sore throats • trouble breathing • lung infection • headaches	2	• test to show these people how bad it really is (i.e. amount of second hand smoke) • better ventilation, clean filters • inject oxygen
	temperature fluctuations	• no one seems to know how to manage the system	• too hot - people pass out, feel dizzy • too cold - people get sick	2	• have qualified people operate the system • upgrade the system

Priorities and Needed Actions Identified by Winnipeg, Manitoba Participants

Occupational Groups	Priority Problem	Causes	Effects	Votes	Solutions
	sore feet	• heavy load of coins	• pressure hives • feet tired at end of shift • all I want to do is go and rest my feet • burning sensation	1	• shoe allowance for proper foot wear • replace carpet/floor covering, add cushion underlay
	work design	• heavy stools narrow aisles crowding - people stepping on you, pushing • fast pace expected for servicing customers, two minute service required concentratio n on making the right change	• people pushing you • emotionally - take things personally • customers get disgruntled • unhappy employees • people get hurt - knock people over • confusion from noise, crowds, hard to concentrate	1	• change booth locations • widen the aisles • limit number of people being let into the facility • bolt stools/chairs to the floor • get more of the popular machines to help control crowds
Customer Security Reps	coin dust	• during coin pull, dust gets into the air when the buckets drop	• eye and throat irritation • black dust in nostrils	1	• get better filtered masks • get goggles for eye protection
	smoking	• second hand smoke in slot room	• difficulty breathing • throat irritation	1	• improve the ventilation system
	back pain	• coin pull - weight of buckets and constant bending	• back pain	1	• get workers weight belts to help support the back
Porters	air quality	• second hand smoke • dust • chemicals used • virus/germs	• sick workers • sneezing • sore eyes • colds/flu	2	• better ventilation system • extraction for fumes/dust • cleaning of ventilation system

Priorities and Needed Actions Identified by Winnipeg, Manitoba Participants

Occupational Groups	Priority Problem	Causes	Effects	Votes	Solutions
	work design	• heavy chairs • narrow aisles • slot room overcrowded • wheelchairs block aisles	• some female workers can't lift chairs • bruised body • sore backs • can't get by to do job (cleaning) • workers compensation claims	3	• limit number of customers coming in • widen aisle between machines • get smaller/lighter chairs • redesign slot room, take out machines, limit overcrowding
	noise	• slot machines • customers screaming	• hearing loss • stress	0	
	temperature fluctuations	• heating and air conditioning system	• colds • muscle cramps • perspiration	4	• need better ventilation system control, will also improve air quality • Crystal will be moving, need to consider this • different uniforms for different seasons
Dealers	poor air quality	• second hand smoke • poor ventilation system • poor exchange of air	• breathing problems • allergies • possible long term diseases e.g. cancer • sickness - colds, flus • absenteeism • coughing • death?	10 includes 2 votes from slot attendant	• improve ventilation system • random inspections (government inspectors) with concrete results • change filters more frequently • change design for doors and windows
	aches and pains	• repetition	• headaches • absenteeism • compensation claims • repetitive strain injuries	5	• better design of tables • floor mats • bigger risers • get rid of shuffling machine • more comfortable foot wear • sweaters
	management	• stress	• no respect • management doesn't understand the job • alcoholism • absenteeism	4	• upper management needs to listen to employees and take employees seriously

Priorities and Needed Actions Identified by Winnipeg, Manitoba Participants

Occupational Groups	Priority Problem	Causes	Effects	Votes	Solutions
	infectious patrons	• poor hygiene • unclean patrons • open sores • bodily fluids	• sick workers • biological hazards	4 includes 1 vote from slot attendant	
	hours of work	• operational hours	• stress • fatigue • sickness	2	
	work design	• poor lighting • no floor mats • high tables • crowded	• back problems • aches and pains • potential for accidents	0	
Facilit ators	second hand smoke coin dust			2	• ventilation used as intended • change the filters more frequently • make the place smoke free • Catch-22": ventilation systems are already state-of-the-art so solve the problem by banning smoking but smoking and gambling go hand in hand • use tokens/paper instead of coins • local suction on jet sorts and hoppers • in the bank, clean the machines (done by blowing air into the machines) when no people are there
	temperature extremes			1	• run the HVAC system as intended
	stress	• management • customers • shift work		1	• eliminate TQM • management treat workers with respect • pick shifts by seniority • policy for abusive customers - suspend for at least a month • have policy to not allow drunk customers in
	lack of respect from management			1	• change government, maybe privatize gambling • have a stronger union to help with negotiating • improve union leadership
	injuries related to coin pull			1	• design a different system such as having coins drop directly through chutes into a count room located below slot machines

Priorities and Needed Actions Identified by Winnipeg, Manitoba Participants

Occupational Groups	Priority Problem	Causes	Effects	Votes	Solutions
	noise			1	• go to a token system instead of coins • use paper in machines • use noise dampening material in slot machine coin pans • wear ear plugs

Appendix Z: Windsor gaming worker participant evaluations

1) What Did You Like About Today's Focus Group Session?

- I found out that I am not alone with my feelings. It's a good start on a better and safer work place.
- The small group atmosphere, more got done and each person was able to be heard.
- Very well run. Like the way the program was set up. Relax work room was great! Thank you for giving us a chance to be here and express our concerns.
- Body Mapping.
- Liked hearing that others have similar concerns to myself.
- What I liked about today was we all got to know each other. And I found that we got to describe our feelings.
- Educational. Allowed to express oneself.
- Communication.
- Good involvement. Mapping.
- Very informative. Learned more about how I am feeling - fatigue etc. Other possible work related symptoms.
- That someone cares about us.
- Talking about each of our different job situations, problem solving, talking about stress.
- Just being here.
- Getting together with people in different departments to see what they deal with. Learning that we all have similar problems regardless of where we work.
- Diversity of the participants' positions at the Casino. Therefore we were all looking at the same work site and sharing different concerns which resulted is a lot of the same problems faced by all.
- A chance to voice my opinions on some ongoing personal concerns about my work environment.
- Maps. Someone from outside Casino listening. Learning about other department problems and how so many issues are the same and problems and injuries occurring.
- Many issues were raised that would help in a better working environment.
- Broadens your views on other employees' problems. Gives insight from others on resolution to health and safety concerns.
- It brought to light problems that not only my department but others face on a daily basis working in both casinos. It was very informative and well received.
- Fun, thorough, good participation, [union health and safety representative] 's presence; informative.
- I liked the idea of "free thinking ideas of better health & safety issues"; I liked the people who presented the forum to us and the future will hopefully be filling a promise of better workplace for us all.
- Hopefully it will make a dent in improving the working conditions and existing problems will be recognized.
- It was very informative. Some question and answers were raised that I found very interesting.
- Informative. Recognized common problems within two classifications. Concerns and problems at home - related to job.
- Differing view points.
- Learning other persons concerns - that you are not alone suffering. Knowing that special attention is being provided to answer issues.

Appendix Z: Windsor gaming worker participant evaluations

- Take note of other departments that have similar problems and can relate to the same problems your department has. Nice to know that we are all in the same boat. No pun intended.
- Made me more aware of some of the problems that other workers deal with in other parts of the casino; as well as being more alert or conscious to problem areas within my own department.
- Meeting employees outside workplace stress free environment.
- Working together as a team and finding that we as a group have the same health problems and work hazards.
- Everything - especially group work.
- Good program - a little long in duration.
- Learning that other departments have the same concerns and general problems that I do.
- It gave me a chance to express what I had been thinking about for a long time. I liked that both inside and outside the work environment were considered.
- Very professional/informal. Informative and attentive staff.
- Having been able to speak by mind about some of the things bothering me work-related.
- Individual one on one interaction with numbers in the health field. We each got time to explain our problems. Information.
- Very detailed, very focused, very friendly.
- Enjoyed the chance to effect possible change in my work environment. Group size.
- I got an idea of everybody's concerns at the casino. We focus on the worse problems at our interim casino.
- It was very interesting and beneficial to help everything that might be a health and safety problems today and in the future.
- Everyone involved contributed fairly equally in the discussion. It helped to enlighten me about problems that other co-workers are having in their work areas. A better understanding of what other workers are going through was arrived at.
- This focus group was very fun and I'm looking for next step if there is one...
- Everyone was open and willing to discuss everything. There was most every department represented. Coffee and donuts. Good atmosphere.
- I think gaining information from the workers to help the workers is a very good common sense move. I would help with any future sessions.

2) What Did You Not Like About Today's Focus Group Session?

- Too much joking around.
- Not enough dots for problems of stress.
- Not long enough.
- What everyone had to say about stress on the job the stress you get on the job.
- Need smelly markers.
- Nothing.
- No support from my co-workers.
- I guess that sometimes by talking about these issues you sometimes wonder in your heart if any real changes for the future will actually occur. You don't want to lose faith but it is sometimes hard to believe that someone cares about us instead of money.
- People voicing their concerns.
- Not enough time.
- Not enough participants to get a clear idea of patterns of problems/issues.

Appendix Z: Windsor gaming worker participant evaluations

- I wish more people had attended.
- Time constraints i.e. Better if on work time as in-service training.
- Well I can't say I do not like but instead I will say I hope something good will come or result for it.
- Not enough breaks.
- Not enough participation from other job classifications in the Casino. I wish that perhaps management in the future could also have a one-on-one discussion with employees to address health issues.
- Wish more people would have come to participate.
- Nothing.
- Not enough time.
- None.
- Not enough time. Not enough people from department.
- Time element.
- Nothing sticks out in my mind that I did not like.
- Not many volunteers.
- There should have been more union members at this meeting. Everything okay.
- Everything was cool. A-OK.
- Too late in the evening.
- There is nothing I didn't like. It was very beneficial to help with Health and Safety problems.
- It was a bit too long.
- Should have been held sooner.

3) Do You Have Any Suggestions for Improving the Focus Group Sessions?

- More dots.
- More goodies.
- Porters like me should attend more health and safety.
- Include more people in group. Good job.
- This was a good session. Don't change it yet!
- More people. Better inform workers of the session.
- Provide day care.
- No. It was very well organized and friendly.
- Sessions every month or two.
- Yearly workplace health and safety evaluation.
- If time permits, possibly have each participant relate one short story or incident that has really
- stuck in their minds. Other people might relate to it and it might make a that position appear more human - break down discrimination by job or by written survey.
- Perhaps more individuals to be part of the group.
- Ensure there is better attendance just to feel less isolated.
- For persons unable to attend, they can be mailed a questionnaire.
- Go through bargaining to include this as part of annual training.
- More involvement of different departments throughout the Casinos, instead of only three persons.
- I will let you know next time.

Appendix Z: Windsor gaming worker participant evaluations

- Involve more people. More information on focus groups to employees. Perhaps we could have more meetings on these issues.
- Hopefully convince more people to participate.
- Draught beer and chicken wings. Thank-you.
- Larger group - more interaction.
- "More time". Maybe larger room??
- Trying to get more involvement (by each department).
- Have it on a Monday, my day off, and I can stay longer.
- Everything went really smoothly.
- Departmental group sessions. More time.
- Suggestion is make map for hazard mapping.
- No - it was great.
- Interesting to find other similar health concerns. More awareness of other areas.
- More information packets. Take home improvements studies.
- Leaflets handed out advertisement on classes talk more about it, like union steward.
- Keep group to 8 people or less.
- Well done!
- Shorten the length of time it takes. Put a limit on the time each person can spend detailing his or her problems.
- Keep it up. Get more people involved. Improve communication between employees. We must stick together as a group.

Appendix ZA: Winnipeg gaming worker participant evaluations

1) What did you like about today's focus group session?

- Brought a lot of minor and major problems forward.
- I liked the amount of area covered and the manner in which the topics were addressed.
- It covered a lot of ground. Many areas were touched upon.
- Lots of different ideas/opinions.
- It was quite in-depth.
- I thought it was an excellent session because it dealt with all the health and safety problems of mine and also coworkers' concerns.
- It covered the problem areas that are a concern, not only to me, but my coworkers as well
- Small groups— easy for everyone to speak and be heard.
- Opportunity to speak your mind and have someone listen and acknowledge you the opportunity to express freely our problems of our workplace in confidence.
- It was nice to see that we all have the same concerns about our workplaces and we are not facing these problems by ourselves.
- Everyone's opinion was heard.
- Audience participation.
- That we could talk freely about everything.
- I felt it was a good opportunity to discuss issues of concern — should be done on a regular basis.
- I felt that the focus group had a personal touch to it — wanted to know how I feel.
- The fact that the group wanted to hear everything I have to say.
- It allowed me to raise my concerns and concerns brought to me by fellow coworkers.
- We may get something done about the problems.
- By listing problems and effects, we can make solutions.
- I liked that finally someone or group might help us fix these horrible problems and conditions.
- I thought the people running the focus session did a great job. Thank you.
- Free [juice and coffee].
- It was well put together.
- I am glad that there is now a focus group on this issue.
- Was well laid out and everyone was involved.

2) What did you not like about today's focus group session?

- More time to discuss issue.
- Should have discussed the issues more.
- It felt too rushed. We were constantly pushed forward, and were not allowed to delve fully into the subjects not enough people at the meeting. There may be other problems that other people may have that we don't know about.
- Poor attendance.
- I was disappointed that there was no one else in this group to discuss any problem that are a concern.
- It would have been nice if there was a few more people here to help the discussion along and add things that I may have forgotten. Hard to speak on behalf of whole department.
- I was disappointed that nobody from [another facility] came to the meeting. I am [a] little disappointed that we had little or almost no turn out.
- That we could choose only three main concerns.
- There was nothing I did not like.

- I felt somewhat offended by the opening rules to govern the meeting. We are adults and this felt condescending and unnecessary.
- Too early in morning.
- There was nothing I didn't like.
- Number of people from different working areas.

3) Do you have any suggestions for improving the focus group sessions?

- You could have more sessions to hear worker concerns more often.
- More group meetings in the future.
- Two-day events — regular yearly sessions to hear from all people who work for lotteries.
- Allow more time for the meetings. Let discussions flow more naturally and slowly.
- Have longer sessions/workshops for two or three days.
- Bring rep from management or (Manitoba Lottery Corporation).
- Give the powers that be a written agenda of what the concerns were.
- Make people come.
- That there should be more participants at the same time, more ideas and things come up when with a bigger group.
- We must find a way to get more people involved.
- Introduce new changes in real working conditions.
- Can't think of any at the moment.
- Tell the focus group that they have to be there if they want things to improve.
- Get Workplace Safety and Health involved.
- No, so far so good, except maybe a verbal guideline on behaviour.
- Not right now, perhaps after we have a few more sessions there might be room for suggestions.
- Should do all items on the priority list so there is a consensus on all items.

Casino concerns focus of study

BY SUE BAILEY
STAR GAMING REPORTER

Urine left in plastic cups by fixated slot machine players, carelessly discarded hypodermic needles and intense stress are among casino workers' concerns in a ground-breaking study to be released today.

"In some cases (players) were so fixed to their slot machines that they didn't even want to bother to get up and go to the bathroom. They'd just use a plastic cup and set it down beside the slot machine," said Margaret Keith, co-author of the study and director of the Windsor Occupational Health Information Service.

"This is considered to be a very glamourous industry and most people wouldn't give a second thought to the working conditions for employees there."

Other concerns

Seventy-one participants representing 18 gaming jobs — 51 from Windsor and 20 from Winnipeg — also reported repetitive strain and back injuries, respiratory ailments and hearing loss during the first in-depth health and safety study of casino workers. Requests for the results have come from the U.S. and England, Keith said.

The project's estimated cost of $50,000 was funded by the Canadian Auto Workers Local 444, — representing about 3,000 Windsor casino workers — the Manitoba Government Employees Union, Occupational Health Clinic for Ontario Workers, the Windsor Occupational Health Information Service and the Manitoba Federation of Labour Occupational Health Centre.

The study began almost a year ago and is to be included in contract talks now going on between the CAW and Windsor Casino Ltd.

CAW health and safety representative Shirley Egan said Windsor teamed up with Winnipeg after occupational health workers in the two gaming centres discussed the lack of such research. Winnipeg has one casino and two "entertainment centres" featuring slot machines and bingo.

Participants were split into small focus groups and "mapping" was used to label trouble spots on images of the human body and of work place areas. Many dealers, for example, pointed out pain in their shoulders, arms and wrists, Keith said.

"A lot of them talked about the incredible effect of stress and exhaustion on their home life," she added. "In some cases they were unable to play baseball or ride a bike. . . because they were so tired or in such pain from doing their jobs."

But some workers thrive on the "noisy, fun, hustle-bustle" casino atmosphere, said Windsor Casino Ltd. spokesman Jim Mundy. "We'll never have a casino full of employees with stress-free jobs" but the company will do its best to address employees' concerns, he added.

An employee assistance program offers counselling to workers and their families to deal with such issues as stress management, Mundy said.

Needles

Disposal units are provided in casino washrooms for diabetics who must inject insulin, and Mundy suggested reports of urine-filled cups are more "urban myth" than truth.

But a four-year employee who worked as a porter — casino custodian — for six months before switching jobs in disgust said there's nothing mythic about such stories.

Finding vomit or worse in cups left around the slot machines was a regular occurrence, but dealing with the rudest patrons was often more repugnant. "They'd whistle at you like you're a dog." Discarded needles were often found between slot machines, said the worker, who didn't want to be identified.

The 50-page study makes more than 60 recommendations and will be discussed by a joint union/management health and safety committee.

Windsor Star
Feb 26/98

Casino workers hope report a winner

By Sue Bailey
STAR GAMING REPORTER

Casino workers Susan Essery and Bob Vrabel hope a first-of-its-kind health- and-safety study on gaming employees will make their jobs easier.

Essery, a porter, and Vrabel, a security guard, both work at the interim Casino Windsor.

They shared stories of remarkably rude patrons, the aches and exhaustion of repetitive work and the hazards encountered in what's widely considered a glamourous environment.

Just two weeks ago a change attendant was hospitalized when a top-heavy chest of token drawers weighing hundreds of pounds toppled on her, they said. "Every day we see things we feel are a hazard and we get told 'Well, we haven't had a problem yet,'" Vrabel said.

He and Essery were among other study participants who attended the Canadian Auto Workers Local 200/444 union hall on Turner Road Thursday as the document was released.

The joint Windsor-Winnipeg Gaming Workers' Health & Safety Research Project revealed four key concerns expressed by the 71 workers in 18 jobs:

- stress;
- second-hand smoke;
- noise;
- and "biological hazards" such as the spilled blood of combatant gamblers, vomit, urine and discarded hypodermic needles or "sharps" used by diabetics. (Anyone caught using such needles to inject illicit drugs is reported to police, said casino spokesman Jim Mundy.)

Essery, 45, said the often unsavoury job of cleaning up after gamblers falls mostly to porters whose main protection is rubber gloves. So why has the former hair stylist stuck with the $11.87-an-hour job? "I love being out on the floor with the people," Essery said, adding the job can be exciting and fun.

Issues raised in the study will be discussed during contract talks between CAW Local 444, representing about 3,000 casino workers, and Windsor Casino Ltd., said local president Ken Lewenza. It's hoped solutions can be found to ease absenteeism rates of 30 per cent reached in some casino departments each day, he added.

Windsor Star- Feb 27/98

Appendix ZD: Winnipeg Sun Article, February 27, 1998

Casino workers say booze bad idea

Staff

PLANS TO allow booze in the expanded McPhillips Street Station and Club Regent have met with disapproval from the people who work there.

"It's bad enough to have customers drink and then come into the facility as it is now, let alone serving alcohol on the premises," said Robin Drylick, a slot machine attendant.

"A lot of employees are scared to see alcohol come into these places." Some drunken customers vomit and then continue playing, she said. Others have tried to get into the premises by breaking windows after the doors have been closed.

Manitoba Lotteries Corp. spokeswoman Susan Olynik said drinking will be restricted to the restaurant and lounge area and intoxicated customers would not be served. The corporation has a policy of asking unruly customers to leave.

Unruly customers are just one of the workplace safety problems that gaming workers face, according to a union survey of casino employees in Windsor and Winnipeg.

The most serious problems cited were air quality concerns about second-hand smoke and coin dust, ergonomics and stress.

All respondents complained of some muscular and skeletal problems, ranging from shoulder and upper arm pain to back problems from handling heavy money buckets, carrying heavy coin belts and pushing and pulling coin trolleys.

A coin belt, strapped around an employee's waist, can weigh as much as 20 kilograms. Drylick said three of her colleagues were currently on compensation because of injuries related to wearing money belts.

Other problems included leg pain and fatigue from standing for long periods of time and walking on uneven surfaces.

Workers also suffered headaches and eye strain from the continuous noise and flashing lights.

Union study claims

Casino workers gamble with health

SCOTT EDMONDS
Canadian Press

The people who deal the cards and count the cash in Canada's casinos have more than paper cuts to complain about, union representatives said yesterday.

Some have to push around coin carts that weigh as much as a full-sized automobile.

Others inhale second-hand smoke in crowded, noisy rooms or walk around for seven or eight hours with change belts that weigh as much as two 10-kilogram sacks of potatoes.

"In the slot room at my facility, McPhillips Street Station, I believe we have three people ... on compensation," said Winnipeg casino worker Robin Drylick.

Rash of problems

There are about a dozen large casinos in several provinces across Canada, including Nova Scotia, Quebec, Ontario, Manitoba and Saskatchewan. There are also charity casinos in other provinces.

The Manitoba Government Employees Union and Canadian Auto Workers union used focus groups to pinpoint the kind of health problems casino workers are facing in Winnipeg and Windsor, Ont., and found a lot of similarities. They released the results jointly yesterday.

A long list of problems surfaced, from rashes to miscarriages and one case of a collapsed lung. Employees attributed all the problems to their work, although union officials admitted some might be hard to prove.

■ Peter Olfert (right) at news conference yesterday with casino workers Doug Peter and Robin Drylick.

But they said the overall picture was hard to ignore.

"It was quite interesting that in two different provinces, two sets of workers actually identified the same three priority issues as indoor air quality, ergonomics and stress," said Margaret Day, health officer for the Manitoba union which represents 800 Winnipeg casino workers.

Only the ranking varied.

The casino employees plan to press for improved working conditions through their respective health and safety committees.

Better equipment and design improvements could help deal with some problems. But Manitoba workers say their complaints have brought little action so far.

A planned $55-million expansion and casino consolidation project in Winnipeg is an ideal chance to improve working conditions, said union president Peter Olfert.

Manitoba lottery officials say they're willing to listen to the union to see what workers have in mind in Winnipeg.

"We are meeting with (Day) I believe next week on that regard," said Susan Olynik of the Manitoba Lottery Corp.

But Olynik insists they have always done their best to ensure safe working conditions, and with around 50 compensation claims a year she says they're not out of line with the rest of the hospitality industry.

"This is not something new."

Should working conditions be improved for casino workers? See Feedback on page 14

Appendix ZE: Flyer informing former Holmes workers and survivors of the purpose of the intake clinic

CAW TCA
CANADA

TO: ALL FORMER WORKERS AND THEIR FAMILY MEMBERS AT:

- ✓ *HOLMES FOUNDRY*
- ✓ *HOLMES INSULATION*
- ✓ *CAPOSITE*

IMPORTANT MEETING AND REGISTRATION

DATE: FRIDAY, SEPTEMBER 18, 1998

TIME: 1:00 PM - 4:00 PM

LOCATION: CEP HALL
900 DEVINE (AT INDIAN ROAD)
SARNIA

Dear Brothers, Sisters and Family Members:

You are all encouraged to attend an important meeting and registration.

The purpose of the meeting is to let you know what we are trying to do on your behalf.

We also want to make sure we have enough information about your work history at Holmes Foundry, Holmes Insulation or the Caposite plant to enable us to register you for a possible workers' compensation claim or help you with an appeal. We want to ensure we have enough health information about you to ensure we can process a claim and, if necessary, to arrange a visit with the Occupational Health Clinic for Ontario Workers. If you have already successfully established a WCB claim, let us know so we can use it as a precedent. Please bring with you any WCB decisions or file information.

We look forward to seeing you there if your health or your personal circumstances permits. If you are not able to travel or to get time off work, don't worry. We will be in touch with you when we need more information. In the meantime, please fill in registration forms for us and return them. Please give us a call if you need more information at 1-800-268-5763. We work in the Health and Safety Department of the CAW office in Toronto.

Thanks very much.

In solidarity,

FRANK MAREK **KIM CLOUT**

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Appendix ZF: Detailed data from Holmes body mapping session

Holmes Body Mapping

Conducted on September 18, 1998 by Margaret Keith and Kathy Mayville

Temporary Registration #	Self or Proxy-Reported Health Problems
168	Shortness of breath, lung problems
164	Bladder cancer, hepatitis C, kidney problems
169	Cough, heart attack
173	Hearing loss
167	Asbestosis (20% decreased lung capacity), arthritis
206	Eye injury at work and still having difficulties, sinus problems, nerve in back, hearing loss, back problems
181	Chest pain, shortness of breath on exertion, hearing loss
196	Stomach pain
188	Heart attack, heart disease
77	Hearing loss, kidney transplant, heart surgery (triple bypass), shortness of breath
36	Chest pain (lung problems)
118	Breathing difficulty (chest pain), sore leg, backache
70	Back problems, breathing difficulty, bowel cancer (bowel resection for polyps)
25	Heart disease
132	Shortness of breath
263	Hearing loss, shortness of breath
131	Colon cancer, shortness of breath
9	Asbestosis
148	Lung cancer
149	Asbestosis
146	Respiratory (abnormal chest x-ray), numbness in hand, back and neck aches, headaches
133	Back injury, shortness of breath, adrenal gland tumour, hand/arm stiffness
147	Low back/hip/back soreness, shortness of breath, asthma
176	Breathing problems when working in dusty environment, eye injury
71	Multiple sclerosis, tiredness/weakness
182	Respiratory problems (wheezing cough), bowel problems, spastic, back pain
62	DECEASED - Heart attack, chest pain, strep throat (often), sinus problems, hearing loss, back pain
129	Chronic lung disease, diabetes
56	Liver cancer, shortness of breath, chest pain
75	Chest pain, shortness of breath, dizziness
79	Hearing loss
159	Shortness of breath, hearing loss
43	DECEASED - Lung cancer, bad circulation
74	Dizziness, headache, hearing loss, gall bladder removed, bowel resection (benign), hip replacement
45	Lip cancer, gall bladder problems
28	Pleurisy, oesophageal problems

7	leg, hip, back pain from heel, left shoulder pain
32	Mesothelioma
101	Shortness of breath (pain in back with deep breaths)
123	Sinus problems
194	DECEASED-Bronchitis, pneumonia, sinus problems
43	Heart attack/cardiovascular disease, hearing loss
191	Hand numbness, hearing loss, back pain
120	Heart disease, lump under leg (size of grapefruit), spot on lung
11	Asbestosis (pleural plaques, shortness of breath on exertion, asthma
35	Leukaemia, sinus problems, numbness in hand, hernia, hearing loss, intestinal polyps, cyst on kidney, polyps nose and throat
55	Back operations (twice), tiredness
157	DECEASED -Lung cancer (primary), brain cancer (secondary)
50	Colon cancer, lung cancer (primary unknown)
38	Cough, pneumonia
78	Lung cancer, arterial aneurysm (groin area)
13	Throat cancer, back pain, chest pain
135	Lymphoma, diabetes, muscular sclerosis, breathing difficulties
113	Respiratory left lung – pleurisy
14	Hearing loss, shortness of breath, constant headaches
24	Pulmonary fibrosis
172	Hearing loss, back pain
116	DECEASED –Asbestosis
18	Breathing problems, open heart surgery, artery damage (neck), diabetes, hernia
99	Lung cancer, blocked arteries in neck, oesophageal cancer
16	Shortness of breath, kidney failure
94	Asbestosis left lung (outside? No impairment)
84	DECEASED - Leukaemia
27	Emphysema
20	Kidney cancer (daughter born with kidney cancer)
200	Shortness of breath, heart attack, chest pain
126	Heart disease, hand pain (bone spur)
153	Shortness of breath, back pain, sore knee
54	DAUGHTER OF WORKER – Fibroid tumours, partial hysterectomy, diarrhoea
155	Shortness of breath, hearing loss
211	Shortness of breath, pain on breathing (sharp pain on inhalation), cough with phlegm, watery eyes, problems with heat (feeling faint), back pain, bladder difficulties
85	Hand stiffness, back pain (receiving disability)
151	Hearing loss, head injury
33	White finger (diagnosed), carpal tunnel syndrome, bone tumour?, white finger in feet
183	Colon cancer, liver cancer
184	Haemangioma right leg, oesophageal problems with reflux and blockage, daughter has leukaemia (grandfather #183)
117	Shortness of breath, heart disease, hearing loss, sinus problems
160	DECEASED – lung cancer, heart surgery quadruple bypass
143	Sinus problems, hearing loss, back pain, diarrhoea, sensation of pins

	and needles in upper leg
166	DECEASED – lung cancer, heart disease
31	Scarring on lungs (fibrosis)
222	Mesothelioma
30	Lung cancer (primary), bladder cancer (secondary), colon cancer (secondary)
21	Asbestosis, lung cancer
23	Acute bronchial asthma
217	Lung cancer (primary), bladder cancer (secondary), anal cancer (secondary)
66	DECEASED – Heart disease
251	Heart disease, bladder cancer
17	Bladder cancer (primary?), kidney cancer (primary?), prostate and lung cancer (secondary)
68	Chest pain
204	Kidney cancer
197	Asthma, back injury
178	Hernia (groin), hearing loss, increased blood pressure
139	DECEASED – Lung cancer
202	Heart disease (triple bypass), hearing loss
210	Shortness of breath, hernia, heart attack
189	Fluid build up in body, fluid in lungs (breathing), accidents at work (include broken finger, broken leg, burns to face)
208	Recurring fluid in lungs (breathing), hearing loss
207	DECEASED – mesothelioma
98	Chest pain, stoke, hearing loss
88	Difficulty breathing, chest pain, adenoids
95	Shortness of breath, chest pain, knee problems
100	DECEASED -Asbestosis, breathing problems, heart attack, rheumatoid arthritis
192	Bowel cancer
198	Hearing loss, reflux, increased blood pressure
64	Open heart surgery, hearing loss, prostate problems
65	Silicosis (breathing), hearing loss
82	Respiratory disease, heart disease
54	Oesophageal problems
136	Emphysema, heart attack, pack pain (herniated disc)
145	DECEASED - Lung cancer (primary), kidney cancer (secondary), bladder problems, prostate problems
152	Bone cancer (4 discs removed in neck), heart disease, hearing loss, leg pain, kidney problems, prostate problems
2	Shortness of breath, heart attack, hearing loss, shoulder pain, prostate problems, back pain, kidney problems, foot discomfort (accident at foundry), wife has skin cancer
114	Shortness of breath, heart disease, kidney transplant
---	Data missing (indecipherable)
---	Data missing (indecipherable)
---	Data missing (indecipherable)

HOLMES FOUNDRY HAZARD MAPPING

(Excerpt from report produced by Kathy Mayville and Margo Gilroy, in conjunction with Margaret Keith, Jim Brophy, Janice Holland and other Occupational Health Clinics for Ontario Workers staff members)

North and South Core Rooms (NCR, SCR)

The first step of the process was the manufacturing of the cores, which formed the inside of the engine block. The process began by drying and cleaning sand. The sand was dried in heated drums that turned, spinning the sand and slowly releasing it. The sand was then brought inside by various means: lift truck, blown through pipes by compressed air or by elevators to the core room. This sand was referred to as green sand. Binders were mixed with the sand to make moulding sand, which was then injected into the core box. Core boxes were sprayed with silicone that kept the sand from sticking to the boxes. Workers in this area wore no personal protection during this spraying process. Prior to the mid 70's tower ovens and hot boxes lined with asbestos inside and out were used to cure and harden the cores. Tower ovens ran 24 hours a day, 7 days a week. Hot boxes were used in conjunction with tower ovens because of low oven capacity. After the cores were baked, the boxes were opened, and the workers were exposed to clouds of smoke.

"The workers learned that the best way to deal with this operation was to take several deep breaths, hold it, then "run like hell" to avoid inhaling the smoke. The smoke off of this was unbelievable".

In the mid 70's a new process, Isocure, was introduced which used chemicals to cure and harden the cores in cold boxes.

Workers were exposed to several chemicals including:

1) Isocure I - phenol/formaldehyde resin/organic solvents
2) Isocure II – isocyanate/organic solvent
3) Isocure Catalyst 700 – alkaline liquid, triethylamine
4) Isocure Catalyst 702 - dimethylethylamine (DMEA)

Note: DMEA was injected into the core boxes. The boxes were not designed to have gasses injected into them and as a result, the gasses leaked out of the boxes, exposing the workers. This went on for 5-6 years during the mid '70's before gaskets were developed. The workers were exposed to Isocure for 10 years before they were advised of the hazards associated with its use. According to a handling procedures document provided by the chemical supplier,

> *Contaminated clothing must be removed immediately. Shoes contaminated with Catalyst 700 should be discarded*[1].

This did not happen.

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[1] Isocure – Safety & Hygiene. Isocure Binder System: Handling Procedures. Ashland Chemical Company, Division of Ashland Oil Inc., #5210

"I had to use a pound of butter to get the Isocure resins off my hands".

Gaskets were made to fit the core boxes to contain and control the "gas" when it was injected into the core. This gas was exhausted to an after- burner and then later to an acid scrubber. Workers had to change pumps and gaskets and were exposed to sulphuric acid and DMEA. Exposure to raw DMEA decreased by 60-70% just prior to plant closure.

All of these chemicals represented an exposure risk for the workers involved in the core rooms. The cores were hardened by hand dipping them into a core wash of an unknown solution. Workers would lift the cores from stacks that were anywhere from 34 to 60 inches off the floor. They would then make a "10-12 degree turn" and immerse the core in a core wash that was in a 4-foot dip tank. The core was lifted out of the dip tank and the worker would turn approximately 30 degrees and place the core into a pneumatic spinner. The pneumatic spinner stood approximately 4 feet high. Each core weighed approximately 55 lbs. Workers would be covered in core wash.

Personal protective equipment was not used until the mid '70's. Two men worked in this area, one dipper, and one to take the cores off the pneumatic spinner. The cores were set on conveyors that went through an oven. When the cores came out of the ovens, inspectors (2-3) picked them up off a rack, placed them on an inspection table, and visually inspected them for imperfections such as fins, excess drips, etc. The cores were then manually picked up and placed on rollers that fed them through to the moulding floor. Core box operators would spray the core boxes with an unidentified metal cleaner to dissolve the Isocure chemicals. The boxes would sit for a period of time and then the operator would use high-pressure air hoses to clean off the Isocure. Note: There were approximately 18-20 workers in the SCR and 12-14 workers in the NCR. Similar operations took place in the NCR and SCR. The major difference was the size: the SCR was physically larger in area and produced larger cores. Cores were transported from the NCR to the moulding area by means of overhead trays, in the SCR they were moved on rollers.*Exposures included*: Isocure vapours from the cores, potential hazard from the dip wash, DMEA, metal cleaner, kerosene, silica dust, natural gas from ovens, heat, noise, isopropyl alcohol, asbestos, pitch, and linseed oil.

Melting Department

In the earlier years, scrap metal was picked up by a magnetized crane and brought up onto the charging deck where it was weighed and hand shovelled. Workers wheeled a buggy to the doors at the top of the Cupola and shovelled it in by hand. This work was very cold during the winter months as the top of the Cupola extended through the top of the building. In the latter years two cranes were used. The one on the ground level would pick up steel (scrap return, pig iron, etc.) and place it up on the charging deck. The second crane picked up the materials and dumped it in the scales to be weighed. It was then dumped into a skip bucket, run up a trolley to the Cupola and then discharged. The Cupola would hold 20-30 tons of material. Materials used included steel, aluminum, coke, manganese, pig iron (alloy and metal), slag iron, copper, brass, and scrap steel (lead, zinc). Sixty thousand to one hundred thousand cubic feet of scrap were dumped per minute, injected with air, nitrogen and oxygen, and then limestone was added. The limestone would attach to the impurities and float to the top. Slag would separate from the iron. This by-product went into a water trough. The slag was then separated from

the water and was trucked to a dump. This area was very smoky. The molten iron was transported to a holding furnace by means of a trough. The holding furnace was an electric arc furnace. Two carbon rods, 3" in diameter and 5' long were electrically charged which produced extreme heat. From the holding furnace the molten iron was poured into a ladle and brought to the pouring machine on the moulding line (one ladle = 3 castings). The electric arc furnace was used in the manufacturing of ductile iron that was used in the production of warheads and small castings. Cupola workers had high exposure to heat, metal fumes, noise, and accidental metal splash.

> *"Not only did we get burns from the molten iron but from the corrosive chemicals too".*

Two smaller furnaces, Ford furnaces, were used for alloyed ductile metals. The electric arc furnace replaced the Ford furnaces. There were ten workers per shift. *Exposures included*: extreme heat, calcium carbide, silicon, carbon monoxide, sulphur dioxide, carbon dioxide, methane {produced from the sea coal, lead (scrap iron), silica, copper, zinc, aluminum, cadmium (scrap lead), iron oxide, cold temperatures (at top of Cupola), metal fumes, noise, and accidental metal splash.

Molding Floor Area

Conveyor lines came into the moulding floor area from the NCR and SCR. Moulds were sprayed with a mixture of isopropyl alcohol and an unknown black powder, which was then ignited. This process sealed the moulds and provided a smooth finish. Cores were put onto jigs and then placed on the dragline. This process involved bending, lifting 55-60 lbs. cores and turning 90 degrees, then bending forward and lowering the core into the jig. E.g. With the six cylinder engine, there would be 6 body cores, weighing approximately 55 lbs., two flywheels 25-30 lbs. each, and two water jackets 5-8 lbs. each. Two men handled 3,600 body cores, 1,200 flywheels, and 1,200 water jackets in an 8-hour shift. This repetitive motion created many musculoskeletal injuries for the workers. The moulding machine manufactured the cope and the drag. A spruce cutter was used to drill a hole in the cope to pour iron into it. The tops of the cores would follow along the copeline; the bottoms would follow the dragline. The cope and drag were put together with hydraulic presses and iron was poured into the cores. The hydraulic machines used for making moulds leaked oil and contaminated the sand. This caused excessive smoke. A cylinder came up and pushed the blocks up to the pallet line, which carried the blocks to the "Shake Out" area. According to the participants, this area had zero-visibility and horrendous smoke. The workers were not clear about the particular chemicals that were being used, they nevertheless observed that the smoke would change colour and rise at different heights.

> *"On a humid day the smoke was greyish to light yellow in colour and was very heavy, from 3-4 inches from the ground to ceiling level. The green, yellow, orange smoke hung around the floor level".*

There were approximately 25 workers per shift in this area. *Exposures included:* dense smoke, unknown chemical mixtures, spray used on moulding machine as releasant, isopropyl alcohol, and heavy repetitive work.

Shake Out Area

The pallet line entered the shake out area. Iron castings were pushed into a 28-foot shaker by means of a pneumatic cylinder. When the pneumatic cylinder pushed the castings into the shaker there was a tremendous amount of smoke. The castings were encased in sand and shaken to remove the excess sand. This left a hot iron casting that was red in colour. It was very smoky in this area and there was poor visibility. Castings used to get caught in the pallet line where they entered the shaker. The millwrights were often needed to dislodge the castings. Millwrights would be required to climb the ladder to the catwalk where the pallet line was located.

> *"In the summer months we could not hold the stair railings due to extreme heat. The smoke was "wicked smoke, green/blue smoke".*

There was a burn-off of the chemicals during this process. An excess of 50 cooling fans were located in the shake out area. When the pallet line exited the shake out area the castings were red hot and still smoking. On a day when it was 70 degrees outside, it would often reach 130-140 degrees Fahrenheit in the shakeout area. In the wintertime when the heat was not excessive there were approximately 4-5 workers in this area. Due to the extreme heat in the summertime there could be as many as 28 workers who would work 10-15 minutes at a time and then take a break. *Exposures included:* extreme heat, noise, dust, and smoke.

Cooling Room

From the shake out area the conveyor line went into the cooling room. Workers had to hook castings onto an overhead line that changed direction and went into the cooling room. Castings remained in the cooling room for 4 hours. Millwrights worked in the cooling room area and cleaned "white sand" from under the overhead track where the castings were hung while the conveyor line ran.

> *"This area had a smell all its own and left a metal taste in your mouth for days".*

On weekends production workers would go in this area when the line was stopped, empty and shovel out the white sand build up from under the overhead track. There was high silica dust exposure in this area. *Exposures included:* silica dust, carbon monoxide, asbestos, extreme heat, and smoky and dusty conditions.

Knock Out

From the cooling room the blocks went into the "knock-out" area. This area was also known as the "Rough stage cleaning room". The blocks were cleaned and then put through another shaker. Workers used 6-8 lb. hand held ball peen hammers and 12 lb. sledgehammers to remove excess sand and burrs. Four to six men worked in this area per shift. *Exposures included:* heavy smoke, poor visibility, asbestos, silica, heat, and increased noise. Prior to 1976 there was no personal protective equipment offered.

> *"We suffered from indigestion and shortness of breath from the chemicals, and coughed up black sputum from the black smoke we worked in".*

Mill Room

Castings would come from Knockout with fins attached and covered in sand. These castings were brought by trolley into "shot blast" which shot steel pellets onto castings to remove excess sand and fins. Pre 1968, workers would walk into the area carrying hoses, which shot steel pellets at castings hung on trolleys. Steel shot was mixed with silica sand. Workers would wear bandanas to cover their faces and tuck them into their shirts to keep out flying pieces of metal. Workers always had shot in their shoes.

"The air in this area contained "60% iron"; our teeth would become red from the dust."

From the shot blast area castings would remain on a trolley and go through stiff rubber doors (2 ½ - 3 ft.) which swung open. There was silica and iron dust all over this area. The castings were unhooked from an overhead trolley and put into a "big shaker". This area was very noisy because the castings still had small steel shot inside them. One to two men per shift worked in this area. *Exposures included*: high noise levels, silica and iron dust.

In the mid to late '70's, a snag grinder (automatic grinder) replaced 40 workers jobs. The snag-grinder was also referred to as the "snagglepuss". It ground the head and face of the castings, then flipped the castings and ground the other two sides. This was a rough grinding process. From the "big shaker", parts went onto 2 different lines, #6 for 6 cylinder parts and #8 for 8 cylinder parts. The snag grinders were used on 6 cylinder parts only. Swing grinders were originally used on the #8 and #6 line but eventually they were only used on the #8 line. The snag grinder replaced the swing grinder on line #6. Both lines ran simultaneously with only a four-foot distance between them. Hand grinders weighing up to 87 ½ lbs (7,000-9,000 rpm) were used on the #8 line for entire shifts. Workers complained their hands would close tight and they would not be able to open them. There were approximately 50-75 men working as grinders.

"I worked in the mill room as a hand grinder operator for only 3 months then I needed to transfer because I couldn't open my hands completely and I had a weight loss of 5-7 lbs a week."

Exposures included: metal dust, hand-arm vibration, extreme noise, and repetitive work.

Before entering the swing grinder area, testing for defects was done several times. "Spot check" in both aerosol and liquid form were used. "Spot check" in liquid form was painted on the castings with a brush. The red dye would penetrate the cracks, then the castings were placed under a light, which would show any imperfections, i.e. cracks, pinholes. Only 2% of scrap castings were returned to the Cupola for melting. If castings passed spot-check on the final line, they were placed on pallets, banded, and would be taken by "mule trains" to the shipping area. If they were cracked, they were heated and repaired in Small Castings Department. Painting was done in the Mill Room. Lead paint, thinned with toluene, was used to paint castings that were shipped overseas. Castings were either dipped or sprayed, compressed air was used to remove any drips, and then the castings would air-dry. There were often fires in the paint area. The workers used Varsol and toluene to remove paint from their hands and arms at the end of their shift.

Up until the early '70's, electrode welding was done in the Mill Room with alloy cast rods. Asbestos blankets were laid over the welds to preserve the heat and prevent cracking. The welding process created tremendous smoke and eventually this was phased out. *Exposures included*: silica, iron, noise, metal dust from the grinders, vibrations from grinders, toluene, "red" lead, red dye from spot check (unknown), heat especially in the summer months, fires in the paint area, kerosene, and asbestos.

Small Castings

"Small castings" was the last process in this area. Any casting that had small cracks or defects was sent from the mill room to small castings to be repaired. The castings were heated in welder ovens and then welded. Asbestos blankets were used in this area and the ovens were lined with asbestos. Six workers were in this area per shift. This operation ran 3 shifts, 7 days per week. *Exposures included*: asbestos, heat, welding fumes, and natural gas exposure from the ovens (this was not vented).

"100B" Mixer

Behind the cooling room was a "100 B" mixer, which contained Muskegon silica sand, bond or binder, sea coal and Portland sand. All dry substances were mixed with water. Substances were kept in open pails and dumped into a mixer. Recycled sand from all areas within the plant was transported on conveyers to silos. From the silos, the sand was dumped into the mixer. The more that the sand was recycled the hotter and hotter it became. In the summertime, when the sand was very hot, the air quality problems increased. One hundred tons of sand per hour was mixed. It was very dusty and hot near the mixer. All the sand was mixed for the moulding floor in the 100B mixer, as well as sand that was used in the bottom of the Cupola. In the earlier years, 2 workers worked at the 100B mixer; one worker in the later years. *Exposures to 100B mixer included:* silica dust, dust from bonds, sea coal, unknown chemical (green jell-0) used to coat sand to protect from burning, as well as exposures from the Mill room and the Knockout area. If the wind was blowing from the south, there was extreme exposure from the Mill room, winds from the southeast produced exposures from the Knockout and Mill room.

Pattern Room

The pattern room was located beside the mill room. This area was partitioned off. Patterns were repaired in this area, welders would weld with aluminum, patterns were patched with a plastic type epoxy (unknown type), electric saws were used for cutting, lathe work was done, drill presses were used to make holes, and small high-speed grinders were used to smooth repaired surfaces. Precision work was done in this area. A product called "Brawn" was used at the end of the week on the core boxes in the pattern room. Workers did this in a separate area near the Cupolas. The core boxes were painted with this substance, they would sit and operators would power wash them off with hot water. Wastewater went down a tunnel, which led to main city sewers. This would turn the boxes from black in colour to very shiny. There would be 3 workers per shift, three-shift operation, and an apprentice on day shift. *Exposures included:* melted brass/bronze and aluminum during welding operation, plastic type epoxy, welding fumes, high dust levels, machining oil/cutting fluid, and "Brawn" Pattern room workers were exposed on occasion to the NCR, SCR, Mill Room, and Moulding Area when called to repair machinery on site.

Wire Room

The wire room was located upstairs above the SCR. Small wires were made to hold the cores together. Working conditions were terrible because the smoke from the SCR ovens would rise to the upper level. The wire room was eliminated after the Isocure

process began. The wire room became a compressor room. One worker would feed wire through a "sewing-machine" to bend and shape wire to conform to the shapes of the cores. Wires were used to stiffen cores. *Exposures included:* isocyanate and other chemical contaminants from the SCR.

Compressor Room

There were three fair-size compressor rooms located in the Foundry. The compressor rooms were located: 1) at the end of the NCR, 2) north of the warehouse and 3) beside the wire room upstairs. There were a total of 7 compressors used to operate the machinery. The compressors were automatically oiled. There was one compressor operator per shift who maintained all compressors and regulated airflow. Not all compressors operated at the same time. *Exposures included:* extreme noise and whole body vibrations, insulation was used as a noise barrier, as well as exposures from the SCR when maintaining compressors located upstairs.

Dip Room

The dip room was located north of the shake out area. One man mixed all the core wash for the NCR, SCR, and mixed coating for moulds. The dip was shipped to the plant in dry form. Bags of dip were dumped into mixers and a liquid solution was added. The mixing process took place 24 hours a day, 7 days a week. Agitators were used in the mixers to keep the core wash in liquid form. Tanks that contained chemicals were not covered until the late '70's when lids were put on. The first tank to get a lid was the 160 proof isopropyl alcohol because of fire concerns. Up until 1965 when the ovens were installed in small castings, repair work was done in the dip room. The castings were placed on a bed of hot coals and coke (one man kept shovelling coal) and heated to a point where they could be welded. There would have been one man per shift in the dip room, 2 shifts. *Exposures included*: isopropyl alcohol, open vats of unknown chemicals, heat and cokes emissions.

Cleaning of Pollution Equipment

An attempt was made to remove some of the pollution from the Foundry. There were vents that led directly to the outside as well as windows and doors. There were also water scrubbers that removed particulates from the air. Suction vents pulled air into ducts that went to the various scrubbers. The dust eventually coated and plugged the inside of the ducts and the workers had to clean them. Some of the ducts were only about 10 inches in diameter and others were large enough for the workers to crawl into - which they did. The workers used one of several ways to clean the ducts that included a hoe, high-pressure wash hoses, or suction hoses. The dust inside the ducts was just like flour and in the winter the dust would turn to mud. There was one scrubber near the Cupola, 2 in the knockout area which serviced the shake-out and moulding area and one behind the mill room, which serviced the knock out and the 100b mixer area.

The mill room had another type of filtering system that was basically a vacuum cleaner. High-speed fans sucked air through tubes into a cloth filtering system. The dust fell into a hopper where an auger would move it out of the plant. Up until the early 80's, this auger was an open unit and it created enormous amounts of dust.

> *"The dust was so heavy in this area that the paper masks we used would clog every 10 minutes, and our mouths and teeth would get black from the dirt".*

There was a water scrubber located behind the Mill Room. A water scrubber was a big tank of water that would catch dust particles. Big fans were used to suck particles from different areas and discharge them into the tanks. Sprinklers would weigh down the dust and contaminants in the water tanks. This created sludge at the bottom of the tank. The sludge was pumped out and transported to a waste station. Located in the "holes" under the main floor of the foundry were a series of belt lines. These belts collected sand from the foundry operation and carried it to a shaker where lumps of sand were broken and then transported to an elevator. It was very smoky in this area. This sand was recycled. Some of the sand would not fall onto the belt line and workers cleaned it up manually. This area had no fresh air supply and was not ventilated. The air was stale, dusty and polluted. The sand was contaminated since it came from the core room, the mill room and the knockout area. *Exposures included:* asbestos, contaminants from the air, silica in the sand, iron dust, dense smoke.

> *The air was so bad it smelled 'like something was rotting".*

Stockroom

Stock, including rasp files, gloves, raincoats, rubber boots, etc. was stored in the stockroom, as well as spare mechanical parts. The first aid room was located in the stockroom until the late '70's. The stockroom attendant was also the first aid attendant. Incident reports for accidents would gather in the stockroom and eventually would be thrown in the garbage. Plant doctors started in the late '70's or early '80's. The first aid department was "stepped up" after a fatal accident in 1984, when a young man (24 year old) was cleaning sand from under an overhead elevator and the elevator accidentally cycled. The young man was decapitated. Safety equipment (e.g. chains to hold elevator) was not in place to prevent accidental cycling. *Exposures included:* contaminated air from the plant.

Garage

All equipment was repaired in the Garage area, beside the mill room, including mules and trains. Batteries were stored and charged in this area as well. Exposures included: refined oil, synthetic oil, gear lubricants, Prestone, exhaust, hydrochloric acid (batteries), Safety clean (degreaser). 50-75 propane-powered trucks were operating in the plant at any one time. Kerosene was used to clean up until the late '70's. Kerosene was used as an all-purpose cleaner, to thaw out machinery, and sprayed on the patterns as a releasant.

Appendix ZH: Caposite hazard mapping data

CAPOSITE HAZARD MAPPING FINDINGS

(Excerpt from report produced by Kathy Mayville and Margo Gilroy, in conjunction with Margaret Keith, Jim Brophy, Janice Holland and other Occupational Health Clinics for Ontario Workers staff members)

> *"In Caposite at night the glittering from the air particles were so bad that you couldn't see where you were going"*

In the early 1960's, Caposite employed between 75-100 workers. This was a 2-shift operation, 1 production shift and 1 clean up shift. Caposite workers belonged to an "association". They were not part of the bargaining union.

Bags of asbestos would be delivered to Holmes by way of boat. These bags would be unloaded at the dock and piled to ceiling height in the warehouse area. From the warehouse, it was taken to an elevated platform. Workers used knives to open the bags of asbestos and then pitchforks to loosen and shovel it. Approximately 100 bags per shift were opened at night. If more were needed during the day, the day shift would open them. The asbestos was then loaded into one of three turbines that chewed the asbestos up. One of the worst exposures was at the bottom of these turbines where the asbestos would fall onto conveyor belts. There was a tremendous amount of dust.

> *"When walking through Caposite it was like walking through a field of diamonds, the particles were so sparkly you were blinded".*

The turbines were regulated according to the amount of asbestos needed on the mat for different operations. From the conveyor line, the asbestos went onto a "mat" conveyor type belt. At this stage, the asbestos was automatically sprayed by a suspended overhead bar. The liquid came from a tank that contained glue, water, soap, silica, and a black resin. Two men worked at the end of the mat line per shift. The asbestos then went to the "finish roller" pipe rolling area. Pipe was made to four-foot lengths and different diameters. Pipe was manually placed on racks. A forklift would pick up the full racks of pipe and put them into the oven. There was extreme heat in the area of the oven, which was approximately 1000 degrees. The pipes stayed in the oven for 12 hours to dry and were then taken to the saw area where they were cut with skill saws. There was no ventilation. Dust exposure in this area was very serious.

There was a painting operation in the Caposite plant. Some pipes were placed on conveyors to be painted. Once the pipes were painted white, they would pass over top of oven jets to be dried. From there, they were taken to the sawing area. The pipe was then packed and shipped.

There was a dust collector system in Caposite. Suction fans would draw dust particles from the environment that would then pass through hundreds of cotton bags in the "bag house". Once a day, the workers would take sticks and bang on the bags to clean the dust out, otherwise, the bags would clog and not work properly. This area was considered very dusty.

Uniblock was located at the south end of Caposite until the late 1960's. Materials used in the manufacture of uniblock included rockwool, perlite, bentonite, Amosite asbestos,

> *"If you made a mistake while taking a full rack of pipes to the oven you were better off to back up the forklift and start over otherwise the tires would smoke from the heat".*

Kentucky clay, and two different cements. The materials were brought in and kept in a tank (storage tank); the material was mixed with water in the mixing tank, and was kept in a holding tank. From the holding tank, the material went into boxes which were then pressed. The pressed blocks went into the ovens to be baked. The dried blocks were then cut with saws to different lengths. This area was very dusty. The finished product was then packed and shipped. There were between 3 and 5 workers who worked in the Uniblock area.

There were three hildablock tanks that were used to soak the uniblocks. Uniblock insulation was used in the Foundry, including the ovens. During
plant shut downs, the workers changed the Uniblocks. Having been exposed to intense heat for a year, the Uniblock turned into flakes that floated through the air.

> *[A worker describing the flaking of the Uniblock] "Like cattails when they explode in the ditches".*

In a separate building north of the Caposite plant, metal ceiling tiles were manufactured. This process was "pretty straightforward". Steel would arrive pre-stamped, fibreboards were placed between sheets of steel, and the tiles would be painted. The product was then packaged and shipped.

Exposures included: asbestos, silica, unknown black resin, extreme heat, carbon monoxide, Rockwool, perlite, bentonite, Kentucky clay, and dust.

Appendix ZI: Rockwool Insulation plant hazard mapping data

HOLMES INSULATION (Rockwool)

(Excerpt from report produced by Kathy Mayville and Margo Gilroy, in conjunction with Margaret Keith, Jim Brophy, Janice Holland and other Occupational Health Clinics for Ontario Workers staff members)

The insulation area was housed in Quonset type buildings that were approximately 60 ft. x 500 ft. Because of the type of building, there was no ventilation.

The materials made to use insulating blankets included asbestos, silica, various rocks and pellets, marbles, and slag. These materials were stored outside near the Cupola. The different materials were shovelled into skip buckets that were taken by an elevator to the top of the Cupola. They were dumped in the Cupola and melted. Binder which was made up of phenol, urea, and unknown chemicals referred to as "horse piss" was added. Once melted it would come out as a stream of red-hot liquid. This was poured out at the bottom into 5 spinners that would spin the material into a "candy floss" type texture. The spun fibres were lightweight and feathery. The raw insulation was layered on a grate type conveyor belt by means of an automated process. This line ran through ovens that contained screens on the top and bottom. Before entering the oven the material was sprayed with some type of binder. The first oven cured and slightly flattened the material; the second oven compressed the insulation to a specified thickness. Ovens were needed in this process to cure the binders. There was a great deal of smoke during the curing process.

From the ovens, the insulation was cut to width with line saws and chopped from under the line to required lengths. The trimmings were chewed up with grinders to make loose wool. The loose wool was forced into bags through a pipe by means of an auger. There was loose wool laying everywhere, on floors, machines, etc. Workers would use a 1" air hose to blow the loose insulation from the machines and floors. This, of course, increased the airborne particles of asbestos.

After the insulation was cut to length, tarpaper was adhered to the bottom of the batts and to the tops as well, if needed. There were a lot of vapours from the tar. The batts of insulation were picked up and put into a bagging machine. One worker would bag the insulation and a second worker would stitch the bag closed.

Insulation was then sent to one of three areas:

1) Caposite plant where moulded pipe was made
2) Uniblock area
3) Packing and shipping from the flat line

From each of these lines, products would be manufactured and shipped by transport or rail. Salamanders were used in the winter to provide heat and the burning coke would produce emissions.

There were approximately 15-20 men per shift. *Exposures included:* asbestos, silica, binder (phenol, urea), smoke, glass fibre, tar, carbon monoxide.