Analyzing Environmental Issues in Manufacturing: A Study of Top Management Support for the Environmental Function

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ABSTRACT

The manager with primary responsibility for environmental compliance in a manufacturing concern has a very difficult task. In order to ensure that a facility is current with all of the environmental laws, this individual must possess a solid working knowledge of regulations currently affecting operations and be alert to future regulatory changes applicable to the facility. Due to the complexity and volume of the environmental regulations, many executives and managers in manufacturing believe that full compliance isn’t possible. Even when faced with significant liability associated with noncompliance, many companies do not employ the use of full-time environmental compliance managers. The two surveys examined in this study were utilized to analyze issues in manufacturing from the perspective of environmental compliance managers spending different percentages of their time on environmental issues. Specifically, the paper addresses the issue of support for the environmental function by top management.

INTRODUCTION

The world of business became more complicated in 1970 with the introduction of the federal environmental laws. The complex web of environmental legislation and subsequent regulations that surfaced since the enactment of the National Environmental Policy Act in 1970 has had a profound effect on the manufacturing industry. The environmental compliance manager, charged with the responsibility of meeting the company’s obligations under the legislation, has a formidable task and often struggles under the oppressive weight of compliance issues. This person faces high stakes under the constant reality of potential liability, especially in small to medium size companies where resources for environmental compliance may be more limited than in large companies.

The focus of this article is on small to medium size companies. When the authors first initiated this study they believed that smaller companies, without the resources of large companies, would probably struggle to comply with obligations imposed by environmental legislation. Through private practice, one of the authors found that many small to medium size companies did not have full-time environmental affairs departments. The environmental compliance managers in those companies actually wore several hats, sharing duties with other departments. In the complex world of environmental regulation, these part-time managers often find themselves in precarious positions. Even full-time environmental compliance managers find that the wealth of environmental regulations is difficult to understand and apply. With so much potential liability on the line, the authors were interested in the observations and perceptions of environmental compliance managers in small to medium sized companies.

This paper uses the results of two surveys to examine the issue of top management support for environmental affairs. The first survey was conducted in a single state in 1996 as a baseline, and a
follow-up national study was conducted five years later. Various issues developed under these surveys have been studied and reported. This examination of top management support in the environmental function assists in laying the groundwork for a third survey to be mailed in 2010.

BACKGROUND

On January 1, 1970, President Nixon signed the National Environmental Policy Act (NEPA) into law. Shortly afterward, Congress passed the enabling legislation establishing the Environmental Protection Agency (EPA) to regulate business and enforce the environmental laws. Prior to 1970, scattered local ordinances and state statutes offered a patchwork quilt of regulation directed at business activities affecting the environment. After the enactment of NEPA, Congress followed with numerous pieces of major legislation which began to establish a complex web of regulations designed to provide comprehensive protection against degradation of the human environment. With the storm of legislative activity governing environmental operations, the decade of the 1970's has been referred to as the “environmental decade.” (Powell, 1998)

Environmental legislation did not subside in the 1980's and regulations enacted by the EPA currently continue at a constant pace. The bulk of environmental regulations today is immense, comprising thirty-two volumes of the Code of Federal Regulations. (U.S. Government Printing Office, 2009) The environmental regulations are highly technical and implementation is often costly and inexact. In addition, multiple levels of enforcement authorities exist at the federal, state and local levels.

Throughout the decades since 1970, enforcement activities increased substantially with the expansion of the EPA to one of the largest federal agencies (Meiners, 2009) with an annual budget approaching $10 billion (Office of Management and Budget, 2009) and the creation of state environmental agencies established to administer state programs approved by the EPA. Companies not in compliance with environmental regulations can incur substantial monetary penalties or injunctive measures and employees can even be incarcerated for certain criminal violations. Federal criminal enforcement capabilities were significantly enhanced with passage of the Pollution Prosecution Act of 1990 which authorized the EPA to employ special agents for investigating environmental crimes. (Pollution Prosecution Act, 1990)

Most environmental regulations are naturally geared toward activities found in the manufacturing industry. Given the regulatory climate, environmental compliance managers in manufacturing firms often find themselves in rather sensitive positions. The EPA and the Department of Justice (DOJ), which prosecutes criminal cases for the EPA, have openly announced that violators will pay dearly. During the 1990's, the primary focus of criminal prosecutions shifted from the prosecution of companies to the prosecution of individuals within companies (Bureau of National Affairs, 1996) This change in priorities resulted in the imposition of significant amounts of jail time for environmental crimes (Environmental Protection Agency, 1995), and the number of criminal cases initiated by the government continues to number in the hundreds. (Kubasek, 2008)

There’s little doubt that the environmental compliance manager resides on a cloud of potential liability. Since the EPA and DOJ will go as high as possible in the corporate hierarchy to find the party ultimately responsible for violations, even upper level executives are not immune from criminal prosecution by simply assigning environmental responsibilities to subordinates. It doesn’t even take intentional conduct to participate in a criminal activity to be the subject of criminal prosecution as willful blindness will often substitute for the intent element in criminal proceedings. With this magnitude of
potential liability hanging over the heads of executives and environmental compliance managers, companies should carefully consider providing adequate resources to achieve environmental compliance. However, as this study will demonstrate, that is not the situation found in many firms as companies often require that managers from other departments handle environmental issues on a part-time basis. This is a rather precarious situation for the person charged with environmental responsibilities since full compliance seems to require undivided attention to regulatory issues. This paper utilizes results from two surveys to identify and discuss issues involving top management support in small to medium size manufacturing companies.

EXPERIMENTAL DESIGN AND METHODOLOGY

At the beginning of this study, the authors were interested in how environmental regulations affect the management and operation of companies in manufacturing. One of the authors practiced environmental law and observed that many small to medium size companies did not employ the use of full-time environmental compliance managers. Incorporating an interdisciplinary approach, a survey instrument was constructed to explore the effects of the environmental regulations on these small to medium size companies in the manufacturing industry in terms of production processes, products, and quality issues. With the assistance of local environmental compliance managers, the survey was modified to incorporate additional practical concerns. In 1996, the survey was mailed to 1,472 environmental compliance managers in mid-size manufacturing companies (75 to 100 employees) located in the state of Tennessee. The Directory of Tennessee Manufacturers was used to identify the companies and their environmental compliance managers. The authors received 211 returns for a response rate of 14 percent. Some rather interesting observations surfaced in the Tennessee study and prompted the authors to expand the survey nationwide. In 2000, the authors once again sought the assistance of local environmental compliance managers in modifying the instrument for the national survey. Contact information for national companies was acquired from USA Info and the instrument was sent to nearly 3000 environmental compliance managers working in manufacturing companies located throughout the United States. Around 400 usable responses were received for a response rate of approximately 13.5 percent. SPSS was used in both studies to compile summary statistics for the analysis. For analysis purposes, the contacts were grouped into categories representing company size, standard industrial classification (SIC) codes, and geographic location (for EPA region purposes).

The authors felt that a response rate of around 14 percent was appropriate given the sensitive nature of the information sought from the environmental compliance managers. Since environmental violations can result in significant civil and criminal penalties, including incarceration, the survey letter assured the respondents that confidentiality would be paramount in the analysis process. Therefore, returned surveys were not linked to specific companies, and the authors did not make calls or send subsequent surveys to companies not responding. The authors felt this was the best way to receive candid responses in the survey and were satisfied with the return.

SURVEY ANALYSIS

One section of both the 1996 and 2000 surveys used a five-point Likert scale ranging from strongly agree to strongly disagree. Responses to issues concerning environmental regulatory compliance were segregated according to a demographic question asking respondents to identify the percentage of their
duties involving environmental issues. Four choices were provided: 0 to 25 percent, 26 to 50 percent, 51 to 75 percent, and 76 to 100 percent. For ease of discussion, the authors will refer to respondents in the first category as “part-time” environmental compliance managers, respondents in the 76 to 100 percent category as “full-time” environmental compliance managers, and the remaining respondents will be identified by their specific percentage category.

This paper presents the results of the national study in terms of time spent on environmental issues by the environmental compliance manager and provides comparison with the results of the Tennessee study. Various parts of this paper will also examine specific issues addressed in the Tennessee study to determine whether specific geographic location has a bearing upon the issues.

As noted before, the authors had previously observed that many environmental compliance managers share duties with other departments. However, they did not expect to find that 65 percent of respondents in the national survey devoted less than half of their time to environmental duties! In Tennessee, that figure rose to 72 percent. More than 40 percent of the managers in both studies spent less than 25 percent of their time on environmental issues. Viewing the data from the opposite spectrum, the authors were equally surprised that less than 25 percent of respondents in the national survey and 16 percent in the Tennessee study considered themselves as full-time environmental compliance managers. These results are puzzling given the volume and complexity of the environmental regulations. Throughout the study, the authors observed that the responses were often influenced by the percentage of time that respondents spent on environmental issues.

A series of questions on the survey was designed to determine the level of top management support provided to environmental compliance issues. The first inquiry was whether top management supported compliance with environmental regulations. Most respondents in all categories in both studies believed that top management was in line with their support. In most categories, this captured at least 90 percent of the respondents, with the least being 85 percent. This general perception of top management support wasn’t entirely unexpected, so the authors moved on to examine other inquiries to attempt to determine the actual level of top management support.

Since the respondents believed that top management supported environmental compliance, the authors were interested in whether top management understood the requirements and duties of the environmental compliance manager. There was an appreciable drop in the overall numbers and some differences began to surface in the individual categories. In the Tennessee study, a little over half of the managers in both the part-time and full-time categories felt that top management understood their duties. This dipped to around 30 percent of the managers in the other two categories. The national survey started at a high of 48 percent in the part-time category and dwindled through each category to 31 percent in the full-time category. These percentages are rather interesting. Although the respondents overwhelmingly enjoyed top management support of environmental regulatory compliance, more than half felt that top management didn’t understand the requirements of the environmental compliance manager’s job. The authors will be investigating this issue in future research.

Another inquiry sought to determine whether the number of employees working in the area of environmental compliance was appropriate for the facility. Once again, the authors looked at this question in the context of top management support in that such support should equate into appropriate resources. The results were more comparable to the “understands my job” inquiry than to the “top management supports” inquiry. The figure didn’t exceed 56 percent in any category! In both studies, the part-time respondents were the most optimistic about the number of employees working on environmental issues. In the national study, slightly over half of the full-time respondents were positive. This
comparison indicates that part-time and full-time managers have a higher degree of confidence that their departments are appropriately staffed than managers spending between 26 and 75 percent of their time on such issues. The variation could be attributed to several items. For instance, managers spending a modest amount of time in the area may be less likely to fully comprehend the issues involved in environmental compliance. Or, it could be that these managers are so engaged in other areas of the organization that potential environmental violations are not recognized. It could also indicate that the operations of those organizations do not create substantial environmental issues, thus reinforcing the reason behind having a part-time environmental compliance manager. The greater confidence of the full-time managers may be due to the fact that they are full-time and have more time to better grasp and resolve the issues. All of these issues will be investigated and further analyzed in the 2010 survey. Regardless, the numbers for this inquiry hover around the 50 percent mark and do not appear to bolster the high response regarding general top management support of environmental compliance.

Two final inquiries specifically concerned changes or modifications to the production process. The first asked whether the environmental affairs department was adequately represented when changes to the production process were being addressed. The authors believed that top management support would dictate the inclusion of environmental concerns into process changes. Once again, the numbers didn’t appear to reflect the general perception of support for environmental considerations by top management. In the Tennessee study, the highest figure was 52 percent held by the part-time respondents. The percentages then tumbled quickly. Only 19 percent of those in the 51 to 75 percent category felt that their departments were adequately represented. At the national level, once again, the part-time respondents were the most positive category with 55 percent. Overall, the national managers in the other categories were more confident than their Tennessee counterparts, with the numbers hovering around 44 to 50 percent. Since around half of the respondents’ departments are not consulted when production process modifications are addressed, the general perception that top management supports environmental compliance just doesn’t seem to be sustained.

The other production process inquiry was whether the process had been stopped during the previous year to implement changes required by the environmental regulations. The manufacturing process had been stopped according to approximately 18 percent of the part-time respondents in both studies. In the national study, the number steadily increased to a high of 34 percent in the full-time category. The Tennessee respondents were more positive in every category, from a low of 19 percent for part-time respondents to a high of 56 percent for full-time respondents. These results could flag several issues. While most environmental compliance managers in both surveys were well aware that the environmental regulations often necessitate changes in the production process, managers with full-time status seemed to have a noticeable advantage. It is possible that the full-time environmental compliance managers are more aware of the details involved in application of the law and therefore more confident when insisting that the efficiency of the production process be comprised to implement changes. Overall, however, most respondents did not feel that environmental compliance was valued over the production process.

Although a significant number of respondents in both studies believed that top management supported environmental compliance, the follow-up questions indicate the need for more study in this area. While top management may verbally, or otherwise, indicate support for environmental compliance, does top management have the commitment to follow through with resources to achieve compliance?
CONCLUSIONS

Manufacturing companies are under tremendous pressure to comply with the environmental laws and regulations. Due to limited resources, or other reasons, the challenging task of environmental compliance often falls on the shoulders of managers sharing duties with other departments. Although it would seem that environmental compliance demands the undivided attention of managers, the survey revealed that a substantial number of small to medium size companies in manufacturing utilize part-time environmental compliance managers. With constant change occurring in the multiple layers of the regulatory domain, it is an enormous responsibility to ensure the facility remains current with the law. In addition, this person must always maintain an eye on future changes. It is essential that environmental compliance managers routinely review the Federal Register to be aware of proposed regulations.

This study indicated that nearly 90 percent of environmental compliance managers believe that top management does support their efforts. Responses to the follow-up questions might reveal otherwise. At least, the responses indicate the need for further study in this area. First, less than one-fourth of the companies utilized full-time environmental compliance managers and 65 percent of the respondents devoted less than half their time to environmental issues. One might surmise that these companies do not need the services of full-time people in that area. However, less than half of the respondents reported that the number of employees working in their departments was adequate. In addition, far less than half of the respondents believed that top management even understood the requirements of their jobs. The more time an environmental compliance manager spent on environmental duties, the more the manager realized that top management did not understand the requirements of the job.

The survey also demonstrates the inevitable struggle between production and environmental affairs departments. Since product equals profit, production is under constant pressure to keep the process moving. When environmental concerns might interfere with the continuity or efficiency of the process, it isn't too difficult to understand why top management and production managers might fail to include environmental representation when addressing production issues.

The authors believe that information presented in this study will be of value to executives and managers in companies of all sizes as they make determinations affecting their environmental compliance departments. With increased public demands for greater corporate social responsibility, and criminal enforcement of the environmental laws being pushed to higher levels of responsibility within organizations, top management should realize the need for this type of information. This should especially hold true in setting the company’s strategic objectives and goals. This paper should also hold value for academics researching in the areas of corporate social responsibility, production and operations management, environmental compliance, and strategic planning.

FUTURE RESEARCH

Future research in this area will further examine and develop issues presented in this paper. For instance, what are the specific reasons that so many small to medium size manufacturing companies do not engage full-time environmental compliance managers, especially in the face of mounting potential for liability for noncompliance? The follow-up survey mentioned earlier in this paper will be mailed in 2010. Since several factors have changed since the initial surveys, the authors are especially anxious to analyze various issues using data from the two previous surveys as a baseline. It will be interesting to determine the extent of the impact, if any, precipitated by the change in the country’s administration and/or the
economic downturn on the operations of these manufacturing concerns. Additional study will also examine relationships between the level of civil and criminal enforcement activities undertaken by the Environmental Protection Agency and the Department of Justice during these time periods and the use of part-time versus full-time environmental compliance officers.

REFERENCES


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