Organizational Trust and the Limits of Management-Based Regulation

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This article examines the relationship between management-based regulation and occupational health and safety through two case studies. The first describes how corporate occupational health and safety systems and standards were interpreted and implemented differently at different mine sites within the same company and examines the particular role of trust between workers and management in explaining variations in occupational health and safety performance. The second explores the difficulties of moving from a highly devolved system of responsibility to a more centralized approach, and the incapacity of externally mandated management-based regulation to change behavior at site level in the absence of a supportive workplace culture. The article argues that notwithstanding the heavy emphasis currently being placed on both internal (company-driven) and external (government-driven) management-based regulation, a commitment at corporate level does not necessarily percolate down to individual facilities where ritualistic responses or resistant subcultures may thwart effective change. The findings have important implications for the effectiveness of management-based regulation and meta-regulation more broadly.

For more than a decade, private enterprise and governments in North America, Western Europe, and Australasia have been experimenting with an innovative approach to standard-setting variously termed *process-based*, *systems-based*, or *management-based* regulation (Coglianese & Lazar 2003; Gunningham & Johnstone 1999: Ch. 2). In contrast to traditional prescriptive standards (which tell duty holders precisely what measures to take) or performance standards (which specify outcomes or the desired level of performance), this approach involves firms developing their own process and management system standards, and developing internal planning and management practices designed to achieve regulatory or corporate goals. Such standards, whether they are

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imposed by the firm on its various operations (internal regulation), or by governments on firms or industry associations on their members (external regulation), have the considerable attractions of providing flexibility to enterprises to devise their own least-cost solutions to social challenges, of facilitating their going beyond compliance with minimum legal standards, and of being applicable to a broad range of circumstances and to heterogeneous enterprises. For present purposes, such initiatives are termed *management-based regulation*.

In part, this new approach was made possible by the development of management tools designed to assist firms to focus on systemic problems rather than individual deficiencies. Such tools involve the assessment and control of risks and the creation of an in-built system of maintenance and review. As such management tools have been formalized (for example, through the International Organization for Standardization's ISO 14001 environmental management systems standard), many companies have seen this as an opportunity to ensure higher consistency across the organization and higher standards within their various operations. Regulators too (and a small number of industry associations) have seen an opportunity to harness such standards in the development of a new form of regulation: requiring regulated entities to achieve public goals through planning, systems of work, or other process-based management techniques rather than through remedying individual deficiencies or by achieving particular outcomes. Management-based regulation is now to be found in a diversity of policy domains including environment protection, food safety, occupational health and safety (OHS), rail regulation, sustainable forestry, toxic chemical reduction, and trades practices (Coglianese & Lazar 2003; Coglianese & Nash 2006).

Taken one step further, management-based regulation can become a form of "meta-regulation" or "meta–risk management" in which government (or corporations seeking to regulate their multiple facilities), rather than regulating directly, can risk-manage the risk management of individual enterprises or facilities. Under such an approach, the role of regulation ceases to be primarily about inspectors or auditors checking compliance with rules and becomes more about encouraging the industry or facility to put in place processes and management systems that are then scrutinized by regulators or corporate auditors. Rather than regulating prescriptively, meta-regulation seeks to stimulate modes of self-organization within the firm in such a way as to encourage internal self-critical reflection about its performance (Parker 2002).

From the above it will be apparent that management-based regulation (and meta-regulation) can take a variety of forms. Following Coglianese and Nash (2006:14), these can be classified in

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terms of: (1) government initiatives where management-based strategies are either mandated (as with the Hazard Analysis Critical Control Points food safety certification program) or encouraged (as with regulatory flexibility and negotiated agreements), and (2) nongovernmental approaches, which are either mandated (as in the chemical industry's Responsible Care program, or when an enterprise requires its various operations/sites to adhere to this approach) or encouraged (when individual operations within the enterprise are left some discretion as to how to achieve corporate goals). The evidence suggests that mandatory management-based regulation "appears to have the clearest and strongest effects" (Coglianese & Nash 2006:251). However, given the paucity of empirical evidence, studies of both mandatory and discretionary forms must be referred to for the purpose of mapping out what is known about the general area.

So how effective are management-based and meta-regulation? Are government regulators or corporate decision makers wise to put so many of their eggs into this basket? To the extent that this form of regulation falls short of expectations, is this inevitable or can its shortcomings be overcome? And what is the relationship between management-based regulation and organizational trust? Is it the case, as some have claimed, that "culture eats systems for breakfast"? These and related questions are addressed below.

The article proceeds as follows. The second section summarizes what is known about how management-based regulation works in practice and the obstacles to its effective implementation. In particular it describes the potential for an absence of organizational trust to thwart even the most sophisticated forms of management-based regulation. The empirical contribution of the article is contained in the third section, which describes two case studies of management-based regulation in practice, within two separate multisite Australian mining enterprises. The fourth section discusses the implications of the findings and suggests that the degree of trust between workers and management (and sometimes between other groups) may have a particularly powerful impact on the outcomes of such regulation and that particular workplace subcultures play a critical role in supporting or undermining management-based regulation. The final section concludes.

Management-Based Regulation: What the Literature Tells Us

At their best, management-based initiatives have the capacity to influence the internal self-regulation and norms of organizations and make them more responsive (rather than merely reactive) to social concerns. In theory, they will encourage enterprises to "build

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in'' regulatory considerations at every stage of the production process, to improve their social performance, and to achieve behavioral change (Coglianese & Nash 2006:250; Bennear 2006).

However, to what extent these theoretical benefits will be realized in practice is a matter for empirical inquiry. Early evaluations have relied primarily on surveys of a wide range of secondary sources and tend to be cautiously positive (Bluff 2003; Coglianese & Lazar 2003:724). Others have used small qualitative studies to examine the impact of management-based regulation developed by industry associations, such as the chemical industry's Responsible Care program, finding at best mixed results (Howard et al. 1999). There have also been a small number of large *N* studies primarily examining the impact of environmental management systems on environmental outcomes (Bennear 2007; Andrews et al. 2003; Andrews et al. 2006; Potoski & Prakash 2005). While some of these studies have found a positive relationship between the introduction of management systems and environmental outcomes, others have not (Tyteca et al. 2002; Hertin et al. 2008). Small wonder that an edited collection concerned to understand how management-based initiatives have worked to date acknowledges that ''we know little about the conditions in which [management-based initiatives] work'' (Coglianese & Nash 2006:20).

There could be a variety of reasons for these mixed results, including the possibility that some companies have adopted such systems (which in environmental protection are usually voluntary) for cosmetic reasons—e.g., to maintain public legitimacy—rather than to improve performance. If so, then the principal problem is not with the system itself, but with the motivations of those who adopt it. Indeed it may be that management systems, like other process-based tools, are just that—tools—and can only be effective when implemented with genuine commitment on the part of management and with ownership on the part of the workforce. This is broadly the conclusion of recent work in the area of environmental regulation. For example, Gunningham and colleagues have found that management style and motivation are more important in shaping environmental performance than the system itself, although they do not explore in any detail why a particular management style emerges in a particular corporation (Gunningham et al. 2003: Ch. 5). Nevertheless, this and a number of studies in the broader management literature (Sharma & Vredenburg 1998; Sharma 2000; Egri & Herman 2000), suggest that *management* matters far more than management systems or management-based strategies more broadly.

And even where positive management motivation is present, it may be that lack of workforce commitment/ownership still thwarts management intentions. Quite how workers might best be persuaded to comply with corporate edicts has been a matter of

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intense debate spanning literatures across the social sciences. Many of these literatures borrow concepts that were developed in broader explorations of legal compliance. Thus psychologist Tom Tyler's seminal work concerning why people obey the law has been expanded to take account of the related question of how corporations shape the behavior of their employees. In both areas, Tyler argues that "people are more likely to obey rules if those rules accord with two important values: legitimacy and morality," and that both these values relate closely to procedural fairness (Tyler 2008:804). Further, he finds compliance is more likely when people perceive the *process* by which such rules are made and applied as being (amongst other things) fair and honest, if they are treated with dignity and respect, and if they have the opportunity to participate (Tyler 1990; Tyler & Lind 1992). Note that where such values are present, rule compliance is likely to be voluntary because people feel a moral obligation to comply. The best way to motivate rule compliance then, is by nurturing legitimacy and morality.

This approach can be juxtaposed to the traditional rational choice deterrence model, which rests on the notion that people are "amoral calculators" whose behavior can be best shaped by the fear of imminent legal penalties that exceed the cost of compliance. Threat and punishment are asserted to be the best way of deterring people from engaging in criminal behavior (Kahan 1999). Translated to an organizational context, this model—commonly referred to as "hierarchical" or "command and control"—assumes that employees, as rational actors, will behave instrumentally, weighing costs and benefits before deciding whether to adhere to company policies and rules. Accordingly the organization must ensure that the latter outweighs the former, which it will strive to do via such techniques as surveillance, auditing, and other performance tracking mechanisms, coupled with incentives and sanctions. Because employees will only comply for extrinsic reasons, there is no possibility (in contrast to a values-based approach) of relying upon intrinsic motivations and self-regulation (Malloy 2003; Tyler 2008:856).

But both Tyler's approach and rational choice analyses are located at the level of the individual, with a focus on mechanisms that might influence individual persons to obey rules, regulations, or corporate edicts. Yet much behavior is group behavior, and in the context of the corporation, it is arguably more fruitful to explore compliance with rules (whether corporate- or state-based) at the collective rather than at the individual level. In this context, one factor that can have a particularly powerful impact on group behavior in general and on rule compliance in particular is organizational culture (defined as "the way we do things around here," or in more formal terms, as involving "shared values (what is important) and beliefs (how things work) that interact with an

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organization's structures and control systems to produce behavioural norms" (Uttal 1983, cited in Reason 1997:192). G. Morgan, for example, argues not only that organizations must be understood as cultural phenomena, but also that we "must root our understanding of organization in the processes that produce systems of shared meaning" (G. Morgan 1986:131).

But in large complex organizations with multiple facilities, such shared meaning cannot be taken for granted, even where senior management wishes to cultivate it. If indeed organizations are "in essence socially constructed realities that rest as much in the heads and minds of their members as they do in concrete sets of rules and relations" (G. Morgan 1986:131) then scholars may need to know much more about how those social constructions evolve and what their consequences may be. It may be for example, that attitudes of workers to rules and corporate edicts are rooted in a past history of industrial relations conflict and create a counterculture, or that an organization, far from being made up of a single homogeneous culture, comprises a number of interdependent subcultures based on such factors as professional affiliation, geographical location, and position in the management hierarchy (Sinclair 1991). How these various subcultures interpret rules, their levels of compliance, and thus the extent of the gap between "the rules in books and the rules in action" may vary substantially.

Management-based regulation does not ignore the challenges of engaging with group behavior. Indeed, its proponents assert that the capacity to achieve cultural change is one of its attributes (Welford 1997). But whether, to what extent, or in what circumstances this is the case remains a matter of conjecture. Certainly, changing cultures is no easy matter, and it may well be far more difficult for senior management to manipulate than many organizational theorists assume (G. Morgan 1986:139). Yet without cultural commitment on the part of those who are expected to implement the system, edicts from regulators or (in the case of internal regulation) from senior management may be met with creative compliance (McBarnet & Whelan 1999), resistance, "ritualism" (Merton 1968; J. Braithwaite 2008:140–56), or various other forms of tokenism.

One aspect of culture that is often of great significance, particularly in areas of social regulation such as environment or OHS, is trust. According to the literature, for example, effective worker participation is crucial to improved OHS, but such participation is unlikely to be effective in the absence of constructive dialogue between the two sides of industry (Gallagher 1997:6.1; Hale & Hovden 1998:147–8). And that constructive dialogue, in turn, is unlikely to take place in the absence of trust. Indeed, trust is often referred to as the lubricant for open and frequent safety com-

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munication (Reason 1997) and as enhancing cooperation (R. Morgan & Hunt 1994), promoting the acceptance of decisions (Tyler 2003), improving knowledge-sharing (Dirks & Ferrin 2002), supporting all aspects of organizational functioning (Bijlsma-Frankema & Koopman 2003), and resulting in enhanced safety performance (Barling & Hutchinson 2000:77).

In practice the lack of trust may be a (and sometimes the) key impediment to improved OHS. This is particularly the case where the regulated entity has considerable discretion in how it discharges its regulatory obligations. It is one thing to impose a prescriptive standard requiring, for example, guardrails to be of a specified height, and this can be readily measured and policed irrespective of whether the regulated entity is trustworthy or not. It is quite another to police elements of a safety management system that can legitimately be subject to multiple interpretations and necessarily involves considerable discretion in its implementation.

Thus trust can become a central issue for social regulation in areas such as OHS. Unfortunately, notwithstanding the crucial importance of this issue to improving OHS performance, "[t]he exact nature of trust and its role in shaping organizational safety is poorly understood" (Conchie et al. 2006:1097), and "the formation of trust within workplace relationships is complex and elusive" (Zeffane & Connell 2003:4).

For present purposes (and in the absence of any widely accepted definition) we define "trust" in terms of four interconnected elements that have proved particularly valuable in organizational and interorganizational contexts. First, there is good faith commitment, or more specifically "an expectancy held by an individual or group that the word, promise, verbal or written statement of another individual or group can be relied upon" (Rotter 1967:651). Second, a person or organization is "honest in whatever negotiations preceded such [good faith] commitments" (Cummings & Bromiley 1996:302). Third is the concept of vulnerability, or more precisely "a willingness to accept vulnerability based upon having positive expectations about other people's intentions and behaviours in situations which are interdependent and/or risky" (Clegg et al. 2002:409). Finally—returning to the themes of values and procedural fairness—international research has found that "people who feel they have been treated fairly will be more likely to trust that organization and be more inclined to accept its decisions and follow its directions" (Murphy 2004:199; Tyler 2003).

The above literatures raise issues that go to the heart of these questions: To what extent can management-based regulation achieve business or regulatory goals? Are policy makers, trade associations, and individual corporations mistaken in their belief that those who are encouraged or required to develop and implement

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plans, systems, and other management-based strategies will as a result improve their performance? Is reliance on monitoring, measuring, accountability, and extrinsic motivation misplaced? Might it be that management commitment or culture (or specific culture-related issues such as trust) are far more important than management-based initiatives in and of themselves? Going further, it may be that management commitment and/or culture must itself be broken down and researched at different levels. Management commitment, for example, might exist at the corporate management level but not at the level of the corporation's individual facilities. And the related issue of culture (and subculture) too is something that might best be understood at individual sites, again with the possibility that different facilities, or even different groups within them, have different subcultures and that overcoming cultural differences (or particular issues such as mistrust that is prevalent in certain subcultures) is far more important than simply imposing a unitary management-based strategy at facility level.

Of those limited evaluations of management-based regulation that have taken place, none has focused on two closely related and potentially critical aspects of their implementation:

1. the gap between the intentions of enterprises or regulators to achieve social goals through management-based initiatives, and their implementation at site level (and, as a corollary, the gap between [management-based] regulation in theory and in practice); and
2. the extent to which management-based initiatives successfully engage with or overcome particular cultural impediments such as mistrust, especially at site level.

These implementation issues are crucially important because management-based regulation (whether internal or external) is designed for large rather than small organizations, and most large organizations operate at a number of different sites, often in different jurisdictions. While those who study management-based initiatives would claim to be going "inside the black box" of the corporation, they have so far only done so to a limited extent, and they have rarely recognized that management-based initiatives must gain the commitment not only of corporate management, but also of a firm's often far-flung facilities.

This article's overarching thesis is that the efficacy of management-based regulation may be undermined by the absence of organizational trust, and that without identifying and addressing the underlying workplace characteristics that give rise to this mistrust, companies are likely to confront a substantial gap between the theory and practice of such internal regulation. In order to test this thesis, we take one area of public policy where management-

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based regulation has been heavily relied upon, in terms of both external and internal regulation—mining OHS—and examines the reasons for what appears to be substantial and widespread implementation failure in two mining company case studies. It examines this failure at two related levels: in terms of a "disconnect" between corporate management initiatives and site-level behavior, and in terms of the failure of those initiatives to engage successfully with issues of trust and mistrust, worker and management commitment, divided loyalties, and related issues at site level.

There are of course limits to a case study approach and dangers in seeking to generalize from specific cases drawn from particular contexts. But such studies may provide substantial insights and address questions that quantitative studies are ill-equipped to answer. In any event, at the present time there are no large *N* studies addressing the two questions that are the central concerns of this article. Accordingly, there is considerable virtue in conducting individual case studies and studies of a small number of firms or facilities. Both can provide in-depth qualitative analysis of firm or facility-level behavior, of corporate and managerial motivations, and of the connection between motivations and management-based strategies. There may be particular value in studying behavior at different facilities within the same company, as this approach enables one to hold constant a number of variables (as where the company seeks to impose the same form of management-based regulation on all its facilities) while enabling variation in others (such as differences in levels of trust at site level) to form the focus of study. The following sections report the results of one such study.

Mine Safety in Australia: Management-Based Regulation and Its Consequences

Mining is one of Australia's most dangerous industries, with a fatality rate more than twice the national average (Australian Safety and Compensation Council 2005), albeit substantially lower than that of comparable countries such as the United States (Ural & Dermirkol 2008). Mining faces many OHS problems. Both high consequence/low frequency events (explosions, water incursion) and low consequence/high frequency events (slips, strains, and falls) contribute to the industry's high rate of injuries and fatalities.

Although the mining industry confronts a number of serious OHS challenges, since the 1990s, statistics (including fatality statistics that are unlikely to be vulnerable to manipulation) suggest that the Australian mining sector has achieved substantial improvements in safety (Galvin 2005). This has coincided with

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an increased corporate focus on management-based initiatives as the central means of improving OHS, with a heavy emphasis on sophisticated systems, auditing, and other process-based mechanisms. Indeed, such systems are now a regulatory requirement in two of the three Australian mining jurisdictions (Gunningham 2007: Ch. 2).

Senior management in many of the largest companies now regards excellent OHS performance as a priority, for which, in managerial jargon, there is a compelling "business case" (HSE 2005). Mining injuries can cause serious disruption of the production process, escalate already punitively high workers compensation costs, increase staff absences, increase reputation risk, and threaten the company's social license to operate. Those with poor reputations may be refused access to new mining areas and made subject to increasingly intrusive and costly environmental controls on their operations.

In the following sections we consider the experiences of two mining companies that, for various reasons, have relied substantially upon management-based regulation to achieve improvements in their OHS performance or to meet regulatory requirements. Before doing so, however, we describe our methodology.

The research was conducted with the full cooperation of the companies in question. Consistent with the norms of social science research and of our ethics clearance, we do not identify the companies or any of the individuals who participated in the research. The 13 mines we studied included both open cut and underground, although the latter were the dominant grouping. Mine sites were selected in consultation with the participating companies, with the intention of including both leading and laggard mine sites to provide a broad range of experiences. Each mine site visit occurred over a two-day period in which a representative sample of both staff and workers participated in semi-structured interviews (151 in total). A typical sample of 12 interviewees from each mine included the general or operation manager, mine manager, shift or process supervisors, under-manager, safety officer, engineering (mechanical and/or electrical) managers, crew leaders (deputy under-managers, team supervisors), mine workers (the "crew," including local check inspectors/site safety representatives), and tradespeople. In most cases, the balance of managers to employees was split approximately evenly.

Each interview was conducted in private, with interviewees informed in advance that all material arising out of the interviews would be treated confidentially and used anonymously in any subsequent publications. In addition to the mine site interviewees, 12 representatives from corporate management, including chief executives, safety managers, and operational managers, were interviewed.

Questions took the form of a series of prompts, with only those questions that elicited a substantive response being explored in

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greater detail. This approach ensured that a diversity of perspectives was explored and that respondents were not constrained to address only particular preconceived issues. Qualitative material generated by the interviews was supplemented by reviews of both the domestic and international literature, including the organizational trust and culture, mine safety, and OHS and broader regulatory literatures. The two mining companies involved in the project also provided internal policy background and safety statistical information and audit data (on a confidential basis).

Minerals Inc: Corporate Interventionists

Minerals Inc is a multinational mining company that has grown substantially over the last 15 years, largely by acquiring existing mine sites. The company prides itself on its "lean" corporate management structure and devolves much decisionmaking to the mine sites. However, approximately seven years ago, in the face of disappointing OHS outcomes, corporate management put in place an ambitious OHS management strategy, the cornerstone of which is a comprehensive set of corporate OHS standards. These standards are achieved substantially through the mechanism of an OHS management system implemented at each mine site and underpinned by corporate-wide audit and reporting programs, an interactive OHS electronic database, and a behavior-based safety observation program.

Minerals Inc perceives itself to be well "beyond compliance" with external regulatory standards and is more concerned to protect its social license to operate (Gunningham et al. 2003) than to meet regulatory requirements. As one senior manager, repeating a common refrain, put it: "We don't worry too much about legislation. Our internal processes are far more rigorous, including meeting community expectations." This approach has also received strong support from Minerals Inc's international board of directors. Management appears to be convinced that "it's good for business to go beyond compliance" (senior corporate manager).

The evidence to date suggests that this corporate management standards and systems approach has had some significant success. Minerals Inc has improved its safety record to the extent that it is now seen as an industry leader, with particular mine sites winning industry OHS awards, and it has had steady reductions in recordable incidents. However, this success has not been achieved across the board. Based on a quantitative ranking of internal audit results and safety statistics from a sample of five mine sites, we found a wide spread of OHS performance (based on the full range of available statistics, only some of which are vulnerable to manipulation). The lowest-performing mine, for example, was found to

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perform twice as badly as the highest-performing mine.[1] This was a remarkable finding given the presence of uniform corporate-wide OHS standards and audits.[2] Clearly, some explanation for this divergence is required. Qualitative fieldwork revealed three factors, in particular, that substantially limited the effectiveness of management-based regulation at the lower performing mine sites: workforce resistance and the absence of trust, the reluctance and/or inability of deputies to take responsibility for OHS management system implementation, and a lack of OHS commitment and inertia on the part of middle management.

The Presence of Mistrust

The issue that had the greatest impact in derailing internal management-based regulation at Minerals Inc—as it did at mines we studied at another company—was mistrust between management and workers, both collectively and individually. The three low-OHS-ranked mines (in marked contrast to the two high-ranking mines) all had very high levels of worker mistrust directed at both the motives and abilities of mine management.

The link between mistrust and poor OHS performance is perhaps unsurprising given the negative impact that mistrust can have on the operation of even the most sophisticated management-based regulation and safety management systems. For example, workers were less likely to report incidents for fear that they might "get nailed for something" (crew member), and they might resist the use of intrusive behavior-based programs such as safety observations when they felt threatened or did not trust management motivations behind them. Or workers might choose not to follow OHS procedures because they resented management telling them how to do their job, because they had little trust in management's ability to develop appropriate procedures, or because they believd such procedures were really there to "protect management more than workers" (crew member). Finally, mistrustful workers were much more reluctant to engage with managers to discuss safety matters.

In part, the origins of this mistrust lie in the bloody history of the Australian mining industry. For many decades, each side has ruthlessly pursued its economic interests at the expense of the other, and that history is littered with strikes, lockouts, and mine

[1] In order to calculate this ranking, the authors were provided with internal safety statistics, namely lost time injuries and total recordable injuries, and numerical corporate-wide audit data, over a five-year period. These data were weighted (1 to 5) to give the most recent years' results greater priority and were then aggregated to give a single numerical score to each mine.

[2] This quantitative ranking was supported by both informal rankings on the part of senior management and a subsequent comprehensive audit program conducted by Minerals Inc's international headquarters.

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disasters involving multiple fatalities for which employers were, historically, hardly blameless (Hargraves 1993). In consequence, relations between the relevant trade unions and mining companies have often been acrimonious, and they deteriorated even further as a result of industrial relations "reforms" introduced in the last decade that have substantially de-collectivized workplaces (Gunningham 2008). Not coincidentally, trade unions have been seriously weakened, particularly in previously union-dominated sectors such as mining. Enterprises such as Minerals Inc have exploited this situation to replace collective agreements with individual contracts of employment that serve to further marginalize the trade unions (Gunningham 2008).

Of course, all mines (including those in our sample with good OHS records) bore the scars of this brutal industrial relations history, but some have managed to largely heal past wounds, to overcome mistrust, and to build a fresh and more constructive relationship. We return to the question of how they did so in the fourth section of the article. In the present section, we emphasize that although the industrial relations history of the mining industry is one salient factor, a variety of other mine-specific factors have also played important roles in nurturing mistrust.

Past incidents at individual mines, in particular, have often taken on an almost mythical quality, so that as they are passed on from one generation of miners to the next, they come to encapsulate the inherent untrustworthiness of management. Such incidents thus serve as a negative prism through which all subsequent management actions are interpreted. This made it much more likely that workers at these mines would spurn management safety initiatives as a matter of course, irrespective of whether such initiatives were genuine and in the best interests of workers themselves.

This culture of mistrust is exacerbated at those mine sites that are geographically isolated (as are the local communities from which they draw their workforce) and where many miners spend their entire working lives at a single mine, generating a particularly parochial, inward-looking culture. At such mines cultural myths are easily perpetuated and reinforced, and a militant older workforce entrenched in its view that "all managers are shit" (a term used by numerous crew members in interviews) can readily instill a similar view into younger miners without fear of challenge. For example, one of the worst Minerals Inc OHS performers was described by its manager as follows:

> [It] has a very sheltered culture and workforce. You have to look at the "you're full of shit" barrier, which is an attitude many workers take towards management. They have had an impact on 70 percent of the workforce, and there is still a hard core of resistance. Culture and attitude is the key [to safety].

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These problems were compounded by the fact that mines where management/workforce relationships were particularly poor were also the mines with the highest management turnover (perhaps because these were so difficult to manage and managers suffered a high degree of verbal abuse from the workforce, or because each new manager failed to turn the situation around and so was replaced by another who might do better).

Deputy Under-Manager Reluctance/Inability

A second obstacle to the effective implementation of management-based regulation (at least in underground mines) was the necessarily heavy reliance on the lowest level of management, deputy under-managers (hereafter "deputies"), who for various reasons felt unwilling or unable to discharge such responsibilities. A distinctive characteristic of underground mining is that miners work largely independently of direct management supervision. This degree of isolation is compounded by the presence of multiple shifts, with the result that only day shift workers are likely to encounter any but the rarest visits from senior/mine managers. Consequently, "it's hard for the mine manager to know what is really going on in the mine" (deputy), and the "eyes and ears" of management are, by default, effectively transferred to the deputies.

Deputies not only have prime management responsibility for the safety of crews in terms of day-to-day operations, but they also act as "gatekeepers" between management's OHS systems and their effective implementation on the ground—without the active support of deputies it is virtually impossible for management-based regulation to operate effectively.

The position of deputy is problematic in a number of ways. Deputies in most mines experience considerable ambiguity about their roles, feeling unsure about whether they are really workers or management. Deputies are drawn from the ranks of workers, and when they are promoted to this position they are anxious about severing their previous ties of "mateship" with the crews. Moreover, deputies spend virtually their entire working day in the presence of their crews, largely detached from the rest of the management. As a result they experience pressure to be "one of the crew," to get their hands dirty, and to work side by side with the team. As one mine manager, reflecting a widely held view, pointed out, overcoming these cultural tensions and ambiguities is no easy task:

> It is the front line, the deputies, and their relationship to under-managers and supervisors, that is the most difficult relationship to manage. Both groups are right at the front end of installing corpo-

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> rate policies. Everything has to be geared to driving that relationship. The deputies are the weakest link in the management chain.

Although all the mines from Minerals Inc experienced difficulties with deputies, these problems were particularly pronounced at the lower-ranked mines. Senior management at one such mine, for example, forcefully and repeatedly expressed the view that "better deputy leadership was essential" and that this required better training and recruitment. Our fieldwork provided further evidence of the cultural factors inhibiting deputies from fulfilling their managerial OHS responsibilities. As one mine engineer put it:

> Deputies—these are the front line guys. They have the greatest potential conflict, and it's potent . . . . They struggle with divided loyalties to be part of the crew and part of management. They need a very high degree of moral courage to do the right thing especially given they come from the ranks. They have to have the courage to back their own decisions against peer pressure. If they don't have that courage, then they won't do their job properly—they will be hung out to dry.

As if these tensions were not enough, deputies are also commonly afforded little support or backup from their immediate supervisors when they do make decisions for safety reasons, especially where those decisions adversely impact on production. Several reported the deep humiliation they felt having been "dressed down" by a supervisor for making just such a decision: "I had the rug pulled form under me on one occasion—I can tell you I won't let that happen again."

These various tensions and ambiguities impinged substantially on the willingness of deputies to implement safety management systems. Aware that if they took responsibility for implementing such systems they might be criticized, either from above or from below, a safer course of action was not to engage with them at all, or to engage at most, in token implementation. This attitude was reinforced by the fact that most deputies could see little benefit in systems that in any event added additional time-consuming obligations. One mine manager, reflecting a common view, acknowledged:

> We have not achieved a 100 percent acceptance of our preferred safety culture . . . . There are always some who can't be bothered —when no one is watching, they will still cut corners. There is definite lack of maturity in the underground deputies. *They don't see the benefit of safety systems*. (emphasis added)

Although those mines ranked higher in safety performance also encountered problems with their deputies, they had made a far more concerted effort to change cultural attitudes and behavior, to better train deputies, and to give them more responsibility and managerial support.

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Middle *M*anagement Inertia

Middle managers (including shift or process supervisors, engineers, and under-managers) also had the potential to block the effective implementation of OHS management systems. At this level our interviews suggested that middle management inertia (and occasionally resistance) were significant problems at the lowest-ranking mines. For example, workers reported that OHS initiatives "are not being pushed, and are not taken seriously" by middle management. As a result, workers claimed that lower levels of management simply did not follow them.

Understandably, several safety managers spoke of their frustration in failing to convince middle managers of the value of safety management systems and of how middle management often obstructed implementation through their unwillingness to change the way they allocated work orders, updated safe work procedures, conducted safety audits, and followed up on accident and incident reports. The fundamental failure in their view was usually the inability to get middle management commitment, without which:

> You don't get good leadership and systems. This requires a holistic management approach. Basically, safety should be integrated with the rest of the business. (safety manager)

But this begs the question: Why were such commitment and ownership lacking? Our interviews suggested that while there was no single explanation, a number of circumstances often combined to generate either inertia or resistance.

Some middle managers simply did not see the value of management systems, and several saw them as just "paper shuffling" that had limited relevance to the coalface—they were "forced to do things, without seeing the benefits," one mine manager complained. Similarly, some only had limited commitment to behavior-based systems, again because they did not understand their purpose. The additional workload imposed in implementing management-based regulation was another reason why many middle managers resented them. As one told us:

> Historically, corporate has been seen as being interfering and setting too high expectations. The building and putting in place of so many new systems created a lot of work.

Overall, they did not view the implementation of safety systems as part of their core management responsibilities, which in their view related principally to production.

Finally, some middle managers did not take the issuing of safety actions (a crucial part of the "doing/checking" part of a systems approach) seriously, with overdue actions in many cases accumulating to very high levels. Here there was active resistance,

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with some middle managers refusing to report safety actions because they perceived them not just as an added form of accountability but also (as one under-manager put it) as "a malicious attempt by management to control their behavior." Equally, they objected to substantive reporting requirements, exhaustive auditing commitments, and growing middle management accountability that not only increased their workload but also threatened their traditional autonomy. Some middle managers actively resisted corporate and/or mine management directives as a means of retaining their power within the organizational structure. As one mine manager described it:

> Middle management [are] acting as a blocking point. There is not a lot of information getting through to the under-managers. Not a lot of information getting through this layer—they soak the stuff up, and it goes no further . . . . Why? They think that having that knowledge is having power.

In short, at Minerals Inc at least, there was a strong correlation between a strong management commitment (or "buy in") in particular among middle managers, and the rankings of high and low OHS performance at mine site level. Commitment, it would appear, is a "motivational posture" (V. Braithwaite 2008) that has a crucial influence on OHS outcomes.

Coal Company: Reluctant Converts

Over the last decade, Coal Company has expanded rapidly through a series of acquisitions. Until very recently, however, no attempt was made to impose a "one size fits all" approach to OHS management. On the contrary, and consistent with the general philosophy of the company, there was a strong preference for a "hands off" approach, intended to maximize site autonomy and flexibility in OHS as in many other matters. One senior corporate manager described this approach as follows:

> The [Coal Company] "way" is to have less bureaucracy, greater autonomy of individual mine sites which are expected to act as autonomous business units that have to stand on their own two feet. This gives an open door, democratic style.

Not surprisingly, this approach has resulted in substantial variation in OHS management style at different sites. A common refrain from managers and workers at mines that Coal Company has bought was "how little things had changed" under the new corporate ownership, with none of the manifestations of corporate oversight and control (corporate-wide OHS standards, systems,

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and audits) that are to be found in the structures of most of its competitors.

In recent years, however, Coal Company experienced a number of pressures to take a more interventionist stance to OHS management. First, Coal Company's rapid expansion had reached the point where the "small company" corporate management style was no longer viable. Treating more than a dozen individual mine sites as individual fiefdoms did not allow for economies of scale or the degree of consistency and cooperation between the mine sites necessary to facilitate effective or efficient management. Second, a process of institutional isomorphism (Powell & DiMaggio 1991) saw a convergence in OHS management practices across companies, placing considerable peer pressure on Coal Company to "keep up with industry trends." And third, the advent of new government regulations with their emphasis on internal OHS management systems and hazard controls (coupled with a recent trend to prosecute individual managers) made Coal Company's reliance on individual and ad hoc approaches to OHS management across its sites increasingly untenable.

As a result of these various pressures, corporate management has somewhat reluctantly assumed greater responsibility for site-level OHS and has taken steps to ensure greater uniformity in OHS management across all its operations. The most tangible manifestation of this new approach is that while individual sites will still be able to develop their own OHS management systems, these will be required to conform to new overarching corporate-wide OHS standards. Other developments include the creation of "positive performance indicators" and a corporate-wide commitment to behavior-based safety programs (that focus on monitoring of and feedback as mechanisms to change worker behavior). These initiatives have been coupled with the introduction of regular, whole-of-mine site third-party OHS audits, which will eventually be aligned with the new corporate OHS standards.

This initiative is still in its early stages, and the level of corporate commitment remains unclear, particularly to the many mine managers who, during interviews, expressed doubts as to whether corporate management possessed the necessary skills, expertise, and commitment to achieve corporate-wide OHS management or to "change its spots." Our interviews at corporate management suggested that there was some substance in these concerns. For example, one corporate leader admitted that he lacked the commitment and perhaps the capacity to engage with systems in any depth. In his words:

> I do not have a head for safety management systems, and I quickly lose interest when reading through systems charts.

Many mine managers bemoaned the lack of direction and support they had received from corporate management and the unneces-

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sary duplication this had caused, and corporate management's lack of expertise, resources, and capacity to engage with OHS management systems. Several mine managers were scathing in their assessment of corporate management's ability to deliver on the promised corporate-wide OHS standards:

> I have no faith in their ability whatsoever. It has been a complete cock-up. These guys are on a different planet. They have no idea what we are doing. We have to respond to the new regulations. We are just going to press ahead and do what we have to do. The corporate standards won't have any impact on what we do at this mine.

In summary, the disconnect between corporate and mine management at Coal Company was of a very different kind than that experienced at Minerals Inc. At Coal Company, it was corporate management (not mine site management and workers) that was viewed as a serious impediment to the effective implementation of OHS management strategies and systems.

The suspicion that corporate management were reluctant converts rather than true believers impacted negatively on the ability of mine sites to implement safety management systems across Coal Company, irrespective of the merits or otherwise of the systems in question. At some mines, management viewed themselves as largely separate from—and more professional and proficient—than either other mines in Coal Company or corporate management itself. Management at these mines lacked faith in corporate management's capabilities and not only took a dim view of the safety performance of other mines in the company but also feared being dragged down to their level. At other mines a lack of confidence in corporate management manifested itself in resistance to corporate intervention and a preference for maintaining their own safety initiatives, which they believed to be far superior. A third group of mines, whilst welcoming in principle the prospect of corporate systems and standards, also had serious concerns about how corporate proposed to implement such initiatives.

Turning to the OHS performance of individual mine sites within Coal Company, there was a striking divergence of OHS outcomes between mine sites. As with Minerals Inc, we conducted an OHS ranking exercise of the eight Coal Company mine sites—this revealed a very similar spread of OHS outcomes. In particular, the best-performing mine was ranked approximately twice as highly as the worst-performing mine. Overall, there were bands of three clear OHS leaders, two laggards, and three middle-ranking mines. Senior managers' subjective ranking generated broad agreement as to who were the best and worst performers, but there was much less consistency with regard to the middle rankings.

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There were other similarities with Minerals Inc. Deputies at Coal Company felt ambivalent as to whether they were part of "management" or really just workers with supervisory responsibilities. Deputies at lower-ranked mines were especially wary of too closely aligning themselves with management for fear of being ostracized, ridiculed, or even victimized by crews, suggesting that peer group pressures were more powerful influences on behavior than senior management edicts.

The presence of mistrust between management and workers was also a feature of most, if not all, lower-ranked mines. This was often the consequence of a catalytic event, creating a simmering and lingering mistrust that persisted for many years and made it very difficult for management to introduce new safety initiatives. For example, a rich vein of mistrust was generated at one mine by an attempted (and subsequently abandoned) downsizing. The workers involved engaged in a deliberate policy of isolating those managers perceived to be responsible for the downsizing in the hope of forcing their eventual removal. At another mine, a disastrous decision to realign a longwall led workers to doubt the competency of management decisionmaking processes.

Middle management inertia was also a common theme at lower-ranked mines. At these mines there were reports of middle managers not being familiar with systems, not issuing safe work procedures as part of work orders, and of safety systems "gathering dust" on the shelf. Many middle managers considered that safety management systems had little impact on day-to-day management decisions, and (at one mine) that such systems were really about "covering people's arses." In short, it was not the systems themselves that were the problem, but lack of commitment to their implementation.

In addition to these points of commonality, however, in several areas the experiences of the lower-performing mines at Coal Company diverged from their lowly ranked equivalents at Minerals Inc. For example, at Coal Company low performers were distinctive in the extent to which they emphasized production at the expense of safety, notwithstanding an ostensible corporate commitment to "safety first." The most commonly cited example of such behavior involved management exhorting workers to "put safety first," while placing greater pressure on them to achieve production targets (these two goals commonly being in tension). For example at one mine, workers were required to complete a written job safety analysis card at the start of each shift and when starting a new job. However, many workers told us that management had not provided adequate training nor allocated time to complete the cards. Instead, they reported that if they actually took the time out to complete a card each time they engaged in a new work procedure, they would incur the wrath of management for wasting time. In

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short, there was a strong "production comes first" message undermining the value of the program: "You can't have it both ways. They are always at you to improve production, but expect you to fill out the forms" (crew member).

Finally, a defining characteristic of the lower-ranked Coal Company mines was the presence of serious and destructive divisions between and within key groups (in addition to the conventional worker and management "us and them" divide permeating most mine sites). One striking example of this was the division between middle management and senior management. At one mine, several middle managers felt that they had "been left out on a limb" or were "taking the flak" for incidents for which senior management were responsible, with an adverse effect on morale. At another lowly ranked mine, there was a serious breakdown in the relationship between middle management and the mine manager as a result of "poor attitudes, poor communication, poor consultation," the relationship being described as "somewhere between abysmal and nonexistent" (middle manager). This produced unusual loyalties, with workers and middle managers united against senior management and a dysfunctional relationship with senior management that made the implementation of safety management all but impossible.

A different example of internal division occurred at a newly created longwall mine, which failed to meet initial high performance expectations. A key factor here was the division within the workforce itself, which was split into two distinct camps, on the basis of previous management hiring policies that had offered positions to one group first before belatedly hiring workers from the other group. This led to a profound, bitter, and lasting division in the workforce, with workers refusing to talk to workers from the other group: "It just split the workforce instantly, mate and mate never talked to each other" (crew member). It is not difficult to imagine the impact of such a destructive cultural divide on the implementation of safety management systems. At another mine, a spill of worker positions led to a schism between those workers who were ostensibly rehired and those who were rejected. As it transpired, the latter were also subsequently retained and therefore had to work together in the same workplace as the former. The two groups rapidly became polarized, forming two distinct camps: those who were not offered a position, and those who were. This created a very difficult work environment, with different groups refusing to work, acknowledge, or speak to each other.

It is difficult to operate a mine when one group of workers will not speak to another group and communication, about OHS as with other matters, becomes a major challenge. Overall, such divisions generated a corrosive mistrust and adversarial relationships between different groups of workers. In some circumstances,

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effective communication, a vital component of any successful OHS system, was almost impossible, either because one group became closed to the views of others or, in extreme cases, because they refused to interact with them.

Discussion

Although the two case studies concern different companies with different histories and management philosophies, there are a number of similarities in how they sought to address OHS and in the outcomes they achieved. Because they were driven either by corporate concerns to improve OHS (Minerals Inc) or by a combination of growing pains, peer pressure, and government regulation (Coal Company), they relied heavily on a range of management tools to achieve their objectives. In the language of this article, they relied substantially upon either internally or externally driven management-based regulation with a particular emphasis on OHS management systems, standards, and audits. Yet notwithstanding the virtues of this approach, in practice they both struggled, often unsuccessfully, to implement management-based regulation, and through it, to improve OHS outcomes.

A lack of organizational trust was certainly one of the most important problems, for without trust, our evidence shows that the effectiveness of management-based regulation may be severely and sometimes fatally compromised. The most striking lack of trust at Minerals Inc was between workers and management. At their worst-performing mines, such mistrust was deep-seated and long-standing, for reasons that often related indirectly to the adversarial and bitter history of the mining industry and directly to site-specific past incidents in which workers felt betrayed by management. Geographic isolation, parochialism, and high management turnover sometimes exacerbated these problems. But as the Coal Company study reveals, a lack of trust between other groups was sometimes equally if not more important. We described the corrosive effects of mistrust variously between corporate and mine site management, between workers and middle management on the one hand and senior mine management on the other, between one group of workers and another, and between middle management and the mine manager. We also found that even corporate management can have its own distinctive culture. Locked into past practices and beliefs, and seemingly incapable of adjusting to the needs of managing an increasingly complex organization, it was corporate management at Coal Company who had lost the trust of mine management.

All this suggests that trust—one important manifestation of workplace culture—needs to be understood not at company level,

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and often not even at mine site level (although in some respects different mines do have distinctive cultures), but rather at the level of subcultures (and sometimes countercultures) that manifest themselves within different groupings within individual mines. It is these that are likely to contain the most deep-seated values and norms, that are most likely to shape behavior in general and the effectiveness of management-based regulation in particular.

These findings challenge the conventional wisdom that "creating a unitary cohesive culture around core moral values" at corporate level is the solution, and they are consistent with the views of those who argue "that organizations are nothing more than shifting coalitions of sub-cultures" (Sinclair 1993:63) and that those subcultures may hold values that are substantially different from those that corporate management seeks to nurture and disseminate across the corporation as a whole.

While most of those subcultures were found to exist within individual mine sites, the Coal Company case reminds us that corporate management too can have its own distinctive culture, quite distinct from those of individual mines. While mine site management members were acutely aware of the need for a more centralized approach and for management-based regulation, they lacked faith in the commitment and capacity of corporate management to provide it. And corporate management, having failed to come to terms with the needs of managing what was now a much larger and more complex organization, lacked both the vision and the skills necessary to bring about effective management-based regulation. This was a marked contrast to Minerals Inc, where a corporate management committed to a systems-based approach had great difficulty persuading some mines to incorporate it effectively into their operations.

At both companies, organizational trust was generated not just by local factors (such as how workers were treated by mine management) but also by broader factors (such as the adversarial history of mining). These factors commonly interacted, generating perceptions that often amplified mistrust and shaped behavior. For example, where there was a history of mistrust, all management action on OHS (however genuine) was likely to be dismissed by the workforce as insincere, resulting in a lack of commitment to management OHS initiatives: a classic illustration of American sociologist William Thomas's dictum that what is perceived to be real is real in its consequences.

An overlapping but distinctive theme was the conflict of loyalties experienced by different levels of management within the mine site hierarchy. This was most graphically illustrated by the experience of deputies, who in both companies felt torn between their obligations as members of management and their loyalties to their crew "mates." But to a lesser extent other levels of manage-

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ment sometimes experienced the same tension, as for example where middle management sided with the workforce against the mine manager, or where mine managers, while conscious of their obligations to corporate management, nevertheless felt acutely the needs of their own mine and of their own management team and workforce. This too had a negative influence on the effectiveness of management-based regulation.

A further theme was that a failure to obtain commitment from and engagement of middle management and the workforce was detrimental to the implementation of management-based initiatives. This too was related to trust, though more so with workers than with middle managers. Our interviews suggested that lack of engagement was a particular problem with regard to the latter, who, already burdened with a range of duties and demands on their time, commonly viewed the additional requirements of applying management-based regulation as yet one more imposition for which they could not see the need, or for which there were ulterior motives ("they want to cover their arse"), and which they resented complying with. For some, there was an additional layer of resentment, and resistance, since these requirements were viewed as imposing an additional layer of accountability and as a threat to their autonomy. Historically, mine site crews have operated with often-minimal direct supervision, certainly from middle and senior management, and minimal administrative and/or reporting obligations.

Many middle managers, required to apply the OHS management systems and to document what they had done, and subject to subsequent internal and external audits, felt both vulnerable and resentful. Yet without middle management commitment, management-based regulation could not be effectively implemented. As Jackall pointed out two decades ago:

> [t]he pushing down of details creates great pressure on middle managers not only to transmit good news but, precisely because they know the details, to act to protect their corporations, their bosses, and themselves in the process. They become . . . the potential "fall guys" when things go wrong. (Jackall 1988:20–1)

Finally, and closely related to the previous themes, there was the issue of unequal power. Workers, no longer effectively supported by trade unions capable of acting as a countervailing force, and increasingly pressured into individual contracts of employment, often felt vulnerable and threatened by management initiatives. Middle managers too feared that management-based regulation might be a means of placing them under greater senior management scrutiny and control. Deputies, whose allegiance often remained with the crew from which they had come, and who were at

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the lowest level of the management hierarchy, felt uncertain whether any safety initiatives they undertook would be supported by higher management or whether they would be "hung out to dry." In an industry with such an acrimonious history, such issues were never far from the surface and, as we discuss further, were particularly prone to arise in the situations where the tension between "safety and profit" was most stark: deciding whether to halt production on safety grounds.

Although qualitative research methods do not lend themselves to precise statements about the relative importance of the above themes, our interviews indicated a particularly strong link between mistrust at mine site level and poor OHS outcomes, as too was lack of middle management commitment (which was often closely related to trust). Conflict of loyalties was a major issue in relation to deputies at all mines that performed poorly in OHS terms, but conflict of loyalties at other levels often varied substantially even within the subgroup of poorly performing mines. Power imbalances, as indicated above, often lurked under the surface but only manifested themselves when particular circumstances arose, and their impact was less predictable than the other factors identified above.

Other themes were also occasionally manifested, but none substantially shaped behavior or outcomes. For example, Tyler has emphasized the importance of moral values in general and of procedural justice in particular, and of legitimacy, in organizational settings (Tyler 1990, 2008). Certainly, we found circumstances where procedural justice took on occasional importance, as where mine managers gained esteem by taking worker complaints seriously and investigating them, even if they ultimately took no action (see further below). Conversely, we found that managers lost credibility by failing to consult workers over costly matters such as which way to cut the coal seam. But our respondents provided no other examples that fell readily into this category. Again, it might be argued that the corporations in our study lacked legitimacy in the eyes of the workforce, in large part as a consequence of a bitter history of industrial acrimony. But this was insufficient to explain why some mines in our sample nevertheless manifested high trust and good OHS outcomes, and why more important were factors that shaped behavior at individual mines. And as will be evident from our previous discussion, even incidents that might broadly be viewed as involving issues of procedural justice or legitimacy could be better explained in terms of a breakdown of organizational trust. We do not believe our findings to be unrepresentative in this regard. Reason, in his seminal work on safety culture, identifies a "just culture" as one of the key variables, but rather than explaining this in terms of procedural justice he describes it as constituting an atmosphere of trust (Reason 1997).

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The most common response to mistrust, divided loyalties, and/or lack of commitment (the three characteristics often being related), and a perception of powerlessness was ritualism—going the through the motions without any conviction that this would achieve anything of substance. This was the predominant response of both workers and middle management. For example at one mine, miners are required to complete a written job safety analysis card at the start of each shift and when starting a new job. In practice, miners readily admitted that it was common to take a week's worth of the cards home and fill them in advance of the actual jobs—a practice that clearly defeats the entire purpose of having the cards. Mistrustful workers similarly took little interest in reporting near misses, engaging in behavior-based safety programs, or participating in sophisticated electronic monitoring systems. We also found many examples of ritualistic responses on the part of middle management. However, this sometimes morphed into active resistance to management-based regulation, particularly where middle management felt that this was being used as a means to scrutinize their behavior and make them more accountable. Both of these responses served to stymie the effectiveness of management-based regulation.

Indeed, the behavior of workers and sometimes middle management in the above circumstances suggests that the gap between corporate rules "in the books" and "in action" was often a chasm. As Tyler points out, managers in organizations "typically have considerable discretion in the manner they implement decision-making procedures," but this is especially so in the case of management based regulation (Tyler 2000:824). Unlike prescriptive standards (e.g., the guardrail must be a precise height) or performance-based standards (e.g., no more than two millimeters of dust per cubic centimeter per time-weighed eight-hour day), management-based regulation is necessarily vague, as in implementing the classic "plan, do, check, act" approach, or in requiring certain risk-based procedures to be undertaken before a job commences. Put differently, an OHS management system is a social system and heavily dependent for its effectiveness upon the willingness of employees to commit to and engage with it. And this in turn, so our findings demonstrate, depends on culture (or more usually subculture) in general and trust in particular. Crucially, we found that that where mistrust was not overcome, workers treated almost all management safety initiatives with suspicion and refused to commit to them. For example, behavior-based safety programs were perfunctory (particularly those based on supervisor/subordinate observations), incident reporting was trivialized or ignored, systems were more honored in the breach, and sophisticated electronic monitoring systems were sidetracked, safety observations fell short of stated

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requirements, action tasks were allowed to accumulate, and audit recommendations were not followed up on.

It will be apparent that ritualism and resistance are unlikely to be overcome—or management-based regulation to succeed—in the absence of engagement with the culture, or more accurately, the various subcultures identified above. Such engagement implies not just achieving improved levels of organizational trust but also mitigating divided loyalties and achieving greater middle management and worker engagement, commitment, and ownership. And these latter in turn cannot be achieved without devolving if not power, at least a degree of ownership of safety initiatives to workers and their immediate supervisors (see further below).

But cultural change is never easy to achieve. Indeed, some organizational theorists have argued that an organization may be incapable of shaping its own culture (Schein 1983), while others argue that that "you only meddle with organisational culture if you've got little choice, lots of resources and lots of time" (Sinclair 1993:68). However, we disagree with these pessimistic conclusions. In our case studies, the top-OHS-ranking mine sites of both enterprises shared a cluster of characteristics—largely as a result of strategic management intervention. While not all these characteristics were present at all these mines, the more of these characteristics were present, the more likely a mine was to have minimized mistrust, overcome divided loyalties and a lack of buy, and achieved a high OHS performance. Accordingly, our findings are consistent with the general approach of Reason, who suggests not only that safety culture is actually a product of various interdependent subcultures, but also that these, to a significant extent, can be socially engineered (Reason 1997).

The clusters we identified included a high level of communication and consultation between workers and management on OHS, a willingness by mine management to respond promptly to complaints and suggestions (even where no action was taken), devolving OHS decisionmaking power down the management hierarchy, emphasizing much greater worker ownership of OHS management, and leadership (in terms of demonstrated commitment and "walking the talk") especially by the mine manager. Additional characteristics were flexible and/or rotating shifts, flatter management structures, and the provision of appropriate resources and adequate training as to how to discharge OHS responsibilities. And of course many of these characteristics are connected. For example, deputies, who in low-trust, low-performing mines commonly experienced a lack of support from more senior management and considerable ambivalence about their position, tended to respond better in mines where there was a flatter management structure, where they were given the appropriate skills,

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were empowered to take the initiative on safety issues, *and* were backed up by the next layers of management. While space precludes a full discussion (see further Gunningham & Sinclair forthcoming), four issues merit further elaboration.

First, there was strong evidence that organizational trust was greatly influenced by the extent to which the mine manager (the visible manifestation of "the corporation" at site level) was genuinely committed to OHS improvement. This seemed to be a particularly important indicator of managerial leadership. At one high-ranking mine, for example, workers and middle managers spoke highly of the mine manager's leadership role, especially his engagement with the workforce, the fact that he did "lots of things to be seen around the workforce—and chases up all the complaints" (crew member), and crucially, that he was willing to place OHS ahead of production, to the extent of shutting down the mine (at great expense) to address a safety issue. By contrast, at low-performance, low-trust mines, there were widespread complaints concerning management's willingness to cut corners and sacrifice safety to maximize production. As one crew member told us, in heated terms:

> I don't trust management. Everyone. The whole lot of them . . . say you are going to do [a job] the safe way, so you need this, and you need that. They snap . . . but if the way you are going to do it is not the safe way, they'll turn their back.

Second, a common refrain, which resonates with Tyler's work on the importance of procedural fairness (Tyler 2003), was the preference that workers had for a mine manager who "gives it to us straight" (as one crew member put it). As long as workers' complaints had been heard and investigated, and they had received feedback (even when being told that no further action would be taken), then their level of acceptance and trust was high. Workers (and deputies) at many lower-performing mines, however, expressed their frustration with what they perceived as conflicting messages and the inconsistent responses and attitudes of different managers.

Third, workers seemed far more likely to "take on board" and implement OHS initiatives if they had a high degree of ownership of them. This was achieved by managers engaging them in the creation of these initiatives, or in the case of corporate initiatives, by involving them in how these policies were interpreted and adopted at individual mine sites. Perhaps the best illustration concerned an attempt by management to introduce behavior-based safety observations—usually resisted by the workforce because such programs are seen as a "blame the worker" approach. Yet such an initiative was enthusiastically adopted at one mine, primarily be-

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cause a high-status and influential group of miners was engaged at an early stage and came to feel that it was "their" initiative.

Finally, it is striking that the strategies that corporate management relied upon under management-based regulation (namely an emphasis on accountability mechanisms that made it difficult for managers to avoid their OHS responsibility, coupled with surveillance, various performance tracking devices, and auditing to ensure transparency) were antithetical to measures that our findings suggested had a positive impact on OHS. The former approach was encapsulated in the attitude of one senior and influential senior manager at Minerals Inc who told us:

> You can't always change attitudes at first, you need to focus on behaviors . . . . You have got to set the expectation, help them to achieve it, hold them accountable, educate where necessary, and discipline.

But as we discussed earlier, in imposing stringent oversight and control, accountability, and disciplining, corporate management risks a number of counterproductive consequences. For example, the use of surveillance systems "has deleterious effects on the social climate of groups. The use of surveillance implies distrust which decreases people's ability to feel positive about themselves, their groups and the system itself" (Tyler 2008:810). This in turn lowers motivation, creates an adversarial relationship, and encourages the sort of resistance and ritualism described earlier. Indeed, as Power has argued, rather than solving the problem of mistrust, "models of accountability" merely displace it—over-reliance upon such procedures and upon "rituals of audit" serve, in his view, only to generate mistrust (Power 1997).

Those who are subjected to this approach may respond to it with ritualism or resistance, with the result that systems and audits become "rituals of comfort" that fail to engage with the fundamental problem of mistrust, and may even serve to foster and increase it (Power 1997). This indeed was precisely the response of many middle managers who resented and felt threatened by mechanisms that they perceived as intended to limit their autonomy, or to be little more than senior management buck-passing.

What made a difference, in the best OHS performing mines in our sample, were various mechanisms that provided workers and site management with more rather than less autonomy and discretion. These served to gain worker or middle management commitment and trust through greater ownership of and participation in OHS initiatives, better communication and feedback, and more training, mentoring and managerial support (albeit not control) for deputies and middle management. The key is to ensure that informal systems "support the formal system by

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enhancing cohesion, initiative and morale'' (Selznick 1992:235). Only in this manner may the gap between formal regulation and informal and local norms be successfully bridged.

These findings suggest that management-based regulation may have its limits. As Bardach and Kagan pointed out many years ago:[3]

> The risk of [pushing] accountability requirements into the farthest reaches and deeper recesses of social life is that, in the long run, everyone will be accountable for everything, but no one will take responsibility for anything. Thus the social responsibility of regulators, in the end, must be not simply to impose controls, but to activate and draw upon the conscience and the talents of those they seek to regulate. (Bardach & Kagan 1982:321)

Indeed, if sociolegal research has taught scholars anything, it is that coercion (whether by the state or by the corporation) is expensive and difficult. Neither government nor corporate regulation can hope to be meaningful and effective without the cooperation, indeed the normative accord, of the vast majority of populations it hopes to control. What this means is that the day-to-day effectiveness of rules depends substantially on the motivation of the corporate employees. For sociolegal scholars, therefore, the key theoretical and empirical issues have come to involve the relationships between regulatory norms and organizational behavior. What factors, legal and nonlegal, influence the incidence of compliance and noncompliance?

In answering these questions we have argued that trust and a number of related factors are vital in obtaining the consent and support of managers and workers and in winning their ''intrinsic motivation.'' Once these groups accept and take ownership of the rules, regard them as reasonable and their purpose laudable, then compliance becomes a matter of voluntary cooperation. People follow not just the letter, but also the spirit of management-based regulation, and external monitoring costs become low. Workers and managers become ''active participants in creating and maintaining conditions of social order'' (Tyler 2008:873) largely irrespective of surveillance and other external controls. In Reason's terminology, it becomes possible to build in a culture of ''mindfulness'' (Reason 1997). This is not to imply that management-based regulation has no value. It remains an important technology of governance, but one that can only work effectively in tandem with a supportive workplace culture built around trust, engagement, and commitment.

[3] Bardach and Kagan (1982) were referring to government regulation, but the point is equally applicable to internal regulation within companies.

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Finally, we must briefly address two alternative explanations of the findings described earlier. First, it might be argued that management-based regulation is failing not because of any inherent limitations but simply because it is being badly implemented. If so, then these case studies tell relatively little of interest as regards the strengths or limitations of this particular form of regulation. However, while it is true that at Coal Company a lack of capability and commitment at corporate level was partly responsible for the failure of management-based regulation, this was demonstrably not the case at Minerals Inc, where considerable resources had been invested by a proficient corporate management in the development of a sophisticated form of management-based regulation. Yet this latter system, while successful in improving OHS at some mine sites (those with positive OHS cultures), was manifestly unsuccessful at others (where trust was low and OHS culture poor). This, not managerial incompetence at corporate level, is the puzzle that needs to be addressed.

Second, it might be suggested that the findings reveal nothing more than that decentralized approaches (including management-based regulation) have an inherent weakness, namely, that they necessarily provide considerable discretion in implementation, and in doing so they enable poorly run mines to engage in resistance or ritualism. If so, then the solution is to revert to a centralized, hierarchical (and by implication rule-based and bureaucratic) approach that substantially curbs such discretion.[4] But as organizational and other management theory has long recognized, centralized hierarchical control has severe limitations—the capacity to deal with complex organizations through detailed rules alone is extremely limited (Teubner 1983:239), which is why proponents of meta-regulation argue for responsive regulation that devolves responsibility to those who have the specialized skills and knowledge to self-regulate (in this case mine sites themselves), subject to external oversight (Parker 2002:283). This is especially the case when it is difficult to measure performance and the target group is made up of heterogeneous facilities facing heterogeneous conditions (Coglianese & Lazar 2003). In short, whatever the shortcomings of management-based regulation, it is far better suited to engaging with the OHS challenges of diverse individual mine sites than to a centralized, rule-based approach. In substantial part it is for these reasons that management-based regulation has proliferated so rapidly over the last decade.

Conclusion

Many regulators and corporations have concluded that management-based regulation has considerable promise in encourag-

[4] I am grateful to an anonymous reviewer for raising this issue.

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ing enterprises to take greater responsibility for developing their own systemic approaches to regulatory or business challenges and their own best means of identifying and managing risks. Nevertheless, to what extent or in what circumstances this promise will be realized in practice, particularly when it comes to applying management-based regulation to the multiple facilities of large corporations, remains largely an open question.

Our case studies suggest that, in the mining industry at least, this approach was vulnerable to failure for a variety of often interrelated reasons. At Minerals Inc, a form of management-based regulation was applied across the corporate portfolio but proved far more effective at mines where levels of trust between workers and management were higher. Moreover, this approach was sometimes unable to overcome a combination of mine management resistance, middle management inertia, and the unwillingness of deputies to take managerial responsibility and implement management systems at the mine site. At Coal Company, the attempt to shift from a flexible discretionary approach to uniform mandatory management standards applied across the board failed not only because some mine managers remained unconvinced of corporate management's commitment or capability and due to an absence of mine site ownership, but also because of a lack of understanding of what was required to make management-based regulation work at corporate level, coupled with a organizational history and management philosophy in which a belief in the virtues of decentralization was deeply embedded. This was added to high levels of mistrust between workers and management at some mines.

On the basis of this study at least, it would appear that corporate systems and other tools of management-based regulation only work well when OHS is institutionalized and when it gets into the "bloodstream" of the organization at site level. Only when the formal systems (audits, reporting, monitoring, etc.) are supported by informal systems (trust, commitment, engagement, means of overcoming conflicting loyalties, etc.) will they be fully effective.

These findings have important implications for regulatory theory and suggest that the claim that management-based regulation—or meta-regulation more broadly—can overcome many of the traditional challenges of regulating complex organizations is overstated. On the contrary, this study suggests that management-based regulation (or indeed meta-regulation) confronts much of the same challenges as other forms of regulation (albeit on a different scale), with the result that management-based (or meta-regulation) may simply relocate the problems (from outside to inside the firm), rather than solving them. Whether the mining industry, with its distinctive history of conflict and polarization, is unrepresentative in this respect, we have insufficient evidence to say. But in this industry at least, man-

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agement-based regulation is substantially constrained by low organizational trust, minimal mine site commitment, and divided loyalties.

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