

Safety Incentive Programs: A Case Study

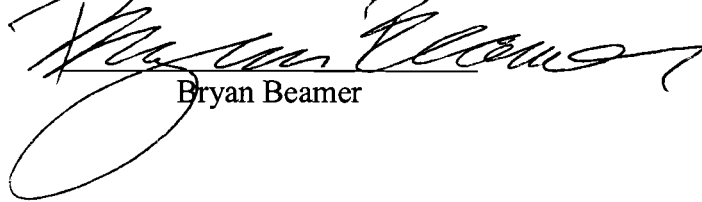
by

Sara Wilkins

A Research Paper
Submitted in Partial Fulfillment of the
Requirements for the
Master of Science Degree
in

Risk Control

Approved: 3 Semester Credits

A handwritten signature in black ink, appearing to read "Bryan Beamer", is written over a horizontal line. The signature is fluid and cursive.

Bryan Beamer

The Graduate School

University of Wisconsin-Stout

May, 2006

**The Graduate School
University of Wisconsin-Stout
Menomonie, WI**

Author: Wilkins, Sara L.

Title: *Safety Incentive Programs: A Case Study*

Graduate Degree/ Major: MS Risk Control

Research Adviser: Bryan Beamer, Ph.D.

Month/Year: May, 2006

Number of Pages: 45

Style Manual Used: American Psychological Association, 5th edition

ABSTRACT

Safety incentive programs have been a controversial topic for many years. Many believe that they help motivate workers to stay safe while others argue that workers should not be bribed to be safe and that workers are pressured to not report injuries. The costs of such programs can be high and may or may not be worth it.

The goal of this study is to determine if the safety incentive programs that companies are using are cost effective or not and if they do work to reduce injuries. A case study of two different companies using two different safety incentive programs was conducted by using the following sets of data: annual numbers of OSHA recordable and lost time incidents, incident and severity rates, annual costs of their safety incentive programs, annual workers' compensation costs (paid losses, not premiums), and indirect costs of their programs.

Company A has very low workers' compensation costs as well as incident and severity rates, and OSHA recordable and lost time cases. Company A showed no correlation between the cost of the safety incentive program and any of the data sets.

Company B, however, did show negative correlations between workers' compensation costs and the number of OSHA recordable cases versus the costs of the incentive programs. Surprisingly, however, Company B showed a positive correlation between the number of lost time cases and the cost of the incentive program.

TABLE OF CONTENTS

.....	Page
ABSTRACT.....	ii
List of Tables	v
Chapter I: Introduction.....	1
<i>Statement of the Problem</i>	1
<i>Purpose of the Study</i>	2
<i>Definition of Terms</i>	3
Chapter II: Literature Review	4
Chapter III: Methodology	11
<i>Subject Selection and Description</i>	11
<i>Data Collection Procedures</i>	11
<i>Data Analysis</i>	12
<i>Limitations</i>	12
Chapter IV: Results.....	13
<i>Item Analysis</i>	13
Chapter V: Conclusions and Recommendations.....	40
<i>Discussion of Results</i>	40
<i>Limitations</i>	41
<i>Conclusions</i>	41
<i>Recommendations</i>	42
References.....	44

List of Tables

Table 1: Company A Workers’ Compensation Costs vs. Incentive Program Costs.....15

Table 2: Company A Workers’ Compensation Costs.....16

Table 3: Company A Incentive Program Costs17

Table 4: Company A Incident Rates.....18

Table 5: Company A Severity Rates.....19

Table 6: Company A OSHA Recordable and Lost Time Cases20

Table 7. Company A Correlation of Workers’ Compensation Costs and Incentive
Program Costs.....21

Table 8. Company A Correlation Between Severity and Incident Rates and Incentive
Program Costs.....22

Table 9. Company A Correlation Between OSHA Recordable and Lost Time Cases and
Incentive Program Costs23

Table 10. Company B Workers’ Compensation Costs vs. Incentive Program Costs.....28

Table 11. Company B Workers’ Compensation Costs29

Table 12: Company B Incentive Program Costs.....30

Table 13: Company B Incident Rates31

Table 14: Company B Severity Rates.....32

Table 15: Company B OSHA Recordable and Lost Time Cases33

Table 16 Company B Correlation Between Workers’ Compensation Costs and Incentive
Program Costs.....34

Table 17. Company B Correlation Between Severity and Incident Rates and Incentive
Program Costs.....35

Table 18. Company B Correlation Between OSHA Recordable and Lost Time Cases and
Incentive Program Costs.....36

Chapter I: Introduction

Manufacturers and construction companies are always looking for new ways to keep employees safe. Such companies must comply with strict federal or state Occupational Safety and Health Administration (OSHA) regulations, Environmental Protection Agency (EPA) regulations, National Fire Protection Association (NFPA) guidelines and International Standards Organization (ISO) controls. Some companies find it hard to make their employees realize how important it is for them to work safely. Simple injuries such as a cut or a muscle strain can end up costing the company thousands of dollars in workers' compensation, medical expenses, lost time, and loss of production. According to Safety Pays, OSHA's injury calculation cost tool, a muscle strain can cost \$13,079, a laceration can cost \$6055, while a more serious injury like carpal tunnel can cost \$18,271. One way that companies are trying to increase safety compliance is through the use of safety incentive programs.

Statement of the Problem

Safety incentive programs are a growing trend throughout many different industries. They are also very controversial. Proponents of safety incentive programs believe that they help motivate workers to stay safe. Others argue that workers should not be bribed to be safe and that workers are pressured to not report injuries. The costs of such programs are high, and depending on one's perspective, the costs of such programs may or may not be worth it. Questions that influence this perspective are: Do safety incentive programs pressure employees to under-report injuries? What effects do safety incentive programs have on workers' compensation costs?

The research question here is: *What effects do safety incentive programs have on performance standards such as OSHA recordable and lost time accidents, incident and severity rates, or workers' compensation costs, and do these changes outweigh the cost of the incentive program?* This question is important because it can determine if such a program is beneficial and cost effective.

If a safety incentive program does work, a company should see decreases in its OSHA recordable and loss time injuries, workers' compensation costs, and incident and severity rates. The monetary savings from these variables should be greater than the cost of the incentive program itself. Or are injuries being hidden and the numbers only hiding a bigger issue? If this is true, then the injuries that arise may be more severe than they should have been if they had been reported promptly.

Purpose of the Study

The goal of this study is to determine if the safety incentive programs that companies are using are cost effective or not and if they do work to reduce injuries. This study will look at the different programs used by two different companies and compare them. This case study will look at how each program is designed and utilized, then it will look at whether their individual programs are cost effective or not. This study is important because it may help a company determine if a safety incentive program truly is cost effective and worthwhile to implement such a program.

Individual case studies will look at standardized costs of incentive programs year after year. The annual costs for workers' compensation, not including premiums, will be looked at to determine whether the safety incentive program has caused these costs to decrease over time. OSHA recordable and loss time cases as well as incident rates and

severity rates will also be studied to see if the incentive programs have had decreasing affects on them as well. Indirect costs will be analyzed. The issue of non-reporting injuries will also be taken into account.

Definition of Terms

Correlation Coefficient: Measures the extent to which two continuous variables are linearly related.

Incident Rate: $(\text{Number of OSHA Recordable Incidents} \times 200,000) / (\text{Number of Hours Worked})$

OSHA Lost Time Injury: A work-related injury or illness resulting in days away from work.

OSHA Recordable: A work-related injury or illness resulting in death, days away from work, restricted work or job transfer, medical treatment beyond first aid, or loss of consciousness.

P-Value: Tells if a correlation coefficient is significantly different from zero.

Severity Rate: $(\text{Number of lost work days} \times 200,000) / (\text{Number of Hours Worked})$

This study does have its limitations. The limitations of this study are:

1. The data in this study was received from voluntary participants from two companies in the Midwest.
2. It is often difficult to identify all costs and benefits of safety incentive programs.
3. It can be hard to quantify pros and cons of safety incentive programs.

Chapter II: Literature Review

In terms of literature available on the subject, there are two main categories that one finds published. First are articles that discuss the programs' pros and cons. Another important category to look at is the actual costs that go into safety incentive programs. Some of the costs are obvious, while others are indirect or hidden. Are safety incentive programs really saving companies money? Each category has been written on by various industry journals and magazines.

Pros

Proponents of incentive programs say that incentives build and maintain employee interest in working safely and act as a motivator for employees to work more safely (Prichard, 2001). Incentive programs are a way for companies to show their employees that they care about them and that they work in a safe manner. According to Buck Peavy, president of Peavy Performance Systems, "In theory, we shouldn't have to have incentive programs to motivate people to work safely. In reality, rewards and recognition will boost safe behavior and motivate people," (Smith, 2002). For many companies, however, it is easier to reward employees for 90 days working without a lost-time accident than to measure what employees did to support or improve safety.

One of the main goals of safety incentive programs is to cut down on fraudulent workers' compensation claims. Proponents feel that rewards and recognition proactively deter many fraudulent claims. According to Flanders and Goldberg (2001):

If an employee is injured at home, it is to his benefit to report it as an on-the-job injury. There are no deductibles, co-insurance or HMOs to deal with in the

workers' compensation system. Also lost work days are paid for, and there is a potential for disability payments. (p. 47).

Reducing workers' compensation costs or OSHA recordable or lost time injuries is often the main reason company's choose to implement safety incentive programs. One company was able to reduce their workers compensation costs from over \$300,000 in 2000 to about \$20,000 in 2004. Another company that implemented a program saw their incident rate drop from 18.97 in 1999 to .83 in 2004 (Cable, 2005).

Restaurant gift cards are a popular type of reward for incentive programs. One of the main positive factors about restaurant gift cards is its ability for the recipient to share it with his/her family or friends. This also tends to lead family or friends to encourage the participant with the incentive program (Expand the Menu, 2006).

Cons

Opponents say that safety incentive programs are a form of bribery. Many believe these programs arise when safety professionals do not really know how to reduce accidents so they resort to bribery (Prichard, 2001). This can be a manipulative attempt to "cook the books" and often does little to change actual in-the-field behavior. These incentives often only secure temporary compliance as long as workers see a direct connection between the action and the reward. Employees can quickly learn the rules to the program and manipulate the system to minimize the changes needed while maximizing their gains at the expense of the program. Human behavior research has shown that when people are led to think about what they will get for doing a task, they typically do it less well and/or lose interest in it (2001).

The major concern with safety incentive programs is the non-reporting of injuries. Even major proponents of safety incentive programs can agree that safety incentives can discourage incident reporting if they are not administered properly (Miozza & Wyld, 2002). Employees may feel pressured not to report injuries because they fear doing so would ruin their coworkers' chances of winning the incentives (Atkinson, 2000). Under-reporting is usually a symptom of management that is not committed to a safe workplace (Flanders & Lawrence Jr., 1999). This can show that management is simply concerned with reducing workers' compensation costs at the expense of their employees' health and safety. In order for such programs to work, management has to buy into the programs and they must be involved (Expanding the Menu, 2006). Some companies have taken this into consideration when developing their incentive programs and require employees to sign a waiver that says if they fail to report a work-related injury, they could lose their job (Cable, 2005).

According to Downing and Norton (2004), another problem is focusing strictly on reducing accident rates by eliminating unsafe behavior is that it is reactive rather than proactive. Once rates go down, management tends to cut funding for incentive programs. Then the problems usually reoccur, causing a cyclical effect. Using a proactive or problem-solving approach involving both employees and management, the cycle of repeated problems can be eliminated. Also, a company must have a good safety program to begin with. A good incentive program will not make a bad safety program better (2004).

Costs

Costs of such programs can be staggering. It is estimated that to break even on effective incentive programs, companies must see an 8 to 10% reduction in their workers' compensation claims (Smith, 2002). This is very important information for safety managers to think about because upper management, especially the CEO or plant manager, is looking at only one thing – the bottom line.

Incentive experts recommend spending no more than 50 percent of the savings that an incentive program produces (Toomey, 1999). Costs of such programs should consider the program objectives, the number of participants, costs of training/education, cost of awards, cost of administration, cost of promotion, and tracking. Once a budget is established, experts recommend the following budget allocation: 60-70% on awards, 10% on training, 10% on promotion, and no more than 10% for administration (1999.)

Incentive programs at some companies spend hundreds of thousands of dollars on prizes like cars, cruises, or large cash prizes. Others throw lavish safety or recognition parties that can cost in excess of \$60,000 (Smith, 2002). Recently one company gave away a 2006 Pontiac Solstice worth \$27,000 and the previous month a \$1200 plasma television was given away because the company did not have any recordable accidents for those months (Simmons, 2006). The industry standard is often based at 1-2% of an employee's annual wages (Downing & Norton, 2004).

Administrative costs can be high because a lot of detailed work must be done to keep these programs running smoothly. The person administering the program and the company need to know going in what the potential costs will be (Expanding the Menu, 2006).

In addition, there is also a hidden cost of incentive programs that many companies frequently overlook. The companies or the employees must pay taxes on incentives that are awarded. According to Smith (2002), in one case, a South Carolina life insurance company awarded employees \$65,000 worth of \$5 and \$10 gift certificates, assuming they wouldn't be taxed because it wasn't cash. Wrong, said the IRS, which stated the gift certificates were disguised compensation, and the company had to pick up the tab for the interest, penalties, and legal fees totaling an additional \$180,000. Another company rewarded employees with \$100,000 in gift certificates and later had to pay an extra \$90,000 in taxes. Bill Sims Jr., of the Bill Sims Co. Inc, states that the average amount per employee should be somewhere in the \$100 range. Sims said "Can you really expect to change behavior by spending \$2 per person per year? I don't think so," (2002).

Another serious cost of incentive programs is the recurrence of avoidable accidents as a result of failure to identify and correct problems, also referred to by quality managers as the cost of non-conformance (Goldberg, 1998). Failure to report an injury means that the cause of the accident remains uninvestigated and uncorrected, and as a result, the causes of "hidden" accidents and near misses remain and may produce more serious problems in the future. Companies that are truly committed to reducing safety and health costs and exposures rely on all of their injury report data to identify trends and proactively make changes to prevent any recurrences (Atkinson, 2000). Employers who use traditional incentive programs usually see reductions in their OSHA recordables, but their serious injury and fatality rates remain the same. The only thing that is changing is a decrease in the reporting of less serious injuries. If more serious accidents do occur, as a

result of failing to identify hazards, the costs could be much worse than what they would have been earlier on had the hazard been fixed or eliminated.

Workers who do not report injuries right away can have serious difficulty receiving workers' compensation benefits, including both medical costs and/or lost wages, if the injury becomes worse and it is reported later on (Frederick & Lessin, 2000). These costs are then shifted to the individual worker's health insurance, and these days workers are paying higher and higher shares of these shares anyway. With fewer claims, this can translate into lower workers' compensation premiums for the employers. Some employers might see this as a good thing, but it is only masking the problem. Companies who discourage the reporting of injuries could also face future lawsuits by employees for medical compensation for injuries that went unreported and were later denied by workers' compensation.

Hiding injuries could also lead to OSHA fines. For example, Flanders and Lawrence (1999) reported that an Ohio firm was cited under 1904.2(a), the recordkeeping standard, for coercing employees to ignore medical advice in order to falsify records. The company had a bonus pool that rewarded employees with excellent safety records and in return they were pressuring employees not to report their injuries. OSHA is trying to send a strong message that result-based incentive programs must be structured in a way as to not encourage employees to under-report injuries.

Obviously, there are many costs associated with incentive programs. Because of the level of effort required to establish and properly execute a safety incentive program, and the high level of uncertainty regarding the return on investment, it makes much more

economic sense to dedicate resources to activities that have a clear and unambiguous positive effect on safety (Prichard, 2001).

Chapter III: Methodology

In order to find out if safety incentive programs are cost effective and beneficial, several companies of various sizes located the Midwest were contacted and asked about their safety incentive programs. Data on the type of safety incentive program and annual costs associated with the program were collected. Annual workers' compensation costs (not including premiums), annual numbers of OSHA recordable and lost time injuries, and incident and severity rates were collected in order to show trends and define the population.

Subject Selection and Description

This case study is aimed to describe the various types of programs in use by companies and their effectiveness. Several companies were contacted via phone and email regarding their safety incentive programs. Of those, two agreed to share their data and information regarding their incentive programs.

Data Collection Procedures

The safety and health contacts for each company were asked for the following sets of data: annual numbers of OSHA recordable and lost time incidents, incident and severity rates, annual costs of their safety incentive programs, annual workers' compensation costs (paid losses, not premiums), and indirect costs of their programs. The number of years of data required was dependent on the number of years the safety incentive programs have been in place.

Data Analysis

Analysis on this data was done by using charts created in Microsoft Excel. General graphs were created to show trends. Scatter plots were used to show if there was any correlation, positive or negative, between data sets.

Minitab 13.31 was used to calculate correlation coefficients and P-values in order to validate any correlation found through the scatter plots. Correlation coefficients range in value from -1 to +1, and the strength depends on the absolute value of the coefficient. The larger the absolute value, the stronger the linear relationship. The direction of the relationship depends on the sign of the coefficient. P-values in this analysis had an α -level of 0.05. Any results less than 0.05 mean that the correlation is different from zero, while values greater than 0.05 mean the correlation is different from zero.

Limitations

Not all companies use safety incentive programs, therefore, it was necessary to contact only companies that the researcher knew used such programs. Several companies also declined to take part in the study, and therefore, the population of this study is not fully representative of all companies that use incentive programs. It is also difficult to fully identify all costs and benefits associated with safety incentive programs. It can be hard to quantify the pros and cons of such programs.

Chapter IV: Results

This study was done to see if incentive programs are cost effective and beneficial. Two companies with safety incentive programs were used as case studies to show the different types of safety incentive programs that are currently being used as well as to see how these incentive programs have affected certain criteria.

Item Analysis

Company A

Company A institutes a program that is fairly inexpensive, and they have very low incident and severity rates. Company A has a safety incentive plan based on positive actions toward safety rather than bad things not happening. Employees have been very responsive to it since it began in 1991. It is based on a quarterly system. There are nine departments and each month each department must complete and report a safety inspection. Each department must also complete and report on a safety meeting held in the 1st and 3rd month of the quarter. A facility meeting including all departments is held in the second month and 100% participation is required. There is also a Safety Committee meeting each quarter. The Safety Committee tracks the progress for each department on a chart. The incentive is a safety lunch for all employees after completion of all the quarterly goals.

Food is seen as a big incentive to the employees of Company A. The incentive is theirs to lose. It is easy for employees to achieve and it keeps safety awareness high as well. No one wants to blow the lunch for the entire company, which would be hard to live down. Company A averages about one recordable incident a year and these injuries are usually minor cumulative trauma disorders (CTDs).

The main limitation to the incentive program used by Company A is that entire safety lunch could be affected by one person's actions. If one person misses a safety meeting, the entire company will miss out on the safety lunch. It could be more appropriate if those workers who do not comply with the program are left out of the lunch, while those who qualify are rewarded.

Indirect costs associated with the safety incentive program for Company A are estimated at \$50 per quarter. This mostly involves checking that all components were complied with and coordinating the employee luncheon. At \$50 per quarter, annual costs would be \$200. This is an extremely small amount and very little administration is necessary for this program.

Table 1. Company A Worker's Compensation Costs vs. Incentive Program Costs

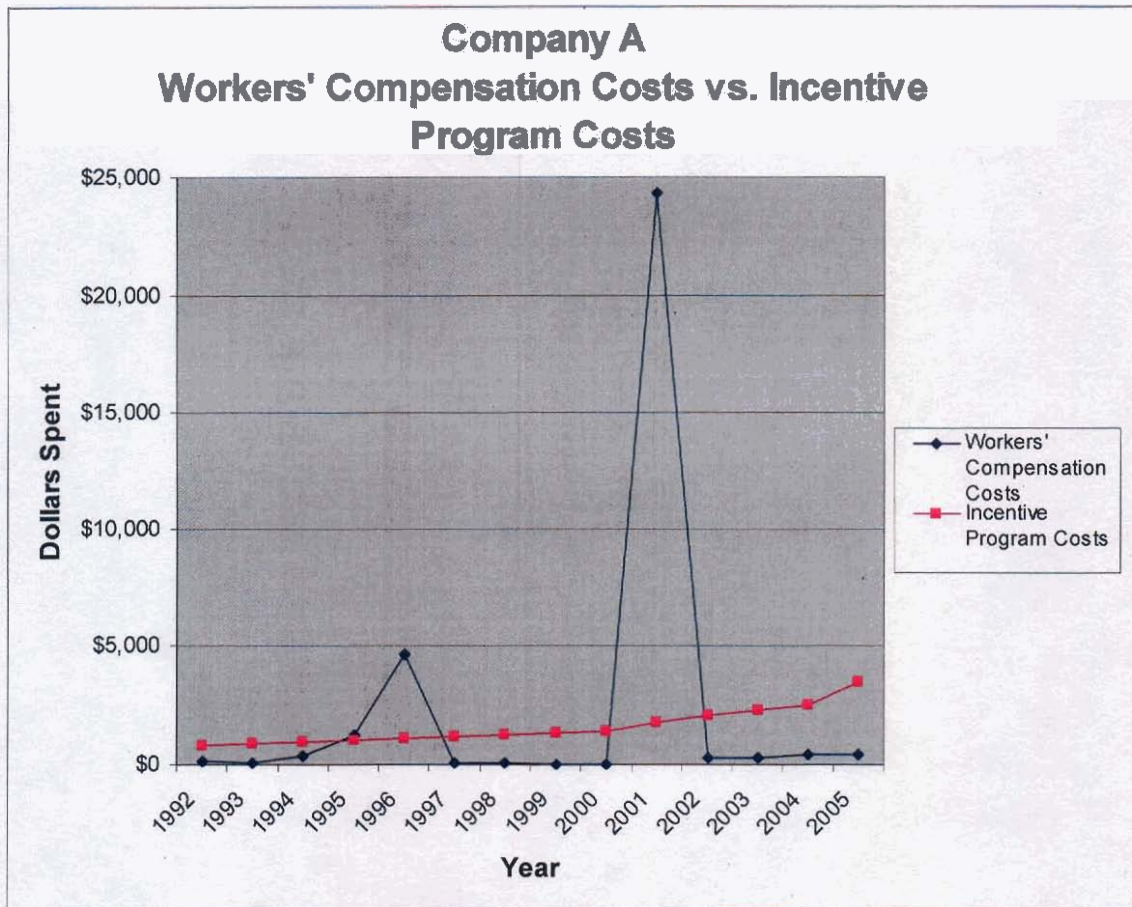


Table 2. Company A Worker's Compensation Costs



Table 3. Company A Incentive Program Costs

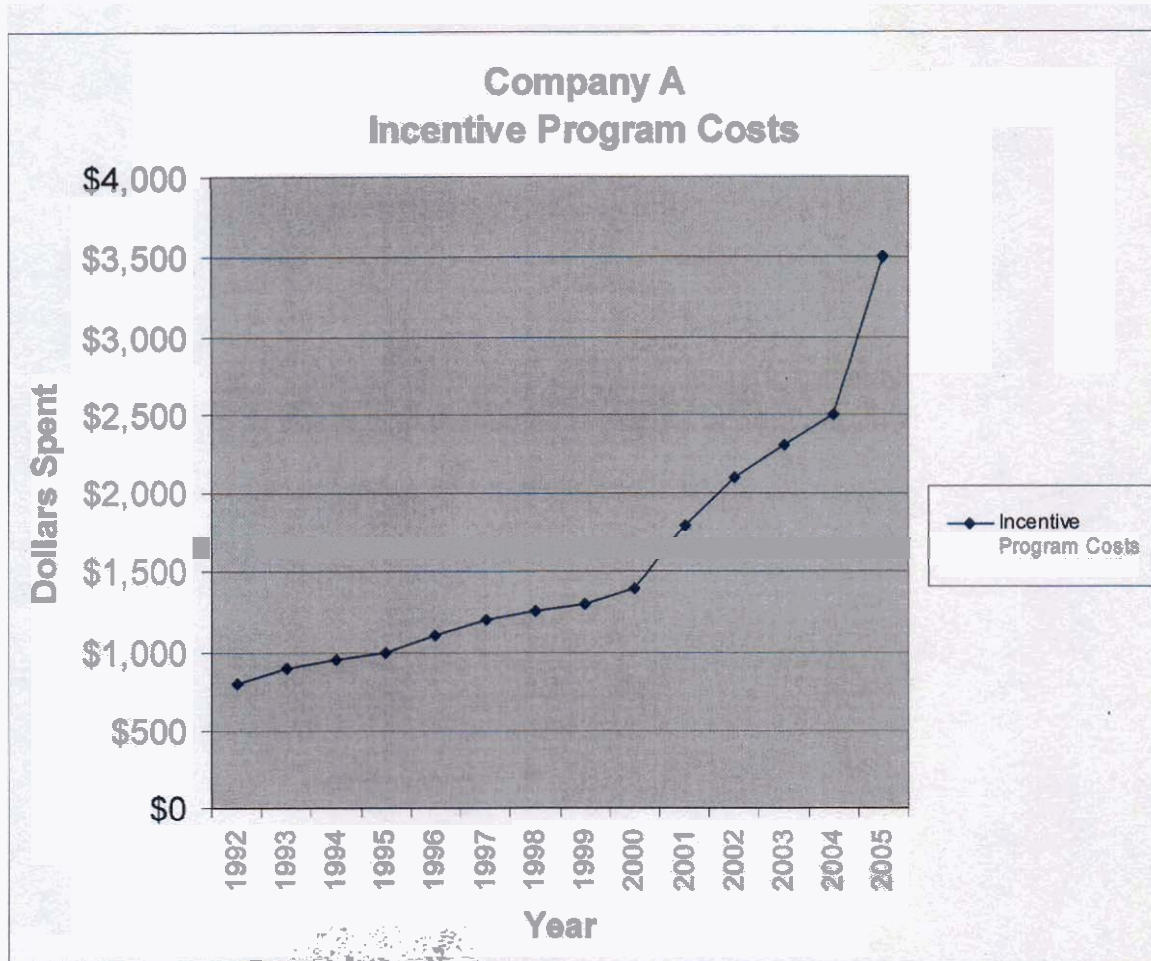


Table 4. Company A Incident Rates

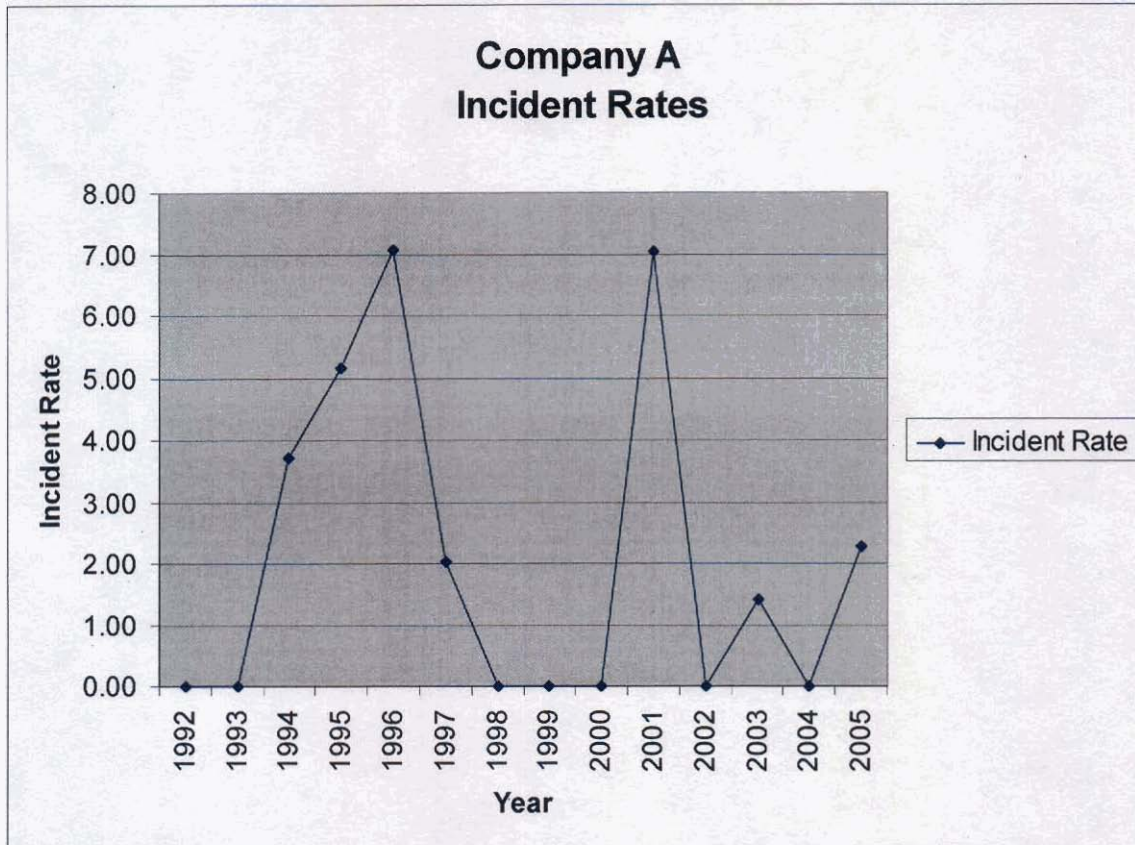


Table 5. Company A Severity Rates

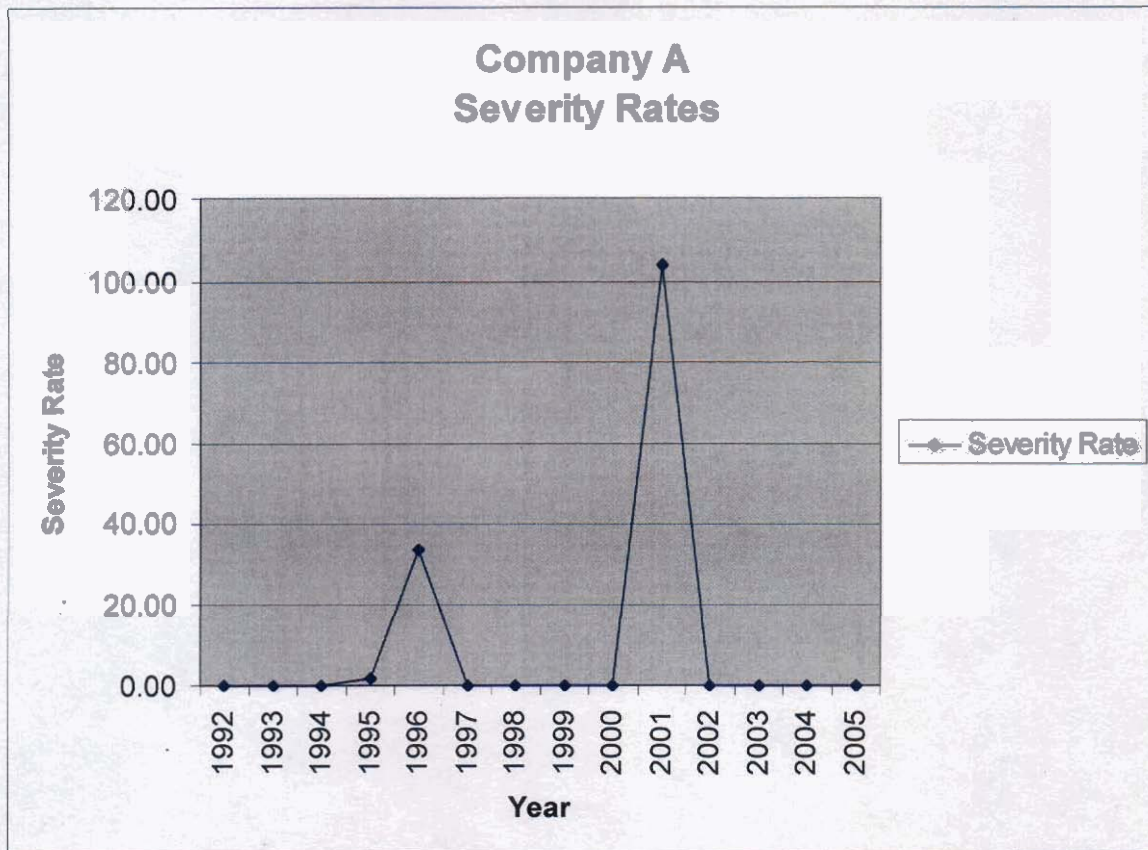


Table 6. Company A OSHA Recordable and Lost Time Cases

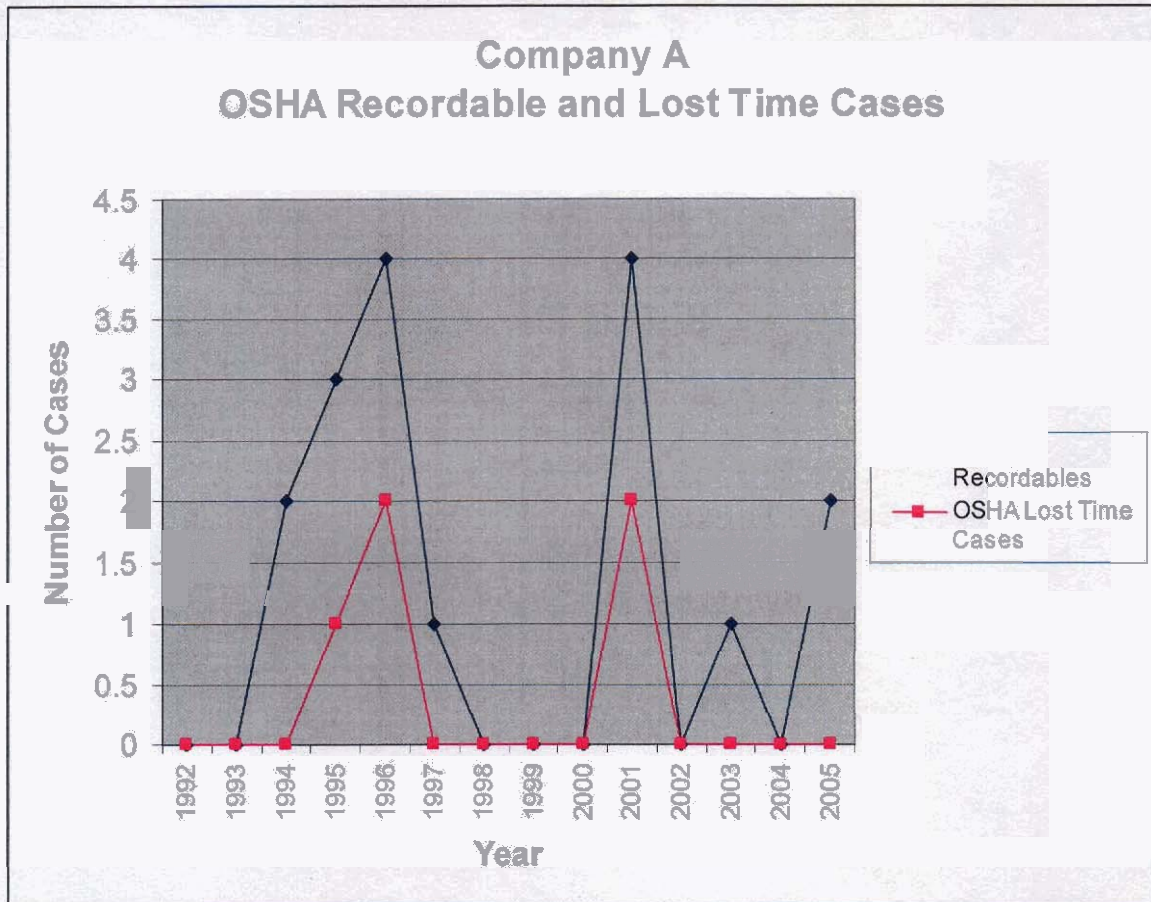


Table 7. Company A Correlation of Workers' Compensation Costs and Incentive Program

Costs

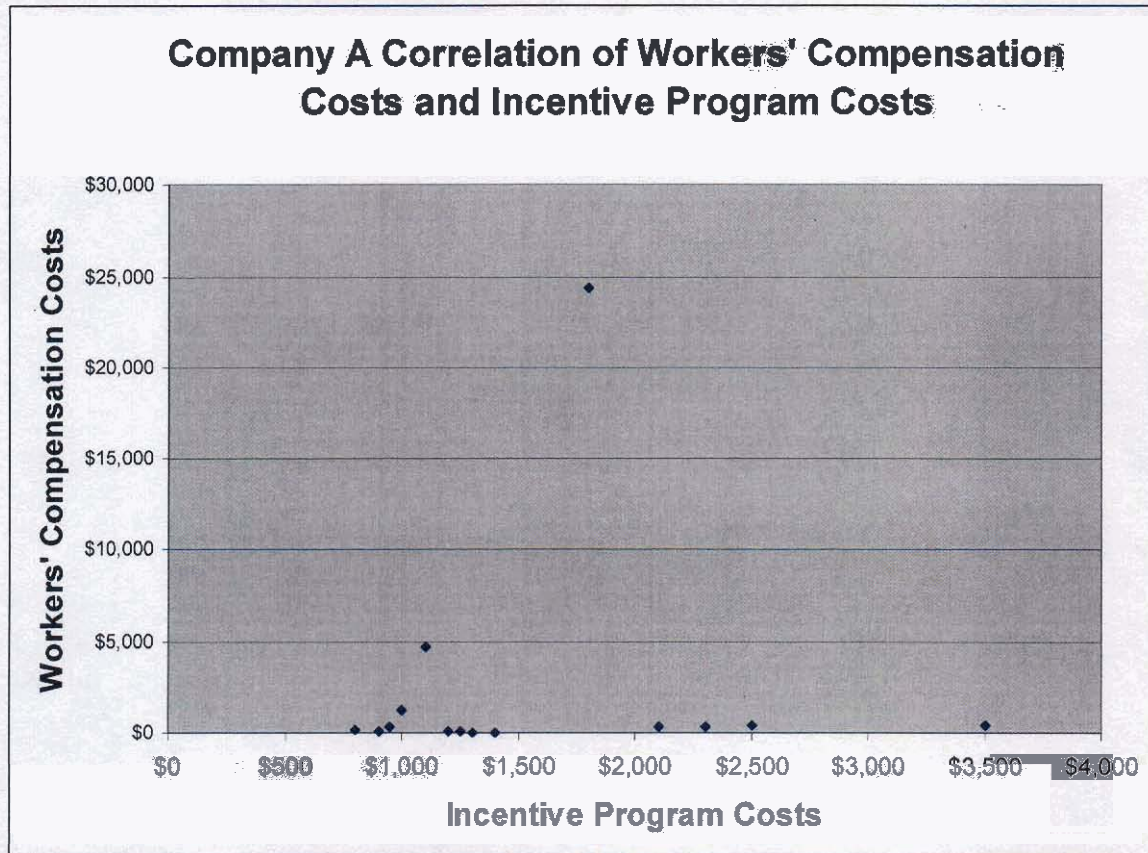


Table 8. Company A Correlation Between Severity and Incident Rates and Incentive Program Costs

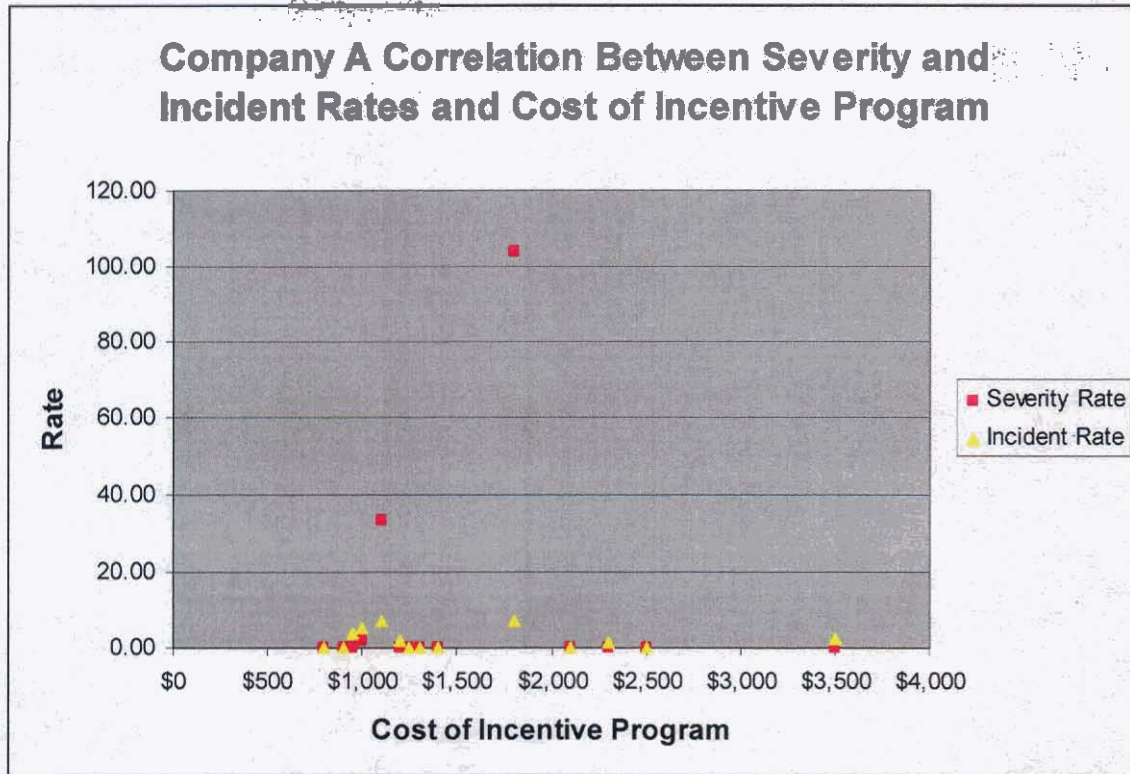
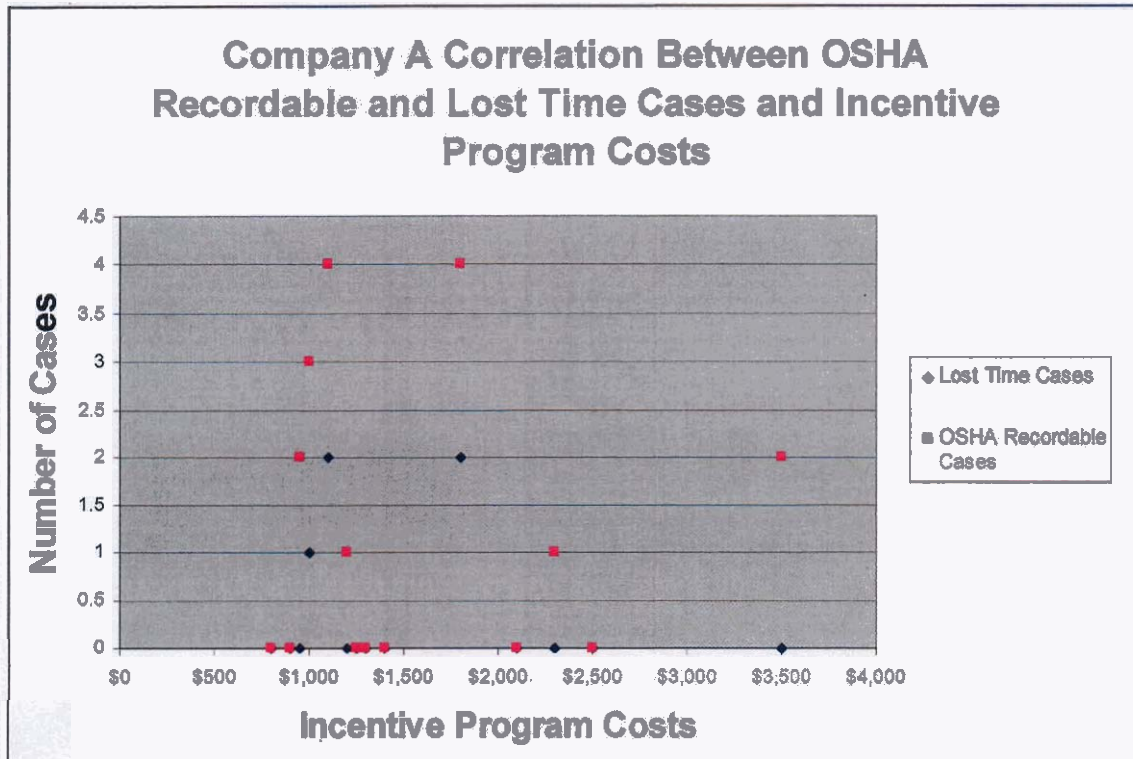


Table 9. Company A Correlation Between OSHA Recordable and Lost Time Cases and Incentive Program Costs



Company A has a consistently low cost for its safety incentive program. The program costs have slowly been increasing over time, usually averaging a change of around \$200 per year, except for 2005, which was up \$1000 over 2004's cost of \$2500 to \$3500. There have not been any other large jumps, nor any decreases in the costs of the safety incentive program.

The workers' compensation costs of Company A are typically very low. Only three years have seen workers' compensation costs above \$1000. This occurred in 1996, 1996, and 2001. In 2001, there was an all time high of workers' compensation costs of \$24,354. This particular year saw four OSHA recordables with two lost time incidents.

This included 59 lost work days, the most they have lost within the past 14 years combined.

Company A has very low incident rates, with occasional small peaks. These peaks occurred in 1996 and 2001 when the incident rates rose to 7.06 and 7.05 respectively. This also carries over into the severity rates for Company A. Company A has had a severity rate of 0.00 in all but three years in 1995, 1996, and 2001. In addition, Company A averages 1.2 OSHA recordables per year and averages only 0.3 lost time incidents per year.

According to Table 7, there was no correlation between the workers' compensation costs and the cost of the incentive program for Company A. The correlation coefficient for the incentive program costs and the workers' compensation costs was 0.055, which was very low and substantiates a weak linear relationship. The P-value was 0.853 shows that the coefficient correlation is not significantly different that zero. As noted above, Company A typically has very low annual costs for workers' compensation, usually below \$1000. Even though the cost of their incentive program has been increasing steadily, the workers' compensation costs have stayed the same.

Severity and incentive rates also have no correlation to the incentive program costs. This is confirmed by correlation coefficients of 0.021 and -0.092, respectively. Again, these rates are usually very low and are not affected by the costs of the incentive program. There were two outliers for the severity rate at 33.52 and 104.03. These results are show in Table 8.

OSHA recordable and lost time cases do not have a correlation to the incentive program costs as shown in Table 9. The annual totals for OSHA recordable are always

less than or equal to four, while lost time cases are less than or equal to two. The numbers are not dependent on what was spent on the incentive program. The incident rate for Company A had the highest coefficient correlation value of -0.146, although this is still a low result.

Company B

Company B uses an incentive program with two separate aspects. The first part to the program is a safety point system. Points are awarded to eligible employees based on regular hours, over-time hours are not included. Eligible employees are all regular full-time and regular part-time employees. Temporary employees and summer employees are not eligible. One-tenth (1/10) of a point is earned for each regular hour worked and each point is worth \$0.15. This allows employees to earn four points for every 40 hours worked. There is a maximum of 208 safety points in any calendar year. Overall, there is a 650 point maximum accrual. If the maximum accrual limit is reached, safety points will not be award until an employee's balance falls below the limit.

The safety points can be used to purchase a wide variety of recognition awards, food products, or protective footwear. Safety points can be lost at varying amounts for several reasons.

- 150 points for a lost time OSHA recordable incident
- 100 points for an OSHA recordable incident
- 50 points for receiving a written safety warning
- 50 points for have 2 incidents within 12 months

It should be noted, that in regards to losing points for an OSHA recordable or lost time incident, the points are only deducted if the incident was the result of an unsafe act,

horseplay or intentional act. For example, if an employee had an OSHA recordable incident for an ergonomic injury such as carpal tunnel, the employee would not lose any points. This aspect of point deduction is fairly new to Company B. It was instituted within the past 2 years. Previously, there was no way for an employee to lose points, everyone gained them regardless.

The second part of Company B's incentive program involves safety goals that are set annually by the Safety Steering Committee. This is a committee made up of managers and supervisors that oversees safety issues and is an advisory committee for the regular Safety and Health Committee. The Safety Steering Committee sets a monthly recordable incident goal. In 2005, for example, the goal was 2 or less. If the company had 2 or less OSHA recordables in a month, the employees would receive a "Safety Treat". This involves some sort of food item such as, cookies, bars, or muffins. If there are zero recordable incidents incurred for two consecutive months, some type of lunch is served to all employees.

The safety incentive program used by Company B has several limitations. First of all, the safety points accrue at a very slow rate. With accruing only four points per week, it can be hard for an employee to become very excited about the program. The maximum annual accrual of 208 is only valued at \$31.20. For an employee to purchase something substantial, it can take them several years to accrue the needed amount of points.

Another limitation is that there is no other way for employees to gain points. Employees might be more motivated to become involved in safety if they could be rewarded in some fashion for their efforts. One example would be members of the Safety and Health Committee should receive an extra amount of points per year for their

participation. Another option would be to give out extra points for safety suggestions that are implemented.

There is also no recognition for employees in regards to safety. Company B has a company newsletter that each month could recognize safe employees, or recognition could be given on a display board in the main lobby or lunch room, so that others would be able to see their co-workers accomplishments.

It has also been reported to the Safety and Health Committee of Company B that there are concerns regarding the non-reporting of injuries. Several committee members have stated that employees are scared to report things because they are afraid to lose their points. This shows there is a communication gap between administrators of the program and some employees. Employees are told about the safety points program when they become eligible for the program. It should be noted that Company B employs a high number of immigrants who do not speak English, and in fact, 16 different languages are spoken within the facility. One probable cause for the communication gap is the language barrier. While most of the English speaking employees know they will not lose their points for reporting injuries or unsafe conditions, it seems that many of the non-English speaking employees are confused by the system and it could be causing them to not report injuries or incidents.

Indirect costs for Company B's safety incentive program can be considered rather high. The Safety & Environmental Coordinator estimates that approximately 12 hours a month are spent on administration of the program. At \$20 per hour, this equals \$240 per month, or \$2880 per year, designated for program administration. In 2005, Company B spent \$13,297 on its incentive program while spending approximately \$2880 on

administrative costs. This would be a total of 21.7% of the budget in 2005. According to Toomey (1999), no more than 10% should be spent on administration of a program. In addition, this means that 12 hours of production time are taken away from the Safety & Environmental Coordinator.

Table 10. Company B Workers' Compensation Costs vs. Incentive Program Costs

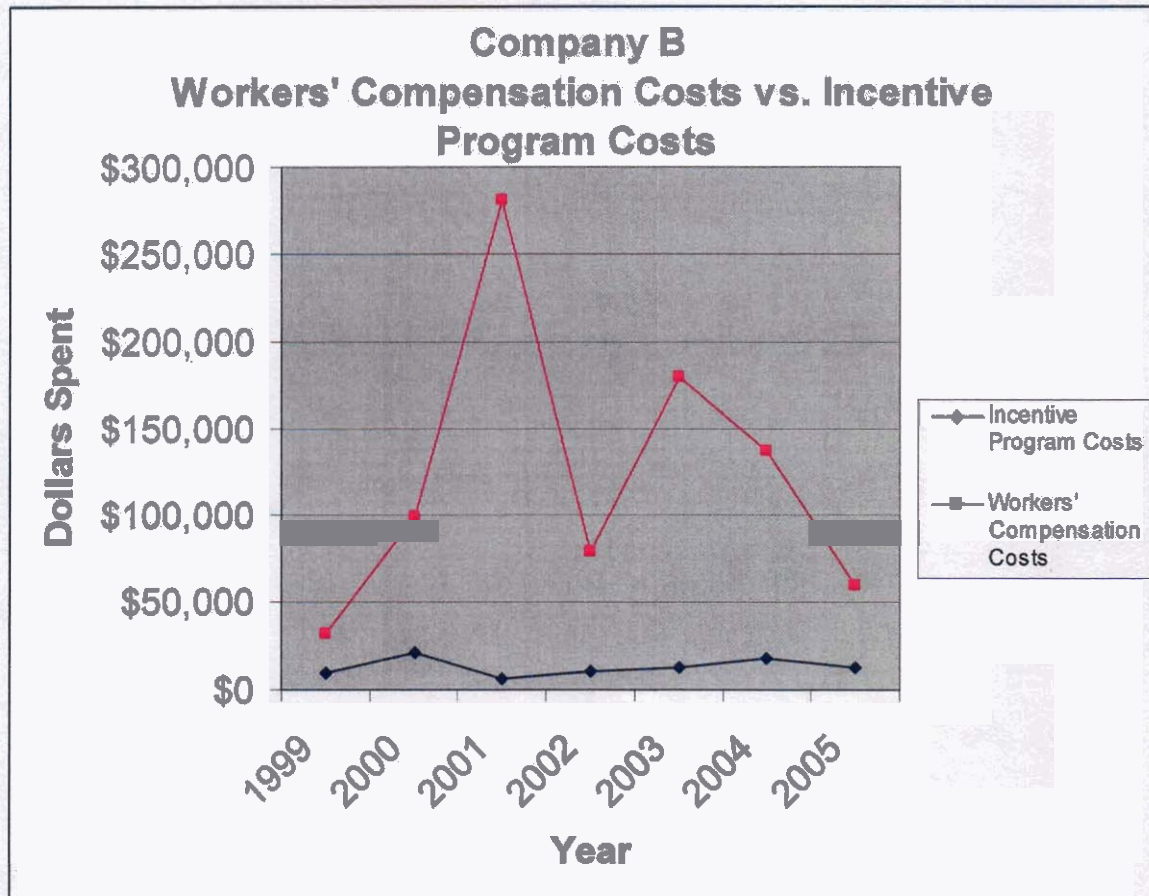


Table 11. Company B Workers' Compensation Costs

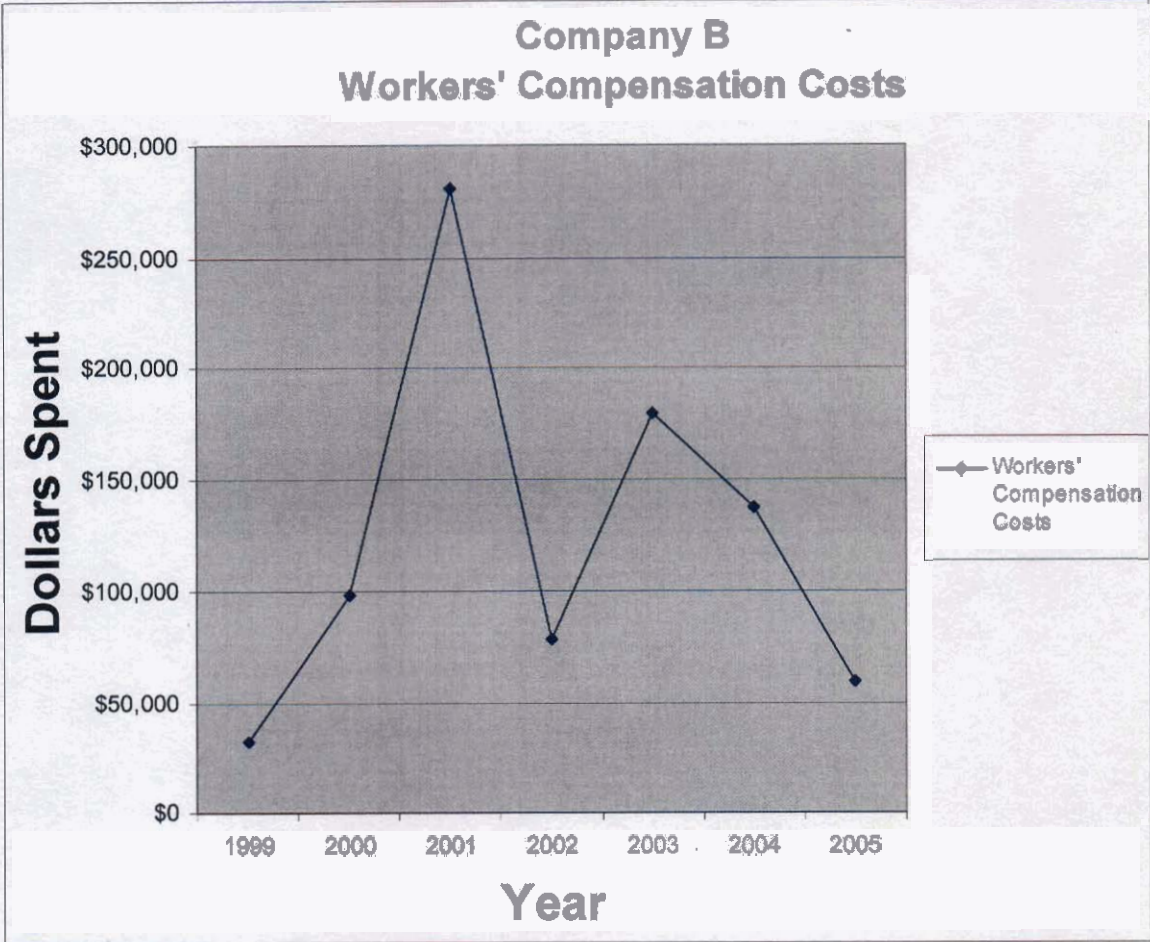


Table 12. Company B Incentive Program Costs

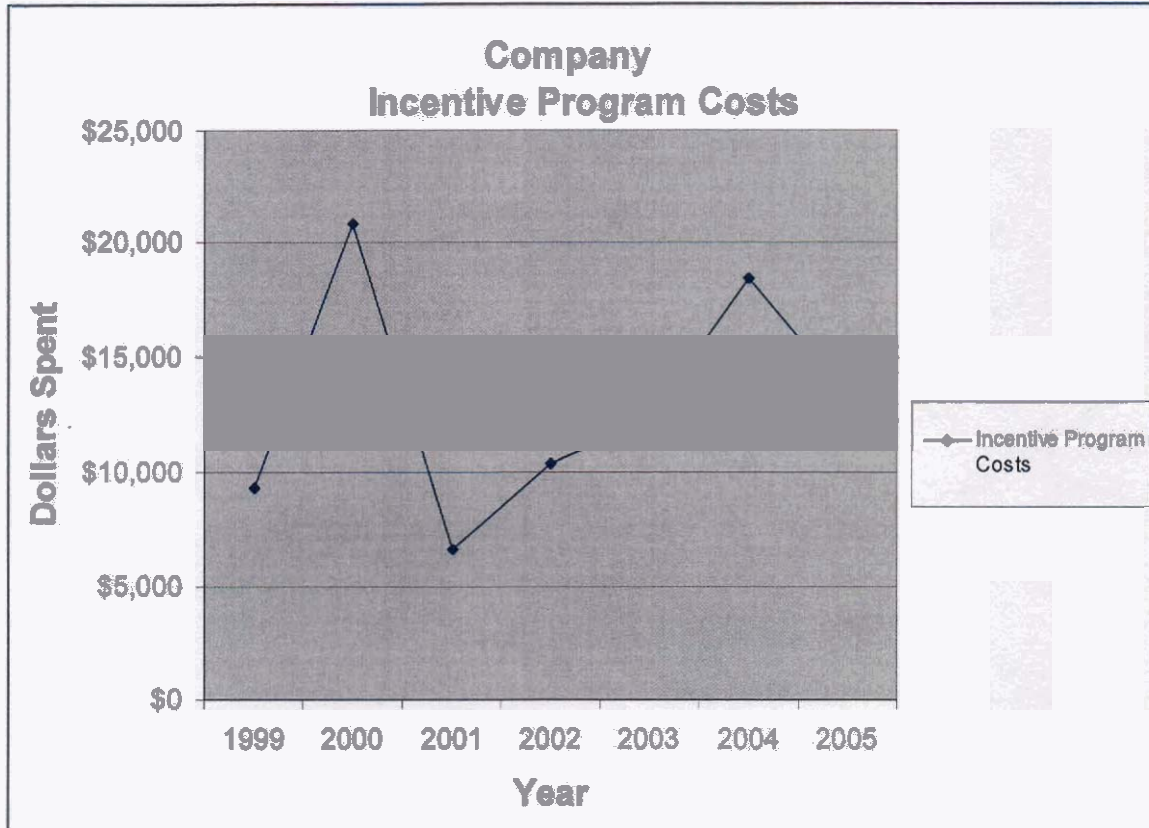


Table 13. Company B Incident Rates

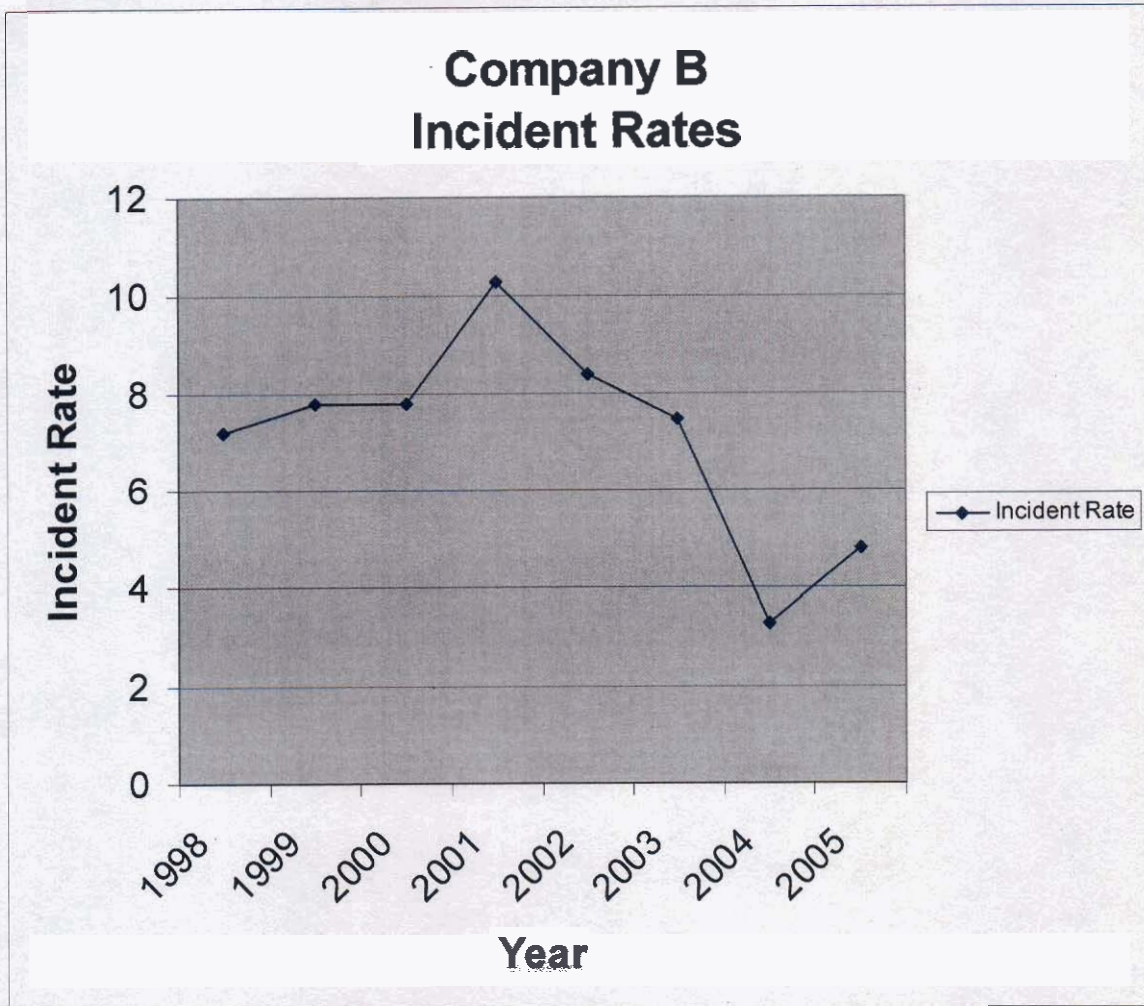


Table 14. Company B Severity Rates

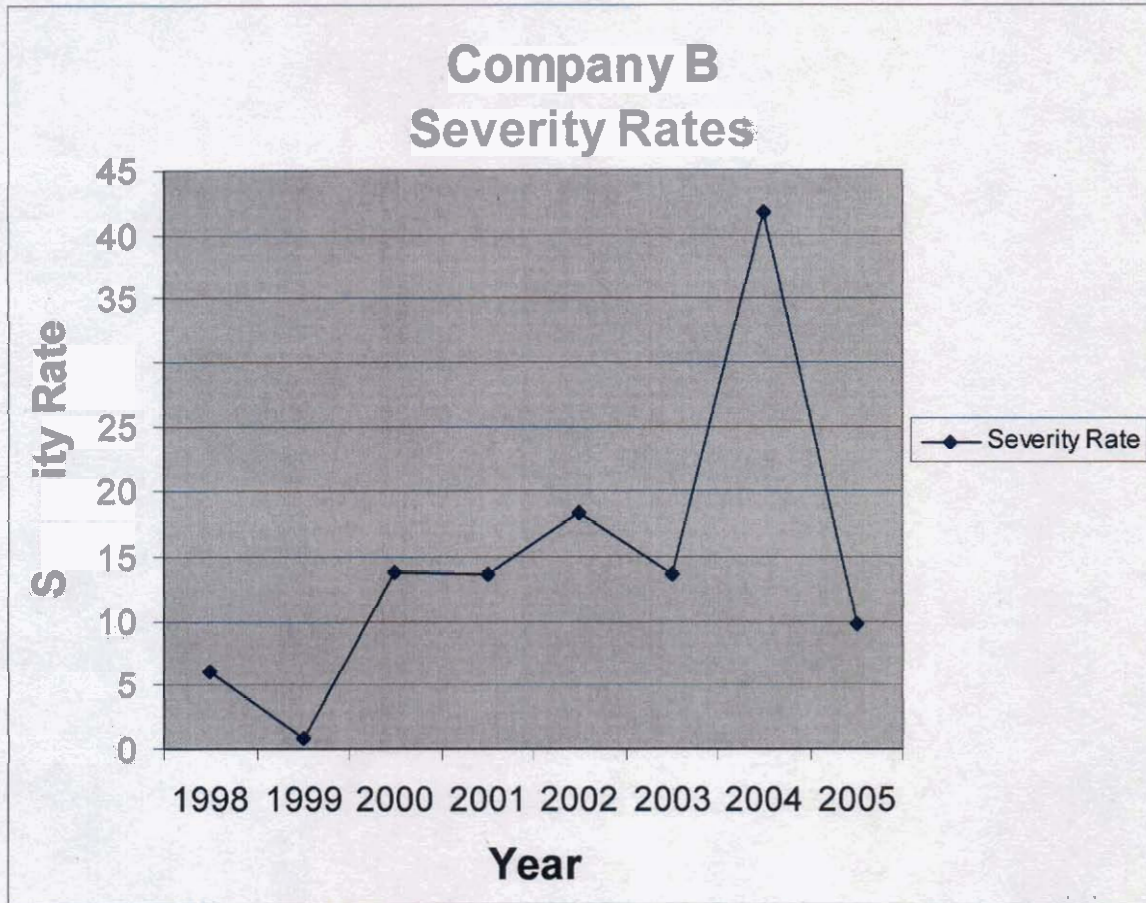


Table 15. Company B OSHA Recordable and Lost Time Cases

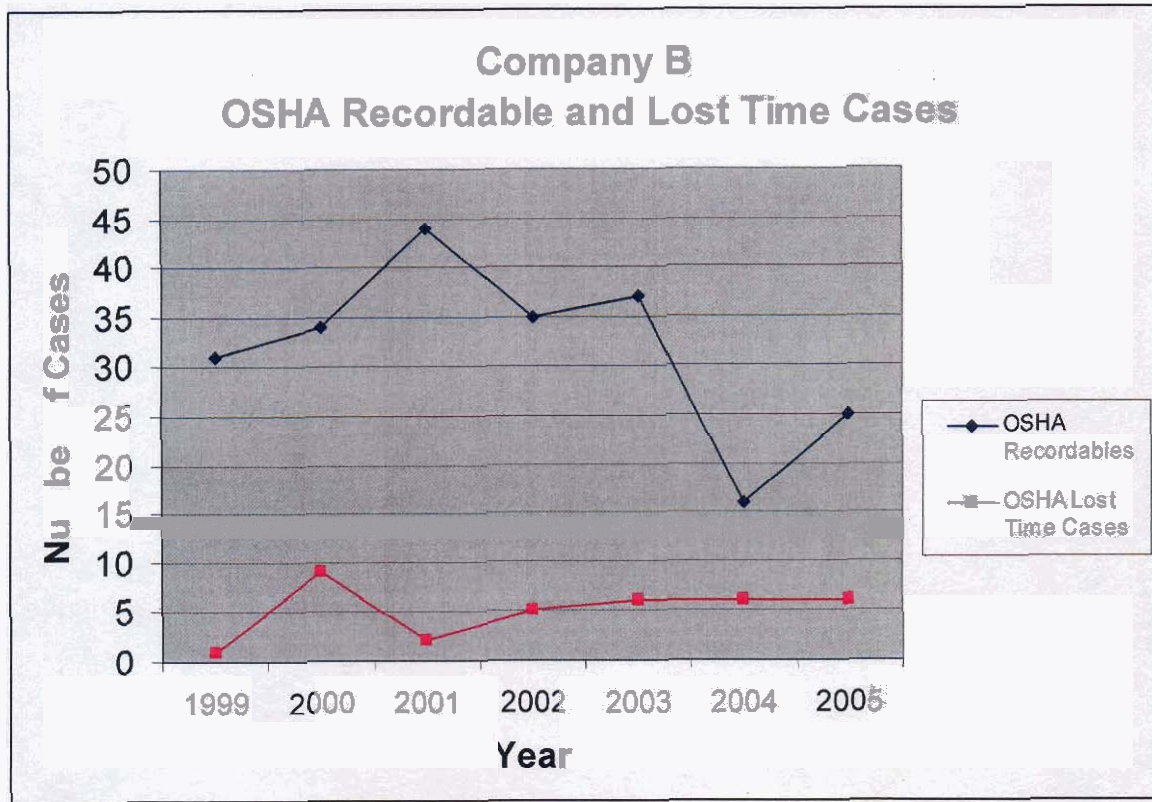


Table 16. Company B Correlation Between Workers' Compensation Costs and Incentive Program Costs

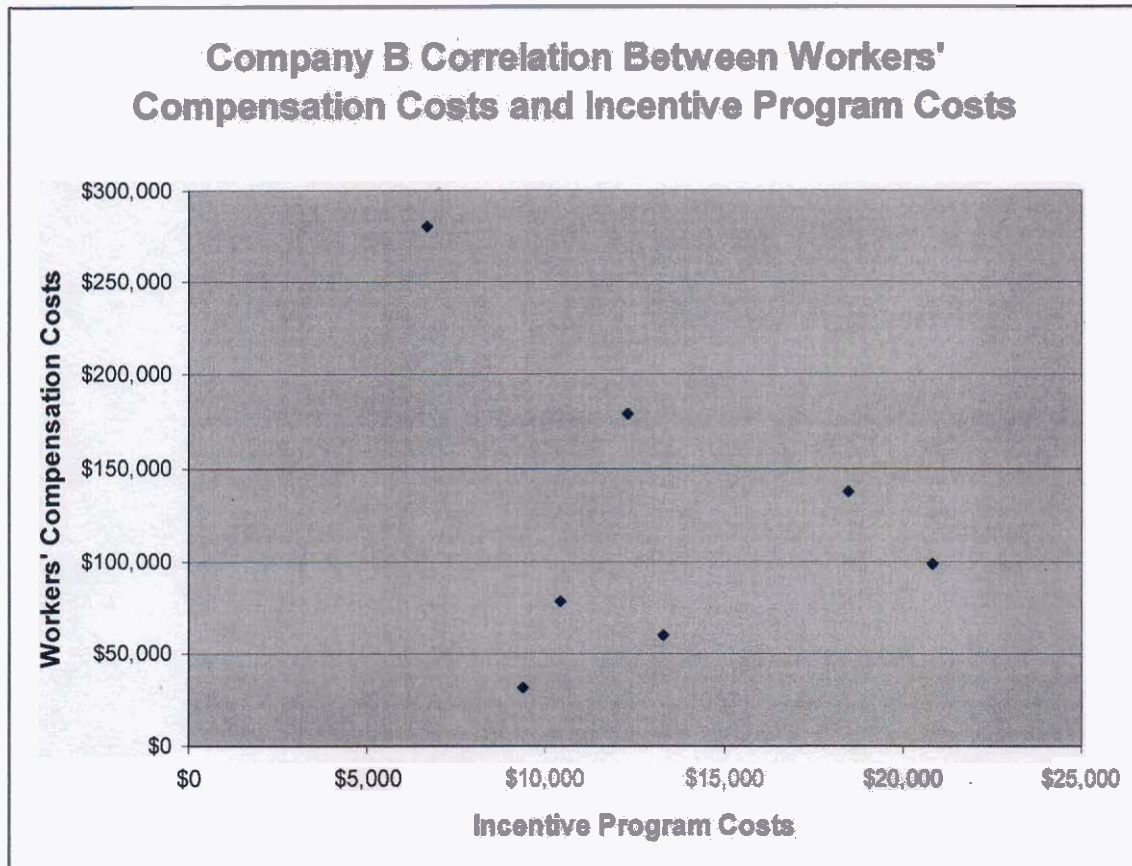


Table 17. Company B Correlation Between Severity and Incident Rates and Incentive Program Costs

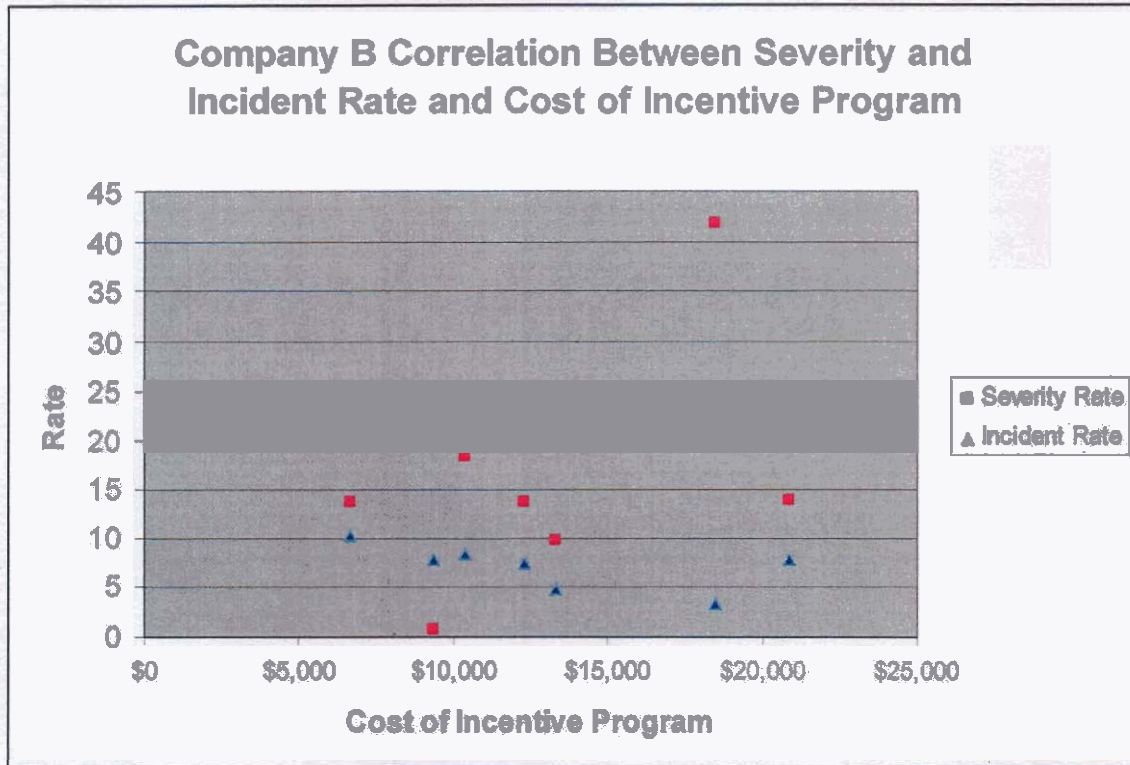
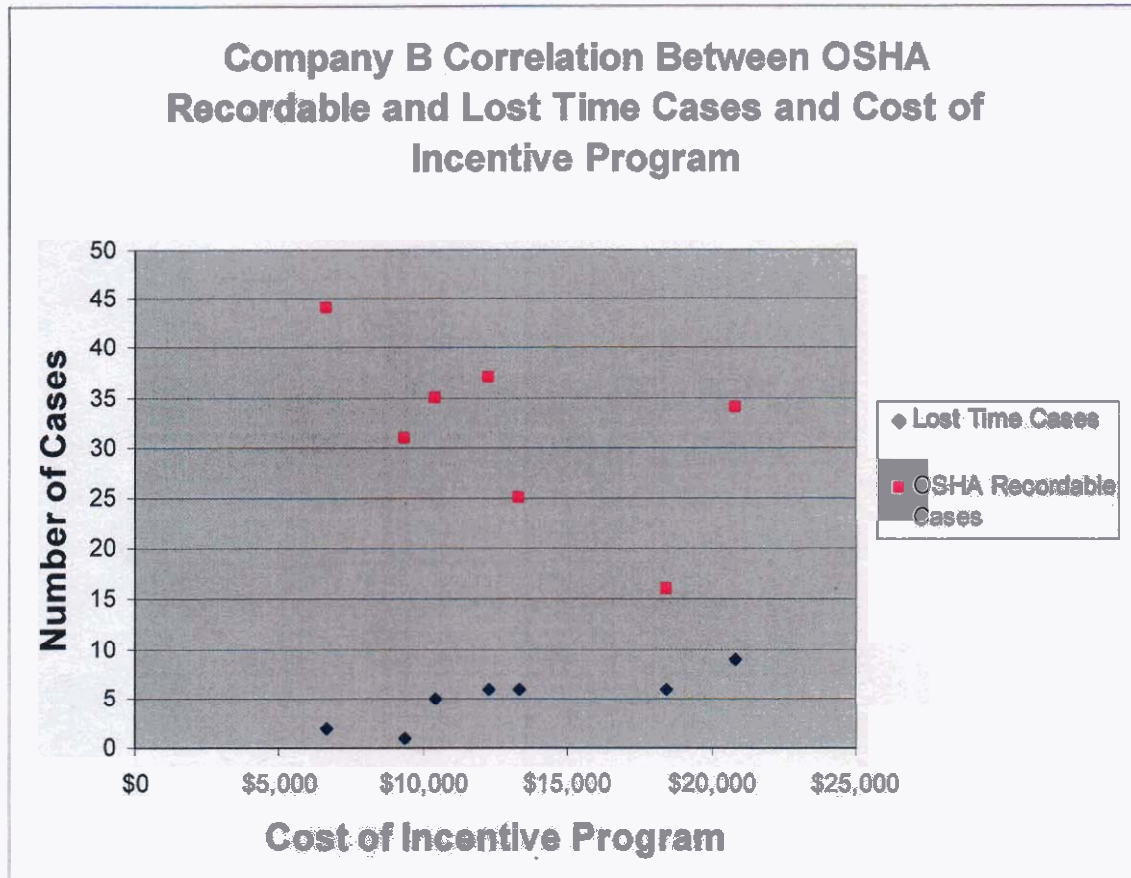


Table 18. Company B Correlation Between OSHA Recordable and Lost Time Cases and Incentive Program Costs



Company B's costs of its incentive program have mostly trended upwards from 2001-2004, although 2005 saw a 28% decrease in costs from \$18,462 in 2004 to \$13,297 in 2005. There was an initial high peak in 2000 of \$20,841 followed by a low of \$6,653 in 2001. This can be attributed to the fact that employees would have had to wait a while to accumulate enough points to purchase items. The year 2000 saw a large influx of orders for those employees who wanted to use up their points, while 2001 then saw a decline in spending due to the fact that the employees had spent most of their points the previous year and again had to wait to accumulate points. Since then there has been more of a steady level of costs spent on the incentive program.

The workers' compensation costs for Company B tend to vary from year to year. In 2001 there was a sharp increase up to \$280,866, and again in 2003 with costs of \$179,280. The safety incentive program has clearly not affected Company B's workers' compensation costs.

From 2001-2004 Company B saw a decline in its incident rates. In 2005 there was a slight increase from 3.3 in 2004 to 4.8 in 2005. The severity rates, on the other hand, show a different trend. Severity rates for Company B have a somewhat upward trend. There was a large spike in 2004 with a severity rate of 41.8, followed by a decrease to 9.8 in 2005. In 2004 Company B had a large increase in the numbers of days lost, up to 223 from 88 in 2003, causing the large jump in the severity rate.

In general, Company B averages 31.7 OSHA recordables per year, while it averages 5.1 lost time incidents per year. Company B did see a drop in OSHA recordables in 2004 with only 16, although this is off set by the high number of lost work days that year. 2005 was also lower than average with 25 OSHA recordables. Initially, neither the number of OSHA recordables nor the lost time incidents seem to be affected by the safety incentive program as neither has seen significant decreases or downward trends.

Table 16 shows the possibility of a negative correlation between the cost of the incentive program and the workers' compensation costs. There is a slight downward trend, showing that as the cost of the program went up, workers' compensation costs tended to go down. There were a few outliers shown on the graph, which means the correlation could possibly be there, although further data would be necessary to find out if there is any linear correlation. The correlation coefficient for these two variables was

-0.285 with a P-value of 0.536 which both suggest there is not that strong of a linear relationship as the scatter plot may suggest.

Severity and incident rates did not have any correlation in regards to how much was spent on the incentive programs. Table 17 shows that most of the rates are all within the same range, along with a few outliers, particularly the severity rate of 41.8 in 2004. The correlation coefficient for the incident rate was -0.601, suggesting somewhat of a negative linear relationship. Although overall, the cost of the incentive program seems to have little effect on Company B's severity or incident rates.

One of the more surprising results involves the OSHA recordable and lost time cases. Table 18 shows that a negative correlation exists between the number of OSHA recordable cases and the cost of the incentive program. There was one outlier in this category in which there were 34 OSHA recordable cases in the year when over \$20,000 was spent on the incentive program. Here, the correlation coefficient was -0.579, which supports the negative linear correlation between the OSHA recordable cases and the cost of the incentive program. This downward trend leads us to believe that as the cost of the incentive program went up, the number of OSHA recordable cases went down.

On the other hand, however, Table 18 shows a positive relationship between lost time cases and incentive program costs. The correlation coefficient of 0.855 and the P-value of 0.014 strongly suggest there is a strong positive linear relationship. Of all the data sets from both companies, this set showed the strongest results of all. This would suggest that as more was spent on the incentive program the number of lost time cases actually increased. This result is not expected. It would normally be assumed that as the number of OSHA recordables decrease, as noted above, so would the number of lost time

cases. This suggests that while Company B may have managed to cut down on their frequency of incidents, they have not addressed the severity. However, it should be noted that since the severity rate had no correlation to the incentive program costs, this may or may not be true.

Chapter V: Conclusions and Recommendations

Discussion of Results

The safety incentive program currently used by Company A has not shown to have any correlation or effect on workers' compensation costs, severity and incident rates, or OSHA recordable or lost time cases. This is supported by the scatter diagrams as well as the correlation coefficients and P-values. Company A has very low annual costs for workers' compensation and their numbers for severity and incident rates as well as OSHA recordable and lost time cases are extremely low.

The program used by Company A is inexpensive and requires very little administration or indirect costs. The program in question is mostly likely more beneficial for keeping up employee moral. It would seem that Company A would have similar results without having such a program in place.

Company B did show signs of some correlation in a few different categories. Table 16 possibly shows a slight negative correlation between the cost of the incentive program and workers' compensation costs. Generally, in the years when Company B spent more on their incentive program, their workers' compensation costs went down.

There was also negative correlation between the number of OSHA recordables and the cost of the incentive programs. Again, when the cost of the program went up, OSHA recordables were generally less than when spending on the program was lower. The surprise correlation was with the lost time cases. Company B actually saw the number of loss time cases rise as the cost of the incentive program went up. This would not normally be expected but was supported by the correlation coefficient of 0.855 and a

P-value of 0.014. It also should be noted that neither the severity nor the incident rate had any correlation to the cost of the incentive program.

Limitations

This case study was limited to companies with safety incentive programs in the Midwest who were willing to share their company data. Several companies declined to take part in the study, and therefore, the population of this study is not fully representative of all companies that use incentive programs. It is also difficult to fully identify all costs and benefits associated with safety incentive programs. It can be hard to quantify the pros and cons of such programs.

Conclusions

Company A's safety program does not show to be having any affect on its workers' compensation costs, severity and incident rates, or OSHA recordable and lost time cases. Since the company does not spend much money on the incentive program in the first place, they are not losing much, if any, money on the program. For example, in 2004, Company A spent \$2500 on the program, while workers' compensation costs were only \$418.48. The difference is only \$2081.52.

Company B's program did, however, show some signs of negative correlation between the workers' compensation costs and the cost of the incentive program, meaning as the cost of the program went up, workers' compensation costs went down. This can be seen in Table 16. This is one of the primary reasons that companies choose to implement safety incentive programs.

A negative correlation was seen with the number of OSHA recordable cases, and surprisingly, there was a positive correlation with the number of lost time cases. The

reduction of OSHA recordable cases is a good sign. However, showing a positive correlation with the lost time cases needs further attention.

One possible reason for the increase of lost time cases could be the non-reporting of injuries. Delaying the reporting of injuries can be harmful because once they finally are reported they can be more severe since they have not been treated and may require lost days. Frederick & Lessin (2000) also stated that the costs of unreported injuries are then shifted to the individual worker's health insurance. So while workers' compensation costs might be decreasing, regular health insurance costs for Company B may be rising. It should also be noted, that according to Atkinson (2000), not reporting injuries means that the cause of the accident remains uninvestigated and uncorrected, and as a result, this may produce more serious problems in the future. Companies committed to reducing safety and health costs and exposures rely on all of their injury report data to identify trends and make changes accordingly to prevent any recurrence.

Recommendations

In order to do a more precise comparison of data, further studies should look at numbers for workers' compensation costs, incident and severity rates, and OSHA recordable and lost time cases prior to the implementation of the program for each company. This would be beneficial for both Company A and B. This way one would be able to more accurately judge the affect a safety incentive program has had on an organization and how cost effective it is.

In the case of Company B, it would also be beneficial to have a few more years' worth of data. Currently, there was only data from 1999-2005. The lack of long-term data makes it difficult to properly judge trends within the data. It would be recommended to

review Company B in a few years' time to see if additional years' data can help to more clearly define trends and correlations.

It would also be recommended by the author to look at other factors such as the cost of regular health insurance. Obviously health care costs grow higher and higher each year, but especially with the case of Company B, it would be interesting to see if there has been any changes in the number of claims annually for regular health insurance. This could help identify if work related injuries are truly being under-reported. If there was a significant jump in the past few years, this might let us know if people are putting their injuries under their personal health insurance or not.

An additional study should be done to investigate the non-reporting of injuries, especially regarding Company B. Something such as a focus-group or an employee survey could be used to determine if in fact injuries are being under-reported. It is hard to judge for sure if injuries are not being reported unless there is direct information from the employees themselves.

The author also recommends doing additional case studies on a number of other companies from various industries to study the types of safety incentive programs that are being used. It would be more beneficial to have a larger population in order to see what kinds of affects safety incentive programs are having for those companies that are using them.

References

- Atkinson, W. (2000). The dangers of safety incentive programs. *Risk Management*, 47(8), 32-38.
- Cable, J. (2005). Success dispels skepticism for companies with incentive programs. *Occupational Hazards*, 67(4), 27-31.
- Downing, D. & Norton, J. (2004). Safety incentives: myths and realities. *Occupational Health & Safety*, 73(1), 62-66.
- Expanding the menu*. (2006). *Occupational Health & Safety*, 75(1), 68-72.
- Goldberg, A. T. (1998). How many stitches are boots worth? The true effect of safety incentive programs. *Professional Safety*, 43(7), 37-38.
- Goodrum, P. M., & Gangwar, M. (2004). Safety incentives: A study of their effectiveness in construction. *Professional Safety*, 49(7), 24-34.
- Flanders, M. E., & Goldberg, A. A. (2001). Incentive programs control fraudulent injuries. *Occupational Hazards*, 63(6), 47-50.
- Flanders, M. E., & Lawrence, T. W. (1999). Warning! Safety incentive programs are under OSHA scrutiny. *Professional Safety*, 44(12), 29-31.
- Frederick, J., & Lessin, N. (2000). Blame the worker: The rise of behavioral-based safety programs. *Multinational Monitor*, 21(11), 10-17.
- Miozza, M. L., & Wyld, D. C. (2002). The carrot or the soft stick?: The perspective of American safety professionals on behaviour and incentive-based protection programmes. *Management Research News*, 25, 23-41.
- Prichard, R. (2001). *Safety incentive programs: A critical assessment*. Retrieved November 30, 2004, from

<http://www.irmi.com/irmicom/Expert/Articles/2001/Prichard02.aspx>.

Simmons, R. (2006). Culpeper man gets new car for safety record. *Culpeper Star*

Exponent. Retrieved February 20, 2006 from

http://www.starexponent.com/servlet/Satellite?pagename=CSE/MGArticle/CSE_MGArticle&c=MGArticle&cid=1137834163603

Smith, S. (2002). Safety incentives: It's not just a breakfast anymore. *Occupational*

Hazards. Retrieved November 30, 2004, from

<http://www.occupationalhazards.com/articles/4301>.

Toomey, S. (1999). The right rewards. *Occupational Health & Safety*, 68(10), 194-196.