

# Effective Safety Incentives

*A pilot program based on risk reduction*

**By Edward J. Sheehy**

**W**HAT SAFETY DIRECTOR hasn't searched for ways to motivate employees to perform safely? The task would be much easier if focused on increasing sales or production. Those areas are emphasized by business schools, so managers understand how to measure them and most have extensive experience developing incentive programs based on employee accomplishments. In safety, however, the emphasis often is not on easily measured things employees do or produce; instead, it is on accidents that do not occur. A typical safety incentive might be a rewards luncheon when no accidents were reported the previous month. The safety director is told that employees need praise and recognition, yet is cautioned against allowing payout for safety to become entitlement.

This article discusses how this situation played out in the warehouse and shop operations of a large electrical utility. It describes the organization's effort to eliminate a traditional incentive program in which awards were based solely on not having accidents. It discusses a three-month experiment with a new type of safety initiative based on demonstrated reduction of risk before accidents can manifest. The discussion includes:

- Cultural issues addressed. These included feelings of fairness and entitlement that arose when other parts of the company continued to award incentives as long as no reportable injuries occurred.

- Implementation details, including a practical set of metrics. Basing incentives on improved safety requires tools that quantify risk reduction. The method used to achieve this is described in enough

detail to allow others to adapt it. Although the method features some subjective elements, it is objective enough to be perceived as fair by workers.

- Benefits realized. Limitations that remain to be overcome are described as well.

- Conclusions based on results. The author also speculates about the balance between sustainability of benefits realized and concern about creating a new sense of entitlement.

- Next steps. This discussion includes a set of criteria for future incentive programs that are to be based on risk reduction.

### The Challenge

Safety leaders have long believed that incentives based on output measures encourage workers to not report injuries. (For typical positions, see Geller; Goldberg; Krause; Sims; and Smith. For a review of the literature on safety incentives, see the review conducted for OSHA in 1998. In addition, the Bill Sims Co. website contains links to several relevant articles.)

Despite this, many organizations find it difficult to eliminate safety incentives because 1) workers expect to receive them; 2) no agreement exists with respect to effective alternatives; and 3) OSHA's position on reactive incentives has been rather weak. OSHA's strongest written position on incentive programs is contained in an interpretation letter that reads in part:

OSHA neither approves nor disapproves the design or the effectiveness of safety incentive programs. However, we do not look favorably on safety incentive programs which encourage underreporting of workplace injuries (Fairfax).

In 2001, a key change occurred within the organization discussed in this article: At least one senior

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manager became convinced that monthly lunches and Easter hams used to reward employees for no accidents were ineffective as accident deterrents. As a result, these practices were stopped. Workers disliked this change, particularly because traditional incentive programs continued in other parts of the company.

Thus, the stage was set to create a more meaningful type of safety incentive. At that time, this senior manager declared a willingness to pay for an incentive program—with an attached condition: Any new program must be based on reduction of risk—that is, the probability and/or the consequence of having an accident must be reduced.

The challenge of developing a new form of incentive was given to the department's Safety Advisory Board, a team consisting of both workers and supervisors. This group represented approximately 150 union and nonunion workers in seven support facilities (warehouses and repair shops) located in four states. These workers provide support to a company with an operational workforce of 8,000 employees. The board discussed incentives intermittently for nearly two years with no results. In the author's opinion, this probably was due to some members' unwillingness to accept that the old system would not be resumed.

During this same period, a second, apparently unrelated board activity began. A process was put in place to improve reporting of near-incidents and unsafe conditions. The committee that reviewed these reports—the Report Review Committee (RRC)—established metrics both for their quality and effectiveness in reducing risk. These metrics, destined to play a key role in the yet-undefined safety incentive program, are detailed later. For now, it is enough to know that a system to measure risk reduction had been developed, had undergone the inevitable challenges and changes associated with implementing a new program, and was fully mature when the subject of incentives again appeared on the board's agenda.

## **The Experiment**

Two years had passed since the "automatic if no one reported an injury" incentive program had stopped. Pressure was mounting to propose an alternative. Management was holding fast to its offer to support an incentive only if it was tied to risk reduction. One possibility was to use risk reduction data from the review of near-incident and unsafe condition reports. Although previously considered and rejected, this approach now appeared more attractive. It was proposed that an experimental incentive program be based on these numbers. Again, objections were raised, mostly by those seeking to restore the old system, but that now seemed unlikely.

Advisory board members agreed to share the proposal with their individual workgroups for comment. Over the next several months, mostly minor changes were made to the proposed experiment. In addition, implementation details were filled in; in the process, all 150 people who would be impacted by the new program had an opportunity to offer feedback.

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Among the fleshed-out details was the fact that the pilot program would be funded at a rate of \$50 per employee. Workgroups would compete with each other to divide this fixed amount of cash (i.e., all allocated money would be awarded). To avoid competition within workgroups, all members of any given workgroup—including the group's supervisor—would receive the same award amount. The award was to be based on the average per employee "merit index" of all reports submitted by the workgroup during a three-month period. The merit index is a number that gives equal weight to the report quality and risk reduction ratings that RRC had been using for nearly two years. The provision calling for use of the average per employee merit index was included because it provided parity between different size workgroups.

The board approved the proposal for the new program, with one final change. This change allowed a group of office workers to create an experimental program of its own design funded at the same rate—meaning this group would not compete with the other workgroups. Although on one level, this compromise violated the program's basic ground rules—that the incentive payout be based on risk reduction—it provided an element of fairness. All other employees in the program worked in a warehouse or shop. Because the risk in these environments is higher than for office workers, the office workers considered themselves to be disadvantaged in the competition. On a practical level, therefore, the compromise ended the objections of the board member who represented the office workers and allowed the experiment to proceed.

Fairness is essential to the success of any incentive program. In this case, employees had to work through their feelings of resentment over losing something (the automatic awards based on no reported injuries) they felt entitled to receive. Similarly, office workers had to feel they were being treated fairly.

A challenge for the SH&E professional at this point is to accept that feelings are not always logical and that addressing them takes time. Going through

## Significant Risks Identified

An employee assigned to provide specialized testing of tools and equipment to field locations noticed that some hot-sticks which had failed during a previous testing cycle were still being carried on service trucks. (Hot-sticks are insulated manipulators that linemen use to handle electrical lines energized at up to 32,000 volts.) Since crews work at night and in storms, it is quite possible that a lineman could fail to notice the small stick-on label identifying the tool as defective, and mistakenly use it, possibly being killed as a result. In response to this report, controls were implemented to ensure that defective tools are removed from service.

A transformer repair shop employee reported a credible scenario in which one worker could be unaware that a coworker was inside a fenced-off exclusion zone during testing of refurbished transformers. If testing commenced under these conditions, this worker would be at risk of contacting surfaces energized at up to 32,000 volts and could be struck by flying metal and flames if a defective unit exploded. In response to this report, automatic lockout relays were added to eliminate the possibility of this scenario.

In another facility, a worker was required to measure oil level monthly, which entailed climbing on top of the curved surface of several horizontal aboveground oil storage tanks. Because of the relatively infrequent need to perform this activity, no one had recognized that these tanks had no walkway or convenient way to secure fall protection. As a result, workers were exposed to the risk of falling 10 to 15 feet. In response to this report, level gauges were installed to eliminate the need to climb on top of the tank.

this process is essential to achieving the behavior-based safety objective of ownership.

Winning approval was difficult, but implementation was easy. RRC met monthly, so the only new function to support the incentive program was to track which reports were submitted by which workgroups. Note that this committee had been working together for about two years. It would be ill-advised to announce an incentive program based on any sort of metrics until the process used to implement it is known to be working smoothly.

Another issue involved union approval, a factor that had been overlooked in this case. This caused some anxiety when, after announcing the program, the union business managers (more than one union was involved) threatened to block the program because they had not been consulted. Once the process was explained, they allowed it to proceed.

## The Results

As a result of the experiment, several benefits were realized:

- An increase in the number of reports submitted (63 during the three-month experiment period vs. a typical 15 to 18 for a similar period before the program started).

- Quality of most reports was very good.

- A few easily corrected, yet significant risks were reported. These were the “elusive but obvious” type of risks about which management had no knowledge. The sidebar at left provides examples of the more significant risks reported.

- A relatively large number of small risk reduction opportunities were identified. Most reports were not for items such as those detailed in the sidebar at left. However, even small changes in probability or consequence impact overall risk exposure.

Disadvantages were minimal:

- Some “game playing” was noted; this included the submission of trivial items. These provided the originator’s workgroup little benefit, as their merit index was low; such reports did, however, increase the workload of the review committee.

- Some supervisors complained that their workers were spending too much time writing reports. Most reports are originated by workers; while they may bypass their supervisor, workers typically submit a first draft of the report to him/her. Often, these reports are relatively poorly written. The supervisor improves report quality by providing sufficient details to ensure that others will understand the issue, that causation questions are answered and that all other required information is supplied. Before the program started, supervisors knew how to write a good report, but they did not always take the time to do so. During this program, supervisors allocated enough time to research and write a good report—even for low-risk conditions.

- Some negative emotions surfaced. This was evidenced when some employees asked, “Why do we have to work for an incentive that others get automatically?” These complaints were expressed by a minority and did not affect participation in the program.

- One minor case of hard feelings arose between workgroups over which one should receive credit for report.

## The Metrics

Understanding the metrics used is key to understanding the experimental program. As noted, the Safety Advisory Board’s RRC met each month to discuss all incident, near-incident and unsafe condition reports. The group developed a procedure to assess each report for both quality and effectiveness. Once understood, this procedure is simple to apply. RRC discusses each report until it reaches reasonable agreement on the answers to two sets of questions.

The first set of questions focuses on how well the report is written. This quality instrument is a scorecard with 10 evaluation factors, each worth 10 points for a total of 100 points (Figure 1). The second set of

questions focuses on how effective a report is at reducing risk. The effectiveness instrument is a worksheet that guides the committee in the application of a probability x consequence risk matrix (Figure 2). This matrix is a map of a risk space within which a reported situation is rated on a scale of 1 to 25. Note that while a numeric rating is created, the process used to generate these numbers is based on human judgment.

The matrix has two consequence scales, one each for the injury and dollar cost of the accident. To ensure consistency in exercising their judgment, RRC members use a worksheet (Figure 3). One pass through the questions on this worksheet locates the reported condition in this risk space four times. Two of these placements are associated with the risk for human injury, two for the risk of monetary loss. The reason for two measures on each scale is because the condition is assessed assuming the condition was never identified, then it is assessed assuming that the corrective action proposed on the report is completed. The risk reduction metric is then the difference between the initial risk and the residual risk. Using this process, risk reduction is measured on a scale of 1 to 24 (25 - 1 = 24). (The arithmetic is simple, but to expedite the process, RRC uses an Excel spreadsheet.)

The only new metric created for the incentive experiment was the merit index. It gave equal weight to the quality score (determined using Figure 1) and the larger of the two risk reductions realized as a result of the report being written (risk of injury and risk of property damage, both determined using Figure 3). The average merit index of all reports submitted by a workgroup was used to determine a workgroup's award. The sidebar on pg. 46 provides additional details about how awards were calculated.

Most of the questions in these instruments require some exercise of judgment—they are subjective to some degree. Initially, discussion about answers was considerable. As the committee gained experience, members began working together better and consensus soon came easily on most items. When it did not, it was usually due to a lack of understanding by a committee member or ambigui-

**Figure 1**

## Quality Scorecard

Evaluation Factors (Each is worth a maximum of 10 points.)	Points Awarded
1) <b>Timeliness (factor #1):</b> Supervisor notified promptly. Due within 24 hours. Subtract five points for each day late.	
2) <b>Timeliness (factor #2):</b> Written report promptly submitted. Preliminary written report due within three working days (one working day if medical attention was required). Subtract two points for each day late.	
3) <b>What happened?</b> Full credit requires sufficient details such that a generally technically knowledgeable person anywhere in the company could reasonably learn "what" happened, "when" and "where," and understand the sequence of events. Award points for accuracy, completeness and clarity.	
4) <b>Why did it happen? (factor #1):</b> For full credit, the description should identify the substandard actions and/or conditions that contributed to the situation (e.g., improper lifting, failing to use PPE, defective tool, poor housekeeping, horseplay).	
5) <b>Why did it happen? (factor #2):</b> For full credit, the description should explain "why" these substandard actions and/or conditions existed (e.g., lack of knowledge or experience, improper motivation, poor communications, poor work practices).	
6) <b>What could have been done?</b> For full credit, the description should offer insight into why management did not anticipate these actions/conditions and prevent them from occurring (e.g., less-than-adequate inspections, supervision, change control).	
7) <b>Policies, Standards, Procedures (PSPs):</b> For full credit, applicable PSPs must be identified (if they exist) and comments made as appropriate on any clarity, adequacy and compliance issues.	
8) <b>Corrective actions (factor #1):</b> For full credit, corrective actions must be <b>specific</b> (i.e., clearly state <i>who</i> will do <i>what</i> and <i>when</i> or <i>how often</i> they will do it).	
9) <b>Corrective actions (factor #2):</b> For full credit, corrective actions must be <b>effective</b> [i.e., it must a) address underlying causal factors and not just symptoms and b) reduce risk long term. Will the recommendation still be working five years from now?].	
10) <b>Risk Evaluation:</b> Full credit requires that the probability and severity of a recurrence be assessed both before and after the corrective action is completed. These assessments should be reasonable and believable.	
<b>Total Score</b>	

**Figure 2**

## Risk Matrix

The risk rating (number in each cell) is the product of the consequence and probability ratings (row and column numbers). Risk reduction is measured by subtracting the final risk rating from the initial rating.

Expected frequency	Consequence				
	Low	Medium	High	Very High	Critical
Expected more than once a year	5	10	15	20	25
Expected once every one or two years	4	8	12	16	20
Expected once every two to five years	3	6	9	12	15
Expected once every five to 20 years	2	4	6	8	10
Expected less than once in 20 years	1	2	3	4	5
	First aid or less < \$1K	Medical attention but no lost-time \$1K to < \$10K	Lost-time less than five days \$10K to < \$100K	Lost-time five days or more \$100K to < \$1M	Permanent disability or fatality ≥ \$1M

ties in the report. Discussion on these areas of disagreement was perhaps the most valuable part of the process. Understanding risk and other key issues, such as the effectiveness of corrective actions, improved dramatically after a few months. The group began returning (to supervisors) those reports that failed to explain and correct the underlying causal factors. Again, it is worth noting that this process was worked through before it was associated with the incentive program.

### Discussion & Commentary

For its cost, this incentive program significantly improved reporting and yielded an excellent reduction of risk. Even so, while it was in place, it did not deliver all one might hope for in a reporting program. For example, most reports concerned unsafe conditions. Only a few reports involved risks created by work practices, and these were directed at contractors'

at-risk behavior. This suggests that employees were not yet ready to identify at-risk behavior performed by themselves or coworkers. Also, it was unreasonable to expect the report submittal rate to stay high once awards ceased. As one might expect, the submittal rates dropped dramatically when the program ended. For example, during the nine months immediately following the program, about three reports were submitted per month—less than the five or six reports submitted per month before the program began. However, the report submittal rate has since returned to those original levels.

Based on this experiment, one can reasonably speculate on factors that appear to influence overall sustainability of the program:

**Jealousy, fairness, entitlement.** It is possible that workers are "punishing" the company because an entitlement was withdrawn. This cannot be dismissed because employees in other parts of the company continue to receive the automatic "no reportable injuries" incentive. A few employees in the experimental group continue to contend that this is not fair.

**Supervisory priorities.** It is possible—or perhaps likely—that supervisors may no longer be encouraging employees to submit reports. This is reasonable to postulate as the culture that this organization was attempting to change was one where a supervisor's reasoning might well be, "No one was injured, no property was damaged, so why advertise?" Such reasoning would be supported by a belief that near-hit incidents and unsafe conditions are failures that might reflect negatively on them.

Another reason to suspect waning supervisor support for report writing is that it interferes with

# Risk Worksheet

## If an Incident or Near-Incident Was Reported

- 1) How many employees perform similar work?
- < 10
  - 10 to 100
  - > 100
- 2) On average, how often do these employees each perform this sort of work?
- Once a day or more often.
  - Once a week or more often.
  - Once a month or more often.
  - Once a year or more often.
  - Less than once a year.

## If an Unsafe Condition Was Reported

- 3) How many other locations could possibly have the same sort of condition?
- Almost all work locations.
  - 25 to 75 percent of all work locations.
  - Less than 25 percent of all work locations.
  - Only two or three locations.
  - No place other than this location.

## Probability of a Repeat If Nothing Is Done

- 4) Consider the answers provided for questions 1, 2 and 3. Assume that no corrective action is taken on this report. How long before a similar incident, near-incident or unsafe condition recurs in some work location?
- 1 20 years or more.
  - 2 At least five years, but no more than 20 years.
  - 3 At least two years, but no more than five years.
  - 4 At least one year, but no more than two years.
  - 5 Less than one year.

## Consequence If There Is a Repeat

- 5) Assume that no corrective action is taken on this report. Also assume that this inaction results in a loss. What types of injuries would be most likely to occur? (Choose the most reasonably credible consequence, not the worst-case scenario.)
- 1 First aid or less.
  - 2 Medical attention but no lost-time.
  - 3 Lost-time less than five days.
  - 4 Lost-time of five days or more.
  - 5 Permanent disability or fatality.
- 6) Assume that no corrective action is taken on this report. Also assume that this inaction results in a loss. What would be the most likely total cost of this incident? (Choose the most reasonably credible consequence, not the worst-case scenario.)
- 1 Less than \$1,000.
  - 2 \$1,000 to less than \$10,000.
  - 3 \$10,000 to less than \$100,000.
  - 4 \$100,000 to \$1 million.
  - 5 More than \$1 million.

## Effectiveness of Corrective Action

- 7) Assume that the recommended corrective action has been taken. How long before another report like this one will need to be written because the incident, near-incident or unsafe condition recurred at some location?

- 1 20 years or more.
  - 2 At least five years, but no more than 20 years.
  - 3 At least two years, but no more than five years.
  - 4 At least one year, but no more than two years.
  - 5 Less than one year.
- 8) Assume that the recommended corrective action has been taken. If the reported circumstance were to repeat, what types of injuries would be most likely to occur? (Choose the most reasonably credible consequence, not the worst-case scenario.)
- 1 First aid or less.
  - 2 Medical attention but no lost-time.
  - 3 Lost-time less than five days.
  - 4 Lost-time five days or more.
  - 5 Permanent disability or fatality.

- 9) Assume that the recommended corrective action has been taken. If the reported circumstances were to repeat, what would be the most likely total cost of this incident? (Choose the most reasonably credible consequence, not the worst-case scenario.)
- 1 Less than \$1,000.
  - 2 \$1,000 to less than \$10,000.
  - 3 \$10,000 to less than \$100,000.
  - 4 \$100,000 to \$1 million.
  - 5 More than \$1 million.

## Risk Ratings

- 10) Risk of injury *before* corrective action:
- |                                         |   |                                         |         |
|-----------------------------------------|---|-----------------------------------------|---------|
| Probability<br><i>(from question 4)</i> |   | Consequence<br><i>(from question 5)</i> |         |
| _____                                   | X | _____                                   | = _____ |

- 11) Risk of injury *after* corrective action:
- |                                         |   |                                         |         |
|-----------------------------------------|---|-----------------------------------------|---------|
| Probability<br><i>(from question 7)</i> |   | Consequence<br><i>(from question 8)</i> |         |
| _____                                   | X | _____                                   | = _____ |

- 12) Expected reduction in the risk of injury:
- |                                                 |   |                                                |         |
|-------------------------------------------------|---|------------------------------------------------|---------|
| Risk before action<br><i>(from question 10)</i> |   | Risk after action<br><i>(from question 11)</i> |         |
| _____                                           | X | _____                                          | = _____ |

- 13) Risk of economic loss *before* corrective action:
- |                                         |   |                                         |         |
|-----------------------------------------|---|-----------------------------------------|---------|
| Probability<br><i>(from question 4)</i> |   | Consequence<br><i>(from question 6)</i> |         |
| _____                                   | X | _____                                   | = _____ |

- 14) Risk of economic loss *after* corrective action:
- |                                         |   |                                         |         |
|-----------------------------------------|---|-----------------------------------------|---------|
| Probability<br><i>(from question 7)</i> |   | Consequence<br><i>(from question 9)</i> |         |
| _____                                   | X | _____                                   | = _____ |

- 15) Expected reduction in the risk of economic loss:
- |                                                 |   |                                                |         |
|-------------------------------------------------|---|------------------------------------------------|---------|
| Risk before action<br><i>(from question 13)</i> |   | Risk after action<br><i>(from question 14)</i> |         |
| _____                                           | X | _____                                          | = _____ |

## Award Calculation

### Details: Pilot Program

Funding for the program (the total amount of money to be awarded to workgroups) was set at \$50 x total number of employees participating. All allocated money was to be awarded regardless of the number, quality or effectiveness of reports submitted.

The "merit index" for a report was determined by adding the total score on the quality scorecard (Figure 1) to the larger of item 12 or 15 on the risk worksheet (Figure 3). Since the highest possible quality score in this system is 10 and the highest risk reduction score is 24 (25 - 1), the quality score was multiplied by 2.4 before the additions in order to give equal weight to each rating.

The amount of money to be awarded per merit index point was determined by dividing the total amount of money to be awarded by the total number of merit index points awarded to all reports submitted during the program.

Many incentive programs have several different achievement levels. In this program, the possible award was continuously variable—that is, there were no discrete award "levels" associated with this incentive. Theoretically, a workgroup could have received any award from zero to the total funding for the program.

The amount of money paid to each employee was determined by calculating the average merit index value of all reports submitted by that employee's workgroup and multiplying by the dollar value per merit index point.

productivity, at least in the short term. Writing reports not only reduces the availability of employees, it impacts the supervisor directly, as s/he now has several new responsibilities. These include investigating the reported condition, ensuring that the report is reasonably well-written and implementing corrective action. Such tasks are time-consuming and can impact budget. Since supervisors are evaluated on how well they manage productivity and budget—and not on how effectively they are reducing risk—it is no surprise that some supervisors complained about how much time their workers were spending writing reports. Although this complaining was low level, it is significant because the supervisors knew they were to receive the same bonus check as employees. The inference is that if risk reduction is to become a value in the culture, then managers who oversee supervisors must give it priority.

**Managerial attitudes and beliefs.** An important part of a manager's job is to show a return on investment for the money s/he spends. Data suggest that the experimental incentive program was money well spent. Even so, the reality remains that when

dealing with risk reduction, the cost/benefit is probabilistic in nature. Most executives have little time for numbers that cannot be entered smoothly into a budget spreadsheet.

From a line manager's perspective, the cost/benefit ratio of risk reduction is rather poor. Time and money spent reducing risk has an immediate cost. Yet, while the benefit may also be immediate, it is often mostly invisible—something bad does not happen.

It is true that when a loss occurs, the manager must adjust the budget to accommodate its cost. Here, however, probability is on the manager's side. Minor incidents are much more likely to occur than severe ones. Another factor is that a typical manager's budget is not large enough to accommodate the cost of a severe accident, meaning a higher executive must bail out the manager. The results of such a plea are largely predetermined. The vice president cannot allow the impacted organization to fail, so s/he will either allocate the funds needed to recover or approach the insurance underwriter to do so. Having to make the plea will, of course, be odious for the manager; however, the loss was an "accident." Unless gross dereliction of duty is involved, the manager likely will not be rebuked severely.

In addition, some managers may not know what constitutes a good incentive. An incentive can be defined as any award given to workers to encourage them to do something they would be unlikely to do without the award. Some managers—primarily those concerned about incentives being viewed as entitlement—seem to dismiss the fact that this experiment worked. But remember, during the experiment, workers wrote reports they normally would never have written. As a result of the reports, the organization was able to significantly reduce risk in its facilities. In what might be seen as a reverse entitlement, some managers oppose continuing to offer an award to workers for reporting near-hit events and unsafe conditions because "they should do so without any incentive."

### Next Steps

Recent discussion between the Safety Advisory Board and managers who influence incentives decisions has led to an agreement in principle that awards may resume for this department under the same guidelines used for the experimental program (which were not written for all to see at that time):

- 1) The incentive must incite, encourage, move or otherwise arouse employees to do something they would be unlikely to do, or do as well, without the incentive.

- 2) The action that is incited must reduce risk in some way. That is, it must: a) reduce the probability that an injury or loss will occur; and/or b) reduce the consequence if an injury or loss occurs.

- 3) The program must be practical to administer and should include a feature that in some way measures or at least estimates risk reduction. Caution: For those who resist change, this criterion will provide a platform to push back from. The purpose of any

incentive program is to motivate workers to invest time and effort into doing something they are not already doing or not doing often enough or well enough. This extra effort is a desirable outcome that must be distinguished from the effort required to administer the program. It is the administrative effort that should be minimized.

Furthermore, a program that is easy to administer may not be easy to understand. The process detailed here is relatively complex when one first attempts to understand what RRC does. However, this experiment created essentially no new work for the committee. The key is to be clear from the outset about the nature of any new work that will be created. The goal of this experiment was for workers to write more and better reports. The senior manager considered this to be a desirable goal and it was achieved with minimal administrative cost. However, some supervisors and junior managers considered its success undesirable because it created more work for them personally and they believed it interfered with worker productivity.

4) Workers should agree that the method used to determine incentives is fair.

5) The behavior on which the award is based should change every few months. For example, it is acceptable to base the award on voluntary reporting of near-hit incidents and unsafe conditions, but only for a period of six months. Then, the incentive must shift to focus attention on some other factor, such as effective safety meetings. This helps to prevent the incentive from being seen as entitlement.

The Safety Advisory Board has communicated this decision to the affected workgroups and has asked for feedback. Although this approach will not fully resolve the jealousy, fairness and entitlement/attitude concerns, it should increase employee ownership of the behavior chosen as the basis for the incentive. Also, the perceived inequity with other departments should be reduced since these workers will now be receiving an award—although they will have to do something to receive it. Furthermore, the fact that a written set of criteria now exists to define the nature of the incentive may help those whose managers resist awards for anything they believe workers should be doing anyway. Since attitudes change slowly, it would be unreasonable to hold high expectations here either.

One additional action has been taken that is expected to make a significant difference: The senior manager has agreed that if supervisors are doing their jobs with regard to safety, they and their workers should routinely be identifying and correcting hazards. Therefore, a supervisor's ability to demonstrate that s/he has reduced risk in the facility is now part of each supervisor's performance review. How well this incentive will play out remains to be seen; however, it is proactive in that it now gives supervisors credit for their efforts to improve safety and will likely influence them to again encourage workers to report safety concerns.

### **Is This System Too Complex?**

As noted, this system may seem complex and

*Risk was transformed from a vague notion into a concept that had dimensions and could be assessed before and after corrective action. As the appreciation of risk became more sophisticated, RRC members reflected their improved understanding back to those who submitted reports. The net result was that awareness of risk significantly increased.*

time-consuming at first. To address these concerns, several factors must be considered. As noted, the experimental program created no new review or analysis activity. The committee charged with reviewing incident, near-incident and unsafe condition reports had been in place for two years before its metrics were chosen for use in the incentive program. The incentive program simply piggybacked on RRC's ongoing work, with some minor administrative tasks added. That said, the fact remains that the existence and effective operation of RRC's review process, particularly its metrics, was a prerequisite to successful implementation of this incentive program. Accordingly, it seems appropriate to briefly discuss their operation.

During the incentive experiment, RRC consisted of three hourly employees and one supervisor. In addition, the organization's senior manager and an SH&E professional attended most meetings. Attendance by the senior manager underscored the importance which he placed on ensuring that reports were both of good quality and effective in reducing risk. The SH&E professional's role was to develop the methodology used and to train committee members. Most of this training was on-the-job in nature and occurred during meetings in which reports were reviewed and discussed using the questions shown on Figures 1 and 3. Meetings were held monthly and lasted three to four hours, approximately half was spent reviewing reports, the other half on related business.

There was an introduction of complexity associated with implementing the RRC process (but not with administering the incentive program) as committee members' appreciation of risk was greatly expanded. Risk was transformed from a vague notion into a concept that had dimensions (probability and consequence) and could be assessed before and after corrective action. As this appreciation of risk became more sophisticated, RRC members reflected their improved understanding back to those who submitted reports. The net result was that awareness of risk significantly increased throughout the organization.



SH&E professionals often face pressure to keep things simple. While this is generally sage advice, an important observation can be made if one notes that "complexity" and "sophistication" are synonyms. Sometimes the goal is an increase in sophistication. The increased appreciation of risk may be described as added complexity or improved sophistication. Whatever word is chosen, the fact remains that it is a desirable result of RRC's work.

Report writing during the experiment took longer than it had previously—it should have. The same form was used and nothing new was required, but existence of an incentive meant that completing the report form, which once could be finished in a few minutes with little thought, now required reflection. Although the extra effort was optional, any report that was difficult to understand, failed to explain relevant causal factors or proposed ineffective corrective action would not receive much reward. Thus, extra time was required—and expected, since the program's goal was to entice employees to prepare more, higher-quality reports. A more meaningful question is, "Was this extra effort and time well-spent?" The reduced risk that resulted from these reports, as documented by RRC's reviews, indicates that it was.

## Conclusion

An incentive program must be well-integrated into an organization's overall safety processes and culture. The success of this program can be traced back to activities that occurred about two years before it was even considered. The most important of these actions was coaching the senior manager on safety fundamentals: 1) Incentives based on not having accidents are ineffective and may produce results opposite of those desired. 2) The best way to reduce injury and loss is to understand and take action to reduce risk.

Once the senior manager understands these principles, the SH&E professional can help him/her formulate goals and an action plan to achieve these goals; here, it is important to ensure that the senior manager takes ownership of the goals and action plan. In this organization, the action plan included: 1) Withdraw support from ineffective traditional safety incentives. 2) Support the committee charged with improving the quality and effectiveness of incident, near-incident and unsafe condition reporting.

As noted, workers reacted negatively when traditional incentives were eliminated. The senior manager quickly balanced the withdrawal with a promise to support proactive incentives, and challenged the workforce to offer suggestions. However, since the workers were not ready to embrace the new approach, and since the criteria for a new form of incentive were tough, tensions developed. Thus, the SH&E professional's job became one of helping the senior manager to hold tightly to the stated goal of reduced accident probability and/or reduced consequence if an accident did occur. The SH&E professional intercepted and defused as many objections

as possible before they reached the senior manager, and coached him on how to effectively respond to those objections that did get through. This required trust between the senior manager and the SH&E professional.

RRC's work highlighted the ongoing flow of poorly written and ineffective reports. So long as the senior manager kept paying attention (another part of the SH&E professional's job), s/he predictably would grow increasingly dissatisfied with the poorly written reports and ineffective corrective actions (such as simply telling a worker to be more careful). In this context, dissatisfaction is good. As it deepens, the senior manager transforms into a champion willing to approach executive management for the money to correct the situation. In this case, this became easier for the senior manager as time passed because RRC had been busy documenting the state of old processes.

In summary, to win approval:

- **Create dissatisfaction.** In this organization, workers had what they considered an entitlement withdrawn, and the senior manager was shown how poorly risk was being managed.

- **Offer solutions and support.** When the old incentive program was eliminated, workers were given criteria for an acceptable replacement program. Supervisors and local safety coordinators received guidelines for effective reporting of incidents, near-incidents and unsafe conditions. The senior manager was coached on how to develop risk management programs and respond to objections from junior managers, supervisors and employees.

- **Persevere.** A move to proactive safety incentives is a fundamental culture change that is unlikely to happen quickly. ■

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