The Ideological Construction of Risk in Mining: A Case Study

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ABSTRACT: This paper identifies five ideological themes constructed within a mining company's health and safety discourse. While recognizing the contradictory aspects of these themes, it is argued that each theme operates in different ways, both in isolation and in various combinations, to reproduce labor consent to risk. The key to understanding the discourse as a whole is that the various themes provide miners with the parameters and means of understanding who controls which risks, how, why and with what limitations. The discourse also contributes to consent by placing the specific understandings of occupational hazards within a broader conception of work, employment and economic "realities," which explain and justify the persistence of accidents, disease, and risk-taking.

Over the last twenty years, researchers have produced a considerable body of evidence concerning the politics and ideologies of occupational health and safety (Tucker, 1990, Smith, 1987, Walters, 1985). One central concern has been to understand the ideological basis of labor consent to hazards in the workplace (Sass, 1986). This has led to increasing research on the ideological aspects and impacts of corporate health and safety programs and discourses (Eakins, 1992, Draper, 1991).

This paper examines a mining company's health and safety program. Five distinct ideological themes are identified as defining the main ideas, theories and knowledge contained in the management discourse. The analysis demonstrates that each theme constructs the nature of risk assessment and control in different and, in some respects, contradictory ways. The specific themes are also shown to

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contribute in distinct ways to workers’ consent to occupational hazards. While the contradictory aspects of the management discourse are understood as representing and producing significant tensions in labor/capital relations, it is argued that they are central to the ideological reproduction of labor consent to occupational hazards (Walters and Haines, 1988a).

The existing health and safety literature points to a number of occupational health and safety ideologies that contribute to workers’ acceptance of hazards (Nelkin, 1985, Nelkin and Brown, 1984, Sass, 1986, Walters, 1985, Walters and Haines, 1988a, 1988b). Most often cited are specific ideas and theories which locate responsibility for occupational disease and accidents in the workers (Sass and Crook, 1981, Reasons et al., 1981, Walters and Haines, 1988a). One example particularly relevant to this paper, is a study by Legendre (1987) which found that gold miners in Quebec accepted many day-to-day hazards based on the belief that “the responsibility for accidents rested first and foremost with the workers themselves.” Miners also tended to blame their fellow miners for accidents, citing carelessness or negligence. At the same time, it was found that the company’s responsibilities were defined by the miners in a very limited way as a duty to inform workers and to maintain some basic physical standards in the mine. Legendre (1987) also reports that the miners often expressed a general sense of fatalism regarding many accidents, tending “to look for explanations in non-material and super-natural realities such as destiny” (see also Walters and Haines, 1988a, Nelkin and Brown, 1984).

A number of researchers have focused their attention on the corporate and state promotion of particular ideologies. For example, Sass (1986) has argued quite extensively that both corporations and state agencies actively promote causal theories that emphasize worker responsibilities and conceal corporate responsibility (see also Sass, 1989, Sass and Crook, 1981). He states specifically that arguments that locate blame or fault in workers constitute a body of corporate-promoted knowledge and theory which direct workers’ attention away from the work environment as the cause of accidents and disease (Sass, 1986 570). Draper (1991) provides another good example of this kind of research with her examination of genetic susceptibility theories and the related concept of screening for high-risk workers (see also Alexander, 1988, Bellaby, 1986). Draper’s (1991) arguments also illustrate another key point to emerge from the literature regarding the ideologically role of scientific knowledge and discourses in health and safety (see also Berman, 1978, Tataryn, 1979, Navarro, 1980, Tesh, 1990).

Analysts have also pointed out that corporate-promoted ideologies have their limitations as sources of management control over workers.
A number of studies suggest that workers and unions have different views and definitions of risk than management, relying on personal experiences and observations that conflict with the management claims (Hauss and Rosenbrock, 1984, Hulgartner, 1985, Walters and Haines, 1988b) Walters and Haines (1988b 1194-95) suggest that these findings "highlight the disjuncture between the dominant medical-technical approach to occupational health and safety and the workers' own definitions of the situation." On the other hand, as Walters (1985 74) argued in a study of company doctors, corporate medicine may reinforce overall class relations but it can also serve the interests of labor by providing a resource for linking the individual's experiences to the environment. These are particularly significant points since they recognize the limits and the potential contradictory effects of corporate health and safety ideologies.

Overall, the research suggests a fairly complex structure of different ideologies underlying the politics of health and safety in workplaces. However, existing studies have largely identified the range of ideas and discourses by broadly surveying a number of different corporations and workplaces (e.g., Walters and Haines, 1988a, Nelkin and Brown, 1984) Few studies have looked specifically at the way in which a range of corporate ideas and discourses are combined within a given corporation's health and safety program. Similarly, little attention has been directed at assessing how a particular combination of ideas and knowledge relates to the reproduction of labor consent to risk within a given workplace. Instead, studies have looked at corporate and worker ideologies in isolation from an understanding of the specific production context in which the discourses were operating.

As well, while studies have identified the potential limitations and contradictions within corporate discourses, very few have focused on the contradictory elements of a corporate discourse and their implications for labor consent and resistance. While an emphasis on the contradictions complicates the analysis, there is considerable evidence from the labor process literature for redirecting more attention in this direction. To begin with, there is a body of research that shows that both worker and management ideologies are often characterized by contradictory views of the same working conditions and relations (Littler and Salaman, 1984, Dunk, 1991, Moomue, 1994, Nash, 1993). This literature indicates that conflicting or contradictory views do not necessarily reflect or translate into worker resistance (Buraoway, 1985).

The labor process literature also provides a theoretical framework for understanding why this might be the case. Specifically, the ideological contradictions are seen by many analysts as expressing the contradictory relationship between labor and capital. As Cressey and MacInnes (1980) argued, the objective relationship between labor and capital is defined by conflicting and common interests that force both
labor and capital to employ contradictory strategies. To accumulate capital, employers must constantly find new ways of transforming the forces of production. While this often involves the use of technical and coercive controls to extract more from workers, there is also a continuing need to gain workers' cooperation. It is within this context that management's discourses and actions can be understood as constructing varied and contradictory conceptions of workplace relations and conditions.

Similarly, this conceptualization of the labor/capital relation recognizes that workers and labor unions are also in contradictory positions, with objective interests in both challenging and supporting capitalism and its specific employers (Littler and Salaman, 1984 56). As such, workers and their unions are forced to balance and work out these contradictions through strategies that are themselves often contradictory. This further suggests that the contribution of corporate discourses and ideologies should not be measured in terms of workers' wholesale acceptance or rejection of management's specific claims, ideas, or knowledge (Walters and Haines, 1988a). As understood in the labor process literature and, in this paper, ideologies contribute to labor consent by structuring the ways in which work and employment are perceived and understood by workers (Littler and Salaman, 1984 65). Corporate ideologies, and the discourses that reflect them, set the terms and parameters of what is seen as necessary, fair, or inevitable within the production context. In effect, they operate by presenting partial definitions of events and conditions that are grounded in concrete circumstances without revealing the alternatives to the existing relations and conditions of production (Littler and Salaman, 1984 65, see also Burawoy, 1985 10-20).

Thus, this paper takes as its starting point the need to look more closely at the variety and complexity of corporate health and safety ideologies and to recognize the importance of understanding their impact within an analysis of the production setting in which they develop. The analysis begins by placing recent developments in the corporate health and safety program within an understanding of the company's transformation of its labor process. The paper then moves to demonstrate how the five ideological themes contribute to the reproduction of labor consent to risk within this context.

The Research Methods

The arguments in this paper are based on a field study of underground mining at Inco, Ltd., completed in 1987. Inco is a major multinational nickel mining company that has its largest mining and processing operations in Sudbury, Ontario, where this study was done (Clement, 1981, Swift, 1977). The main objective of the original study
was to look at the relationship between the transformation of the labor process and the development of health and safety politics Inco was selected mainly because it had recently introduced major changes in its mining methods and its health and safety program (Clement, 1981). The field work consisted of twelve months of observations, interviews and archival research. The labor process analysis and the themes identified in this paper are a product of analytical induction using interview data, field notes, and documents (Denzin, 1989). A number of themes were first identified through a qualitative analysis of open-ended interviews with initial informants (union, miners, and company officials), field notes from early observations, union documents, and a variety of company publications. Questions regarding ideologies and the labor process were then incorporated into a structured interview survey of miners randomly sampled from Inco’s mines (N=171). More intensive interviews with a sub-sample of individual case studies (N=8) were also partly designed with the themes in mind. The number and the content of the themes expressed by management were further developed and modified through an analysis of more extensive open-ended interviews with company managers, engineers and other personnel, more detailed observations in the workplace, and in labor/management committees. Additional company documents (e.g., internal safety studies and policy papers) were also added to the analysis as the research proceeded. Regression analyses were also conducted with the miner survey interview data to test for bivariate and multivariate relationships between workers’ perceptions and ideologies and their actions in health and safety (see Hall, 1989 639).

Inco and the Transformation of Hard-Rock Mining

The starting point for this analysis is to understand that Inco made major changes in its mining methods, work organization, and technologies, and that these changes altered many of the key conditions and relations underlying miner consent to hazardous conditions. By the mid-1980s, Inco had largely completed a major transformation initiated in the early 1970s. The labor process moved from a conventional mining system to a highly mechanized bulk mining and continuous process system (Clement, 1981, Swift, 1977, Inco/Local 6500, 1987, Inco Annual Reports, 1975-84) Consistent with Smith’s (1987) analysis of the Black Lung movement in the U.S. coal mining industry, the argument of this paper is that Inco’s transformation caused significant labor consent and control problems by effectively destroying the hegemonic role that craft relations had been playing within the
conventional system. Although this argument is developed more fully in another paper, the basic points are outlined below (see Hall, 1993).

In the conventional system, production miners exercised considerable autonomy in small full-cycle production areas called stopes. These miners also earned significant levels of production bonuses (Clement, 1981, 87). Accident and fatality rates and health conditions were historically very poor within this production context (Ham, 1975, Hall, 1993). However, there was very little evidence of conflict over health and safety in the conventional stopes, and most of the conflict that developed during the 1970s was in the more mechanized and bulk mining operations.

When retired miners and miners in the remaining conventional jobs at Inco were interviewed about their views of their work and health and safety, they consistently described themselves as relatively autonomous workers who largely decided how to mine their own stopes or work areas and how to make their work areas safe. Many of the recognized risks were accepted as unavoidable features of mining which they viewed as a "fair exchange" for the high wages and bonuses which they earned and the relative autonomy they enjoyed in their work. As one conventional miner stated when asked why he accepted the risks of working in a conventional operation:

I'm good at what I do. I make good money and I'm my own boss. That's what I'm paid for. It's like running your own business. You've got to work hard.

Thus, as Legendre (1987) found in his study of gold miners, responsibility for controlling the risks was seen by miners in terms of their own personal decisions and abilities. In short, they self-regulated themselves in ways that often involved consenting to significant levels of health and safety risks (Smith, 1987).

However, as miners lost the capacity to make decisions about their day to day conditions to technology and management, and as production bonuses declined, the new technologies and the power of managers and supervisors became much more visible as the sources of working conditions and as the causes of accidents and health problems. At the same time, the new production system demanded a more intensive effort on the part of management to exert more technical and direct management control. In short, Inco was faced with the task of reconstructing the ideological basis of labor consent to day to day work hazards, while at the same time, establishing more direct management control over those hazards (Hall, 1993). As such, the various aspects of the corporate health and safety discourse can be understood as reconstructing management and workers' individual and collective roles and interests within a changing labor process.
Inco's Corporate Health and Safety Program

The shift to Inco's current approach to occupational health and safety can be dated back to the early 1970s when the company first negotiated a joint health and safety committee with the miners' Labor Union (USWA Local 6500, 1969, 1972). Until this time, the company had jealously guarded its "management rights" in health and safety (union and management interviews). The company's safety ideology relied almost entirely on what Sass (1986) called the "unsafe acts" approach, which emphasized safety consciousness among workers as its main solution to the very high rates of injuries and fatalities (Clement, 1981, Swift, 1977). While joint committees were eventually legislated in Ontario's first omnibus legislation in 1978, the negotiated system at Inco was expanded in 1975 and 1985 in ways which went well beyond the legal requirements (Ontario Ministry of Labour, OHSA, 1980).

Between 1980 and 1986 the company made a number of additional changes in its health and safety program that focused more attention on health and safety administration, mine design and engineering, and management/worker relations (Inco, 1980, 1986, Strutt, 1986). A number of workplace initiatives were implemented, including a system of regular crew safety meetings, safety meetings with mine managers, worker safety interviews, monthly job observation procedures, and special issue joint management/worker problem-solving groups. Major emphasis was placed on new communication programs involving the publication of regular hazard warnings or notices and a safety newsletter. The company's safety rules and its internal safety inspection system were streamlined, with an increasing emphasis on self-regulation. At the same time, Inco also adopted an extensive program of regular safety and health audits and inspection programs, such as the Five Star Audit System (Inco, 1980, Strutt, 1986). The company's activities in occupational health were expanded beyond its previous role of medical monitoring to include environmental control and other prevention programs (Inco, 1980, 1986). Various engineering and monitoring programs were also introduced, such as the ventilation protection program and the ground control monitoring program (Strutt, 1986). Formal procedures for investigating accidents or other incidents were expanded with specific incident investigation procedures and risk analysis techniques (Bird, 1984, Inco, 1986).

The company also adopted and promoted a number of packaged management occupational health and safety programs. These were presented by Inco as providing the conceptual and theoretical frameworks for many of the specific programs implemented during this period. The key approach implemented by Inco during the 1980s was the "Total Loss Control System," which advocated a "system's
theory” and a “cost-benefit approach” to accident and disease prevention (Bird, 1984, Wright, 1981)

**The Corporate Discourse: The Main Ideological Themes**

As the description of Inco’s corporate program suggests, the management discourse on health and safety had shifted considerably by the mid-1980s Management had moved from a view of accident prevention as the promotion of safety consciousness among workers and from an approach that largely ignored occupational health entirely to a range of new concepts, ideas, and theories including worker participation, system’s analysis, risk assessment, and cost-benefit risk analysis. As the outline of the corporate program also suggests, many of the concepts, ideas, and theories were supported by a range of control technologies, specialized personnel, and new administrative structures, procedures and policies. On the other hand, the analysis of the corporate discourse also reveals that some of the “old” management ideas and concepts, with particular reference to a continued focus on individual responsibility, were still in evidence within the new program, albeit rephrased and repackaged within a new prevention language and system’s theory. This integration of the old ideologies within a new framework is consistent with arguments made in the literature that emerging health and safety ideologies, with particular reference to the emphasis on science and technology, continue to reflect many of the same assumptions underlying worker-blame discourses (Navarro, 1980, Tesh, 1990). Nevertheless, there are also many aspects of the discourse that present quite different views of risk assessment and prevention.

As such, the main question which concerns this paper remains: How did these various ideas and theories, with their different and often contradictory explanations of workplace accidents and disease, influence workers’ consent or resistance to occupational hazards? With this in mind, what follows is a comparison of five main themes, which are labelled as follows: the professional-technical theme, the individual responsibility theme, the participative team theme, the economics of risk theme, and the fatalist theme. Each theme is examined in terms of its unique contributions to labor consent. However, both the connections and the contradictions between the different themes are also identified as the analysis proceeds.

**The Professional-Technical Theme**

The first and perhaps most dominant theme in Inco’s discourse was the identification of risk assessment and prevention as engineering, medical, and management sciences (Dwyer, 1992). Within this profes-
sional-technical theme, the assessment and control of risks demanded high levels of technology, specialized technical and professional knowledge, experts, and a research program. Bureaucratic structures and procedures were also seen as necessary to ensure the systematic organization, collection and correct use of this knowledge (Brid, 1984, Inco, 1980, 1986). The limitations of these controls were defined in terms of the limits of existing knowledge and technology or in terms of the failure of individuals to use the knowledge and technology as instructed. As defined in the company's Loss Control System manual, the basic premises were that "all incidents that downgrade a business are caused by the causes of downgrading incidents can be determined and controlled." (Brid, 1984 19)

The professional-technical theme can be seen as playing roles in both concealing and rationalizing management interests and control over health and safety. To recall the argument made earlier, this was particularly important in the Inco context since the reorganization of the labor process involved an increase in both technical control and direct management control.

As other studies have suggested, the specific management claims that emerged through this professional-technical discourse often denied or understated risks, usually by claiming that "risks" were under control through technical, professional or bureaucratic means (Sass, 1986). Requests for information by workers or union representatives were often dismissed by claiming that conditions were within the safety or health limits of some "scientific standard." The way in which this limited workers' knowledge of hazards was illustrated in an interview with a mune engineer:

A All the monitoring that we've done indicates that we have no problem. We're below the TLVs [threshold limit values].

Q What about the miners?

A I don't think the workers are concerned.

Q What do you tell them about these hazards?

A Well, since we don't have any problems we haven't made any effort to promote understanding or solicit workers' concerns.

And, indeed, workers in the survey interview reported getting very little information from the company about diesel fumes. Later in this same interview, the engineer acknowledged that there had been some union and worker concerns expressed about a management decision to eliminate "scrubbers" in diesel equipment, a filtering system that workers had been previously led to believe was important to controlling diesel emissions. As he explained, these concerns "were put to rest" by demonstrating through monitoring that the air quality was
still within company and legislative standards. Thus issue had also come up in interviews with workers, and a number reported that they were still concerned but did not think they could challenge management's claim without any concrete evidence of increased diesel contaminants in the air. Moreover, as observed in a health and safety committee meeting and in a number of different areas in the mine, the union representatives had accepted management's claim and were reproducing and supporting that claim when workers tried to pursue their concerns about diesel fumes (field notes) 6.

While the role of scientific and professional discourses in concealing and mystifying environmental risks has been widely noted in the literature (e.g., Walters, 1985), the findings of this study suggest that the discourse was also directing some attention to the work environment as a major source of accidents and disease. Moreover, the discourse provided the workers, even if only partially, with a recognition of management responsibilities in controlling the hazards within that environment (Bird, 1984 152). As the company's 1986 Ontario Divisional Safety Program states, "management must establish preventive controls for all identified hazards utilizing engineering controls, work practices, training and personal protective equipment.

Line management will be held accountable for the effective implementation of the various programs" (Inco, 1986 15)

Thus recognizes that Inco's discourse was not focused entirely on concealing environmental hazards and denying management responsibilities for controlling them. In fact, the professional-technical discourse, as expressed through various assessment and control procedures, technologies, and other mechanisms, often led to the identification of hazards in the absence of any prior political pressure from the state, workers or the union. This sometimes created concerns and reactions among miners and labor conflicts for management.

However, given the labor process transformation at Inco, worker consent often depended on management's partial recognition, acknowledgement, and use of technical and administrative controls. For example, when miners perceived a constant management tendency to ignore or deny design and organizational issues in explaining accidents, they were more likely to report a greater incidence of challenges and resistance to health or safety conditions (interviews with miners).

I've had them [ventilation engineers] down here plenty of times.

It [the air] is blue and they stand there and tell me it's fine.

Another aspect of this research, a case study comparison of three Inco's mines, also provided some support for this argument (Hall, 1989 535-567). In particular, the evidence indicated that as management moved to transform the production process in these mines,
conflict over conditions intensified the most whenever management moved away from discourses and practices acknowledging environmental and technical causes. When this happened, management also relied almost exclusively on explanations that tried to blame workers in contexts where workers had very limited control. As miners realized that they were going to be blamed, they began to withdraw their consent and increasingly refused to accept the conditions. One shift supervisor described this process quite effectively when I asked him to explain a rash of unsafe work refusals at his mine:

I’ve seen scooptram [four-wheeled front end loader] leaking 45 gallons of oil a shift—the operator complains—I tell him I’ll get it fixed—the general foreman tells me no—I know they need to be maintained, an operator knows what is safe, when brakes need work, but I have to tell them no—I’m in the middle, my men can’t trust me. Something happens, the engine blows and they blame the man, tell him he wasn’t watching “closely enough” when he has been complaining for months.

The Worker Responsibility Theme

While the first theme defined control in technical, administrative, and professional terms, there was a second prominent theme that placed its emphasis on the individual worker’s personal experience, attitudes, and common sense knowledge. Although managers did not explicitly use traditional concepts like “accident proneness” (Sass and Crook, 1981), similar kinds of ideas and concepts emphasized workers’ responsibility, and “carelessness” remained as an important explanation for accidents and unhealthy conditions (Inco Accident Reports, Levack Mine, 1984-86). These ideas were presented through the formal corporate health and safety programs, often in less than subtle ways. The company’s use of safety consciousness slogans (“safety is your responsibility”) and the introduction of a safety reminder system called the “Neil George Safety System” were especially illustrative of this orientation, given their explicit grounding in a safety consciousness philosophy (Ashcroft and Taylor, 1981).

As noted, the professional and technical controls were understood and presented by management as necessary measures taken by the company to fulfill its management responsibilities in the new production system. However, in a number of interviews, the managers’ explanations for many of the remaining problems in the workplace tended to emphasize “human error,” by which they usually meant workers. As one mine manager explained when asked about the causes of mine accidents, “We need to get our workers to develop the attitude that they are the ones who can eliminate problems.” In many
respects, this reflects the managers’ underlying view that organizational and technological changes were part of an ongoing process to "engineer out" the influence of "worker error" as much as possible (manager interviews). As a senior corporate manager stated when asked about continuing problems with safety: "The training has helped. But you can only do so much training—we still have lots problems [with workers]—not doing what they are supposed to be doing. But we’ve come a long way—VRM, automation, we are gradually eliminating many of these problems."

However, miners were often told explicitly that they had more control and responsibility in the new system, which they exercised principally through the new technologies and the additional training they received. As one manager stated in a safety meeting, "We are relying on you more than ever now to get that accident rate down, if you see something it's up to you to fix it" (field notes).

Moreover, it is important to stress that aspects of the management discourse continued to privilege the value of worker experience and common sense as critical aspects of accident prevention and, in some cases, it was apparent that managers and shift supervisors, believed that the workers' knowledge and judgement were often more reliable than what was provided by the formal monitoring programs or the experts. As one shift supervisor confided in an interview, "I don’t put much faith in all these safety programs, safety talks, audits—if you want a safe mine, listen to the workers, they know."

In terms of its contribution to labor consent, the most obvious point to make is that the discourse encouraged individual workers to accept hazards and to explain accidents and disease as personal responsibility or the fault of other workers (Legendre, 1987). It achieved this largely by concealing or understating the limits of worker knowledge and control over working conditions and by largely ignoring the political and technical constraints and pressures. Certainly, some miners relied quite heavily on this kind of orientation when asked to explain their acceptance of health and safety conditions and particular accidents or events happening in the mine.

Health and safety is a state of mind . . . it's up to the individual. You are always going to have some accidents. The worker makes it safe.

It’s the workers’ themselves who neglect things. Seventy-five percent of the problem is the working man’s fault.

Yet, miners expressing this kind of general orientation were a minority. In particular, only about 15 percent of the miners interviewed in the survey relied primarily on these kinds of arguments, and most of these were the miners working in the few remaining
conventional mining areas. Overall, miners were quite conscious and critical of management efforts to blame them for poor conditions.

We have to watch out for ourselves. I remember when I got hurt on my mucking machine in '82. My shiftboss put in a compensation report that said "I wasn't paying attention." That really makes me mad cause everybody knows those machines are dangerous.

On the other hand, this does not mean that the management discourse was not significant in supporting this way of thinking about risk (Legendre, 1987). In interviews, all miners expressed these ideas to some extent. However, they also attached different degrees or elements of personal responsibility and control to specific conditions or jobs (Legendre, 1987; Walters and Haines, 1988b). Individual responsibility and worker blame would sometimes form the main argument behind a worker's explanation for one response, situation or event. For another, it would be only part of the explanation, and in another situation it would be entirely absent. For example, consider the case of a driller interviewed in this study who, when asked about any efforts to improve ventilation in his work, stated:

No, I never complain [about dust]. I figure it's up to me to do something.

For him, this meant in quite concrete terms that he could water down the ore or "muck," adjust his drill and set up his ventilation fan. It was something he thought he controlled through his own actions. On the other hand, he acknowledged that he often did not carry out these actions, sometimes because of production pressures and bonus considerations, and sometimes because he "just wanted to get the job done." The key point in terms of his consent to these conditions is that he still viewed the risk as something he was choosing to control or ignore as the situation demanded. Yet, when it came to his exposure to diesel fumes, he had a different view and response:

If I'm concerned about diesel fumes I fill in a report or talk to my shiftboss and ask for somebody from ventilation [engineering].

As was common among miners, he made an important distinction between the two conditions. This reflected a different understanding about how control was exercised and who exercised control over dust and diesel fumes. Moreover, this distinction was also evident in the corporate discourse that recognized that workers generally had less control over diesel fumes. However, while these views partly reflected his objective workplace relations, he also had very little direct control over dust levels. Certainly, there were more things he could do to control dust within his job, but dust exposures were also largely a
function of overall mine activities and the ventilation system (Ham, 1976). And, as he noted himself, he was often pressured to work without taking precautions.

These findings point to a key argument concerning the connection between the themes of professional-technical responsibility and individual responsibility. Specifically, the two discourses were not just presenting two distinct ways of looking at the causes and prevention of accidents. They were also defining in fairly concrete terms the limits and areas of responsibility for workers within the production system. At the same time, the boundaries of worker responsibility and control were being defined in relation to the responsibilities of engineers, technicians, managers, and management systems. In fact, the management presentation of these two themes often presented them together in a highly integrated fashion. For example, the systems theory underlying Inco's loss control system approach explicitly defined and located workers' responsibilities within a system of technical and administrative controls (Bird, 1984, 15-19).

Thus, the discourse on the individual workers' responsibility was not just about blaming workers. It also made its contribution to consent by helping to reconstruct the workers' understanding and explanations of their personal areas of responsibility and control, and the areas of control and responsibility exercised by others and through other means. Moreover, these meanings were constructed and attached to particular contexts. They were not just general orientations guiding workers to accept responsibility for all aspects of the work context.

The Participative Team Theme

The social construction of worker and management control was further developed within another major theme in the corporate discourse, the participative team theme. Here, control was defined in common and collectivist terms rather than in individualist terms, using concepts such as teamwork, participative decision-making and cooperation. For example, at an annual meeting of the Ontario Mine Accident Prevention Association, an Inco manager explained his mine's improved safety record almost entirely as a product of their "team approach" (Strutt, 1986, 6). The participative theme was premised on the argument that the modern mine, with its high level of technology and the scale and speed of the bulk-mining production process, required a coordinated team effort. Within this discourse, knowledge and control were understood as being necessarily diffused and distributed through various levels of management and among different miners within the mine (Bird, 1984, 151). The workers' conception of personal control was also constructed as being exercised.
through various participative mechanisms which, in practice, meant consulting with others. In effect, workers were encouraged to understand that collective knowledge and action were a key means of controlling the risks in the modern mine (Strutt, 1986).

Like the professional-technical discourse, this orientation shifted a certain amount of control and knowledge from the individual worker to the "team." This served to both obscure and rationalize management control and interests by casting management as only one small part of a structure in which power and control was necessarily and evenly distributed throughout the organization (workers, supervisors, engineers, managers). The team discourse also encouraged miners to accept a more partial and limited range of knowledge and control, with the reassurance that what they may have lost in terms of personal control, they regained within the context of the team.

The participative discourse also explicitly presented workers' interests in ways that were coordinated with those of the corporation. For example, workers were told that health and safety issues "were not like wages," where there was a recognized conflict of interest (e.g., see Ashcroft and Taylor, 1981). Thus, the theme also provided an important connection between the individual worker and management responsibility by recasting aspects of control over risk and risk-taking as matters of common collective interests.

As in the case of the other themes, the extent to which this theme helped Inco to reproduce consent depended substantially on the workers' experience of "teamwork" as providing at least some influence or control over conditions. Certainly, some workers expressed quite positive views of the participative mechanisms.

OSHE [the Joint Union/Management Mine OHS Committees] are doing a good job. The company is quite safety conscious now—having the committee really helps them, it's had quite an impact.

However, the overall evidence suggests that most miners were less than impressed, with significant numbers reporting negative views and experiences for group participation programs and union/management joint committees.

Our OSHE [joint health and safety mine committee representatives] and the new worker inspectors are just other company men—doing a very poor job. They are very careful who they pick—the union and the company don't want people who will rock the boat.

I've complained a couple of times at safety groups and to OSHE, it all has had little or no effect. Once I eventually got what I
wanted but it wasn't because of OSHE—you have to pound at them every day or it [your complaint] gets lost

I complained about bad fumes a couple of months back [when in a safety group meeting] for 3400 level Nothing happened

While the overall impact of the participative theme on labor consent was less than clear-cut, there was evidence from the survey interviews that access to participative mechanisms were especially significant for those miners who perceived their personal control as limited. For these miners, and they were the miners more likely to be working in the newer kinds of production jobs, their assessment of the participative mechanisms were strongly correlated with their belief that the serious risks in mining were under effective control (e.g., ground conditions, \( r=0.41\), \( p<0.01 \)). It was in this kind of context that miners would tend to express the view that the group programs were leading to a changed management commitment to health and safety

Inco's attitudes towards its workers and health and safety has improved. With all the committees we have, the interaction has improved things.

On the other hand, in the case of miners who perceived themselves as having a high degree of control and autonomy, their assessments of participation mechanisms were not related to their perceptions of risk (e.g., ground conditions, \( r=0.06\), \( p>0.05 \)). As well, case study comparisons of different mines suggested that the workers' concerns about health or safety were much greater in those mines where participative mechanisms had broken down (see Hall, 1989 533).

This evidence also suggests that the theme contributed to the way in which workers understood risk within a context of the labor process changes. In particular, the participative team theme provides an important connection between the individual worker and management by recasting aspects of control over risk and risk-taking as matters of collective control and common interests within the new labor process (Burawoy, 1985).

**The Economics of Risk Theme**

In contrast to the other themes that largely denied or ignored a conflict between production and health and safety goals, a fourth theme explicitly defined risk assessment and control in terms of economic constraints. Within this theme, cost and productivity considerations were emphasized as having a necessary and continuous influence on the type and level of risks that both managers and miners must accept. As such, controlling and taking risks were understood as the unavoidable and rational balancing of the costs and bene-
fits of controlling risks at certain levels (Bird, 1984:26). As one Inco mine manager stated:

"My job is to try and get the best profit from this mine but I also have to maintain safety. My biggest problem given the company's situation is to get the dollars. If I want to argue for some new equipment or other improvements, I have to make an argument on payback [and] it all has to be costed out.

Workers and managers were also constructed as having common interests in making these compromises (Inco, 1980:10).

As other analysts have noted, the cost-benefit approach partly obscures class interests by presenting management decision-making as a technical-rational process that provides the "best possible" solution given existing economic and technical conditions (Sass, 1986). Although grounded in the general idea that "everything comes down to dollars," the discourse is based more substantially in the social construction of certain specific "economic realities." Within the Inco context, the economic realities emphasized by management were unstable metal markets and increasing global competition. The day to day management discourse constantly linked these realities to health and safety. As one shift supervisor observed in explaining what he viewed as a new relationship with his workers:

"We all know that there are some bad conditions down here but my men understand—I don't have the men and the company doesn't have the money to do things the way we used to—it's as simple as that.

However, this emphasis on cost reductions and productivity also meant that workers and the union were clearly and repeatedly told that economic necessity demanded specific compromises and concessions to maintain profitability and employment. As reported by workers, and as observed many times, concessions were demanded in very direct terms, often with little substantiation in terms of any formal "cost-benefit analysis." Workers were simply told, "We have to do it this way because there's no money or equipment" or, "If we don't produce at this cost, the mine will close" (field notes).

Thus, corporate responsibility for accidents was externalized or more appropriately rationalized through this discourse (Sass, 1986). Risk-taking and high risk work environments were understood as conditions determined and imposed by the impersonal discipline of the globalizing market, rather than by a greedy corporate management seeking higher profits and incomes (Burawoy, 1985). Within this logic, there was no one to be blamed. If workers wanted to keep their jobs, they needed to compromise and cooperate with management in achieving production and efficiency goals. As one miner explained:
I learned after awhile not to bother asking him [supervisor] for some things because all he tells you is that they can’t afford it you just had to recognize that you work with what you had

Although there were connections between all the health and safety discourses and general workplace discourses, the economics of risk discourse most clearly reflected and supported a much broader discourse on the nature of global capitalist economies and the requirements and characteristics of those economies (Drache and Gertler, 1991) The specific aspects of the corporate health and safety discourse constructed and linked these realities to the need to accept and take certain kinds and levels of risk in the production process

The Fatalism Theme: Mining as Dangerous

The fifth and final theme in the discourse was the acceptance and explanation of hazards, injuries and disease as fate and/or as a matter of luck (Legendre, 1987) This theme was partly grounded in the general idea that no matter what you did, who you were, or where you worked, accidents would “happen” Within this context, unforeseen consequences and luck or fate were understood as acceptable explanations of an accident or health problem As one shift supervisor put it

You’re only as safe as you make it but you know honestly, there’s only so much you can do—if you’re out there, something is going to happen.

A second aspect of the fatalism theme was the specific social construction of mining jobs and the mine environment as inherently “dangerous” (Fitzpatrick, 1980) This idea was expressed most clearly whenever managers were asked to explain the high rate of accidents and health problems in mining relative to other industries

This is a mine Accidents are going to happen underground, that’s all there is to it (manager interviews)

Managers also made frequent use of this argument in explaining particular types of accidents or events that had persisted despite “all the company’s efforts to prevent them” (field notes) For example, Inco experienced a high rate of “uncontrolled” rock falls in the early 1980s as it expanded its use of VRM methods (Ames, 1987, Burkett, 1986) Although managers used the various elements of the professional-technical discourse to insist that these problems would be controlled through research, new technologies, and improved engineering design (Inco, 1980), managers simultaneously constructed many of these events as reflecting the long-standing “hazards of
mining." For example, I observed an exchange in a lunchroom between a manager and group of workers discussing a recent ground fall accident. One worker eventually said, "To me, we're getting too many of these things [rockbursts], I think it's VRM that's doing it." The manager's response ended the conversation "You don't know that—there's always been rock movement in the mines—you just never know" (field notes).

In many respects the implications for consent were quite straightforward since responsibility for accepting risks within this theme was largely placed on the workers, as in the statement expressed by a union health and safety committee person:

You put on the hard-hat, you accept the [high] risks that go along with that. Somebody has to do the job.

Since the fatalist discourse often involved the concealment or denial of important points of information or knowledge about specific conditions or events, the effect was not so much to conceal risks or accidents, but rather to conceal an understanding of the origins of those risks and alternative means of control (Legendre, 1987). However, it is important to note that the persistence of fatalism within the management discourse was often contradicting the company's claims that its new approaches to mining and health and safety were effective in controlling and reducing risk.

The Implications for Labor Resistance

While the emphasis of this paper has been on workers' acceptance of hazards, a few comments are warranted about the persistence and role of counter-ideologies and worker resistance in shaping the politics and ideologies of health and safety at Inco (Smith, 1987). To begin with, labor conflict and resistance around health and safety conditions did not simply disappear with the company's introduction of its new health and safety program (Walters, 1985). Indeed, in some mines there were major labor disputes over ground conditions, dust and diesel fumes throughout the 1980s. There were also certain periods where conflict intensified quite significantly throughout all the mines, as occurred in 1987 (see Hall, 1989).

Much of this conflict can be partly explained by the inconsistencies in day to day management practices that often contradicted the ideas and claims being made through the formal corporate health and safety program. Faced with major corporate demands for increased production and reduced costs, mine managers and supervisors often ignored many of the procedures, standards, and rules that were supposedly central to the accident and disease prevention programs. When accidents increasingly occurred or workers complained, the managers...
relied almost entirely on discourses that blamed or threatened workers. It was often within this context that workers and the union activists would use the concepts, theories and language of the corporate health and safety discourse as a means of opposing management's actions in these situations (Walters, 1985). In this respect, the corporate discourse imposed certain obligations on managers and set up certain expectations for workers and union activists, which played an important role both in the development of labor-management conflict and in providing workers with a means of extracting concessions from management.

It is also important to recognize that there were persistent counter-ideologies evident among workers, health and safety activists, and labor unions that played a continuing role in production politics and shaped the management discourse in important ways (Smith, 1987). For example, Inco's emphasis on participative decision-making in health and safety must be seen in light of continuing demands from mining health and safety activists for more worker control over the labor process (USWA Local 6500, 1975, 1980).

On the other hand, workplace conflicts at Inco did not tend to center around well-developed counter-ideologies such as the demand for increased worker control over the labor process. Most revolved around a conflict in the interpretation of particular conditions, specific situations, or events, largely relying on the language, concepts and knowledge encompassed by the five basic ideological themes. As noted, workers and the union were often able to use the corporate ideas, theories and knowledge to challenge management, often forcing concessions. Yet, this also suggests that management was able to use its discourse and ideologies to structure and confine most of the conflict and resistance to certain parameters, so that workers and the union rarely challenged management authority or the basic organization of power and control within the labor process. Thus, most conflicts were largely accommodated within or mediated through the ideological framework as outlined above (Figlio, 1982, Walters and Haines, 1988a). The major reductions in mining jobs, the significant levels of deskilling, the weak regulative enforcement of the Ontario Health and Safety Act and the high levels of unemployment in Canada, more generally, have much to do with the lack of worker and union challenges in health and safety (Sass, 1989). However, the role of the corporate discourse in moderating the day to day conflicts cannot be underestimated, since it was through this process that management was able to partially conceal the loss of control and explain that which remained visible as necessary or fair.
Conclusion

This analysis suggests that the five themes reproduced worker consent to hazards by addressing different aspects and levels of production and employment relations. Each theme contributed in its own way and in combination with other themes to the reproduction of labor consent. Thus, despite the fact that the themes often represented somewhat conflicting views of risk, the analysis showed that they were also connected and used in various combinations to build worker consent to different kinds of risks and situations.

What is identified as particularly key about the discourse as a whole is that it serves to define, in both specific and general terms, the various relationships between workers, management, engineers and technology, while also linking these definitions to an understanding of the work, organizational, and economic contexts more generally. Two specific outcomes were identified. First, the five themes operated together to construct the boundaries of responsibility and control over risk assigned to the various actors within the specific workplace and the larger economic context (i.e., the worker, the work team, the engineer, the manager, the government, company, and union inspectors). Second, they then defined the relations between the actors in terms of their interests in both health and safety and the employment relationship, again by constructing and placing those relations within a broader production and economic context (i.e., the interests of workers and managers in assessing, controlling, and taking risks within the modern mine and modern global economy).

Overall, worker consent was largely achieved in the Inco context by constructing risk and risk prevention in ways that partly reflected and partly concealed the substantive impacts of the labor process transformation on working conditions and relations. As I’ve tried to show, this process was not without labor conflict and resistance. However, the evidence also suggests that the discourse was quite effective in moderating and mediating that conflict. As these last points suggest, the analysis also supports the argument that the ideological contributions of corporate discourses on health and safety are best understood by recognizing that they develop within a broader context of transforming production relations (Burawoy, 1985).

Notes

1. Labor consent to hazards is understood in this paper as the worker’s acceptance of conditions as legitimate features of the employment and production relationship (Littler and Salaman, 1984 57).

2. The concept of corporate discourse as used here refers to a structured set of oral and written statements, expressions, or articulations made by the company and/or indi-
vidual representatives of the company. The terms corporate or management discourse are used interchangeably.

3 Inco was also approached because the author had worked for the company during the 1970s as a miner and was familiar with its operations and mining methods.

4 Conflict was measured here in terms of production slowdowns, illegal work stoppages, legal unsafe work refusals under the Ontario Occupational Health and Safety Act, formal grievances, and complaints to health and safety committees (see Hall, 1993).

5 Although Inco had moved most of its mining operations to VRM mining, there were older mine areas that had high grade nickel ore or other metals such as gold or platinum that made conventional mining profitable for the company. As such, it did continue using these mining methods on a small scale throughout the 1980s.

6. It is worth noting that labor union health and safety representatives were themselves professionalized and immersed in an ongoing process of technically-oriented training, planning and audit activities (Inco, 1980; Strutt, 1986).

7. Miners were asked to rate their concerns for ground conditions on a five point Likert scale. The other variable was measured by two questions asking miners to rate the performance of the health and safety committees and the union health and safety representatives.

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