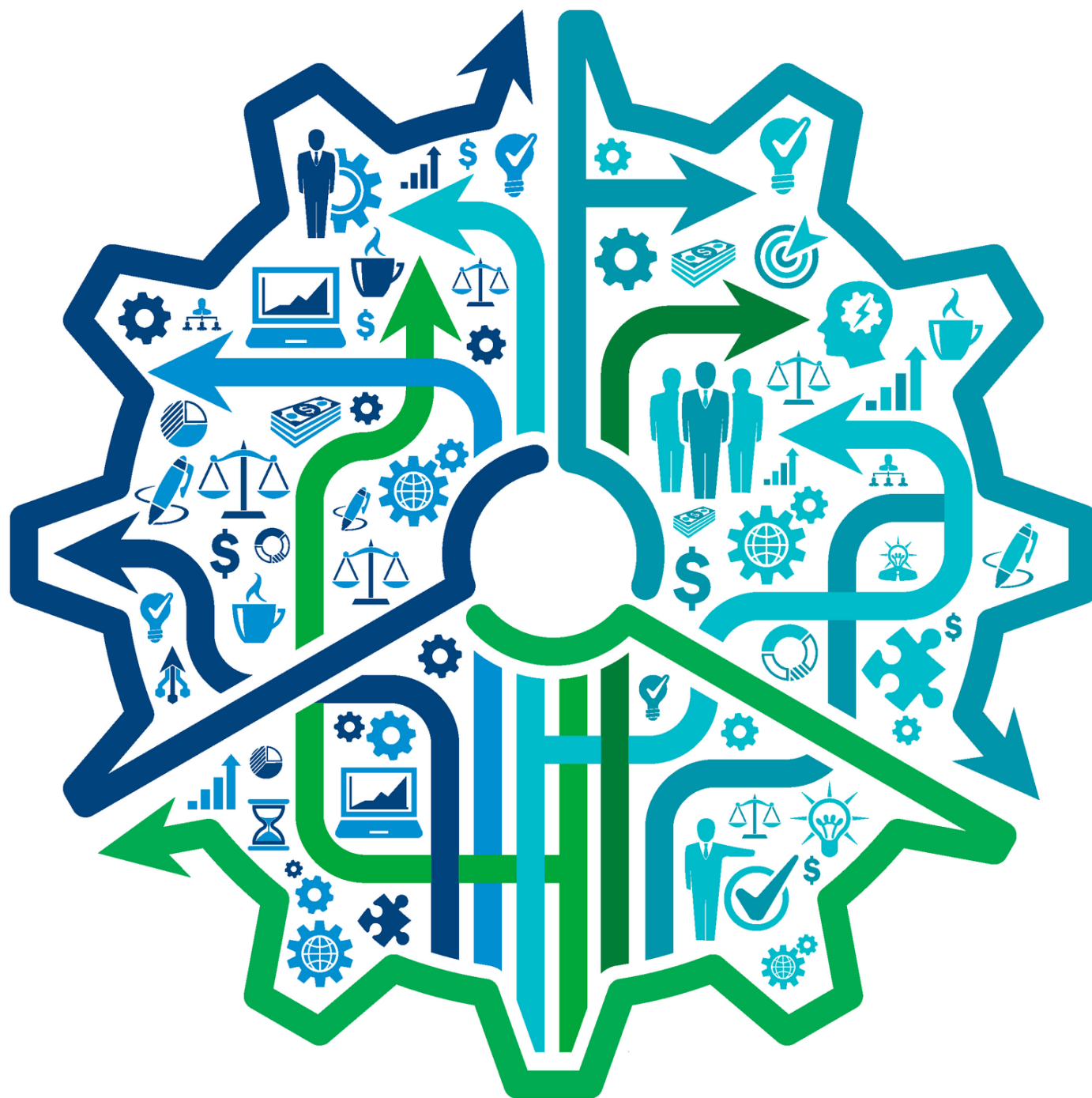# EHS Compliance Metrics
How to Use Metrics to Achieve Compliance and Beyond

JUNE 2018

Thank you to our report sponsor:

velocityEHS

Table of Contents

About NAEM

The National Association for Environmental Management (NAEM) empowers corporate leaders to advance environmental stewardship, create safe and healthy workplaces and promote global sustainability. As the leading business community for EHS and sustainability decision-makers, we provide engaging forums, a curated network, peer benchmarking, research insights and tools for solving today's corporate EHS and sustainability management challenges. Visit NAEM online at naem.org.

Introduction

If what gets measured gets managed, then your environment, health and safety (EHS) compliance dashboard is an important component of your company's EHS management system. The goals you set based on this foundation, in turn, can spur your organization to action, engaging employees and creating a safer workplace for all.

To help you benchmark your metrics program, this report provides a look at how a group of 37 leading companies use their metrics to proactively manage risk, drive performance and strengthen an internal culture of compliance.

The results reveal that:

- Many companies actively strive to exceed regulatory compliance
- Safety metrics are at the top of the list of key performance indicators
- Environmental compliance metrics tend to be measured in absolute terms
- Senior leadership is intently focused on the health and well-being of employees
- The most effective metrics for driving compliance are those that reflect compliance incidents

This report was developed based on survey data collected by NAEM for the purpose of facilitating benchmarking among member companies. It is now being made available to the public thanks to the financial support from Velocity EHS.

Methodology

This survey was developed by a committee of EHS professionals to better understand how companies manage their compliance programs, which metrics are tracked and which metrics drive performance.

The 18-question survey was fielded in April 2015 among those who registered for NAEM's Compliance Excellence Conference. NAEM then analyzed the results and presented them at the conference. This report includes those findings as well as insights from the on-site discussion.

Introduction

Glossary of Terms

Figure 1

Absolute Metric

A metric that is measured as a total number, rather than one based on intensity (e.g. total tons of waste in one year vs. tons of waste per units of production) .

Tracked Metric

Compliance data that are used to monitor compliance or compliance-related processes.

Intensity Metric

A metric that is based on a unit of output (e.g. tons of waste by amount sold or tons of waste by unit of production) .

Key Performance Indicator

A metric that senior leaders use to gauge performance, make decisions or manage issues.

Introduction

Demographics

The following demographics provide a snapshot of the respondent pool based on the company and function they are responding from. This information was used to characterize the overall composition of the respondent audience.

Description of Respondent Operations

Figure 2

Average Number Employees
48,018

Primary Industries Represented
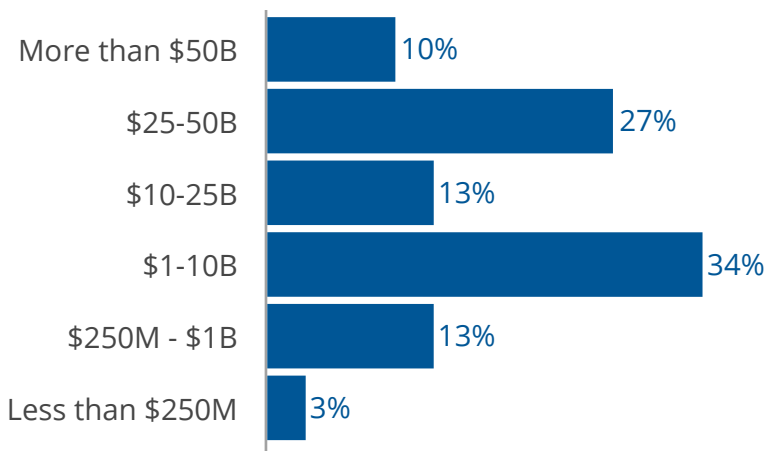Manufacturing, Chemical, Aerospace, Energy/Utility

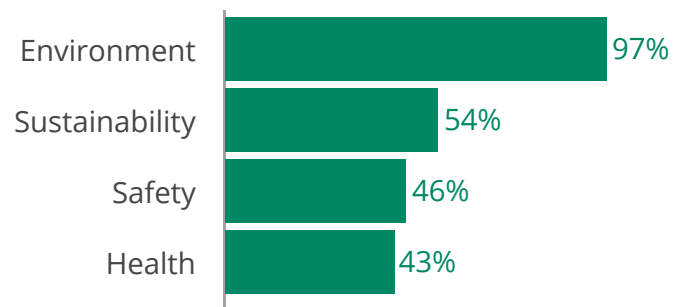**Scope of Operations**
79% operate internationally

Annual Revenue

Figure 3

Revenue	Percentage
More than $50B	10%
$25-50B	27%
$10-25B	13%
$1-10B	34%
$250M - $1B	13%
Less than $250M	3%

N=37

Scope of Compliance Responsibility

Figure 4

Category	Percentage
Environment	97%
Sustainability	54%
Safety	46%
Health	43%

N=37

Summary of Results

Summary of Results

The following summary provides key insights from NAEM's survey of EHS&Sustainability leaders about the metrics they use to manage their programs, as well as the on-site benchmarking discuison at the 2015 Compliance Excellence Conference.

Most companies set compliance goals higher than regulatory requirements

Among responding companies, 83 percent expect all of their operations to achieve a higher level of performance than is required by law. This internal standard affects facilities around the world, as the majority (78%) of respondents are international, and only 14 percent apply their internal conformance standards to U.S.-based operations alone.

According to those who participated, the practice is a reflection of corporate culture. "Regulations are showing the wrong," one respondent said. "But we set to do right."

Set Standards Higher than Requirements

Figure 5
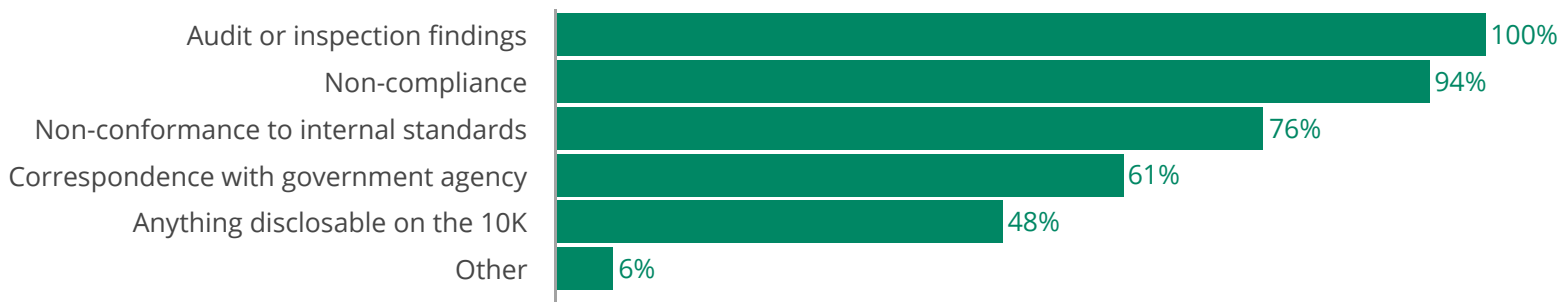

Other 3%

No 14%

Yes 83%
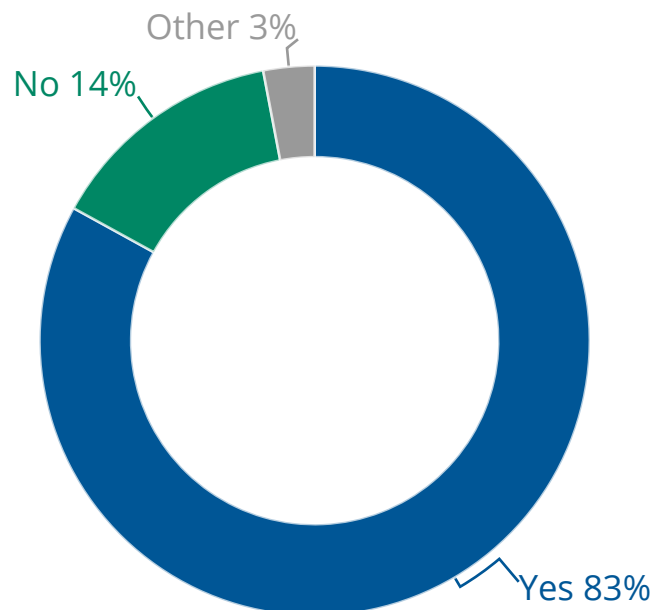
N=35

Summary of Results

Responding companies have robust internal tracking systems

One hundred percent of those surveyed conduct internal audits to manage compliance and to ensure conformance to internal standards (76%).

Compliance Data Collected

Figure 6

Category	Value
Audit or inspection findings	100%
Non-compliance	94%
Non-conformance to internal standards	76%
Correspondence with government agency	61%
Anything disclosable on the 10K	48%
Other	6%

N=33

The metrics that support worker safety and pollution prevention are the most commonly tracked, among responding companies

Most Commonly Tracked Metrics

Figure 7

Metric	
Waste non-compliance	94%
Notices of violation	94%
Wastewater exceedances	94%
Spills and releases	91%
Permit violations	91%
Air exceedances	88%
Greenhouse Gas emissions	88%
Injuries and fatalities	85%
Lost day injuries	85%
Incident rate	85%

N=33

Summary of Results

But companies are also leveraging leading indicators to strengthen safety and compliance culture

In addition to keeping track of how the company is performing, respondents also use a number of proactive metrics to raise awareness of safety issues, strengthen employee engagement and ensure that problems are promptly corrected. Those leading indicators include near-misses and number of inspections. During the discussion, respondents mentioned that they also keep track of training hours, the use of their online training systems and even the auditing process itself. One company, for example, reviews the work of those investigators who routinely have no findings from their audits.

Most Commonly Tracked Leading Metrics

Figure 8

Metric	
Near-misses	76%
Regulatory visits/Inspections	76%
On-time completion of action items	61%
Days to close audit findings	61%
Facilities conformant to internal standards	52%
Facility Response Planning	36%
Time to correct non-compliance	30%
Disciplinary actions	24%

N=33

Employee safety metrics top the list of key performance indicators, among responding companies

While every tracked metric serves a unique purpose, those that respondents use as key performance indicators—incident rate (93%), injuries and fatalities (93%), lost-day injuries (82%)—all relate to workplace safety.

Summary of Results

On the environmental side, companies are keeping a close eye on pollution prevention metrics, with wastewater exceedances (94%), waste non-compliance (94%) and spills and releases (91%) topping the list. These, however, are generally less likely to be key performance indicators (KPI). The notable exceptions are with spills and releases and greenhouse gas emissions, which tend to have greater visibility as KPIs.

Environmental Metrics Tracked v.s. Those Used as a KPI

Figure 9

Environmental Metric	Track	KPI
Wastewater exceedances	94%	58%
Waste non-compliance	94%	55%
Spills and releases	91%	63%
Air exceedances	88%	55%
Greenhouse gas emissions	88%	62%
Environmental remediation costs	67%	27%
EPA Tier II requirements	61%	15%
Toxic Control Substance Act requirements	48%	13%
Spill Prevention Control and Countermeasure	48%	6%
Restriction of Hazardous Substances	39%	23%
Facility Response Planning	36%	17%
REACH	36%	8%

*Click next to the heading of each column to sort   N=33

Summary of Results

Health & Safety Metrics Tracked vs. Those Used as a KPI

Figure 10

Health and Safety Metric	Track	KPI
Incident rate	85%	93%
Injuries and fatalities	85%	93%
Lost day injuries	85%	82%
Near-misses	76%	64%
Onsite first aid injuries	76%	52%
Occupational Safety and Health Administration requirements	67%	41%
Amount of workers' compensation	61%	55%
Driving safety incidents	61%	45%
Unsafe exposures	52%	47%
Off-the-job injuries	12%	50%

*Click next to the heading of each column to sort   N=33

Summary of Results

Responding companies tend to measure health and safety metrics in absolute terms

By and large, health and safety metrics tend to be measured in absolute terms. There are several areas where intensity metrics may also make sense. Those that arose from the survey data included: incident rate (54%) off-the-job injuries (50%), lost-day injuries (39%) and injuries and fatalities (29%).

Health & Safety Metrics: Absolute vs. Intensity

Figure 11

Health and Safety Metric	N	Absolute	Intensity
Incident rate	28	43%	54%
Injuries and fatalities	28	64%	29%
Lost day injuries	28	54%	39%
Near-misses	25	84%	20%
Onsite first aid injuries	25	76%	16%
Occupational Safety and Health Administration requirements	22	64%	5%
Amount of workers' compensation	20	80%	15%
Driving safety incidents	20	95%	0%
Unsafe exposures	17	65%	12%
Off-the-job injuries	4	75%	50%

*Table represents percentage of those who use the identified metric
*Click next to the heading of each column to sort

Summary of Results

When it comes to environmental compliance absolute metrics are also most common

Not surprisingly, most of the environmental compliance metrics are measured in absolute values, particularly as relates to spills and releases (97%), remediation costs (91%), waste non-compliance (87%) and wastewater exceedances (84%).

Greenhouse gas emissions, on the other hand, may also measured in terms of additional variables, such as units of production, percentage of sales, etc, among 24 percent of responding companies.

Environmental Metrics: Absolute vs. Intensity

Figure 12

Environmental Metric	N	Absolute	Intensity
Wastewater exceedances	31	84%	6%
Waste non-compliance	31	87%	3%
Spills and releases	30	97%	0%
Air exceedances	29	79%	7%
Greenhouse gas emissions	29	66%	24%
Environmental remediation costs	22	91%	0%
EPA Tier II requirements	20	65%	5%
Toxic Control Substance Act requirements	16	63%	6%
Spill Prevention Control and Countermeasure	16	75%	0%
Restriction of Hazardous Substances	13	54%	8%
Facility Response Planning	12	75%	0%
REACH	12	50%	0%

*Table represents percentage of those who use the identified metric
*Click next to the heading of each column to sort

Summary of Results

Compliance managers and senior leadership use different metrics to understand program performance

According to respondents, the metrics that are the most important for driving compliance are those that directly reflect how the management system is performing. Permit violations (58%), spills and releases (55%) and wastewater exceedances (52%) rise to the top of the list of metrics that respondents deemed most useful for program management.

Senior management, on the other hand tends to be acutely focused on leading indicators and worker safety. At the top of the list are: notices of violation (58%), incident rate (55%), injuries and fatalities (52%), fines and penalties (52%)

Metrics Most Important to Drive Compliance vs. Those Most Important to Senior Management

Figure 13

Metric	Drive Compliance	Management Priority
Permit Violations	58%	45%
Spills and releases	55%	26%
Wastewater Exceedances	52%	13%
Notices of violation	48%	58%
Air exceedances	45%	23%
Waste non-compliance	42%	13%
On-time completion of action items	39%	13%
Incident rate	35%	55%
Conformance to internal standards	29%	19%
Injuries and fatalities	26%	52%
Lost day injuries	26%	29%
Fines and penalties	23%	52%
Environmental remediation costs	16%	32%
Lawsuits and legal actions	10%	29%

N=31

Perspectives on Metrics

Q: What is the biggest lesson you have learned about establishing meaningful EHS metrics?

"Don't use them as a hammer."

"They are better when they are specific to your operations and when leading indicators are focused on continuous improvement (outcomes)."

"If you ask for a metric, do something with it!"

"Fewer is better; don't surprise management, and don't change them often."

"Make sure the metrics are relatable to employees and senior leadership."

"When the metric stops adding value, stop asking for the data."

"Prepare the audience before you publish the metric."

Source: The responses to this question derive from an benchmarking discussion among NAEM's Board of Regents.

Not all Metrics are Created Equal

By Kelvin Roth, Director, Corporate Environmental Health & Safety; CF Industries

Metrics have been a hot discussion point at NAEM events for years. What are we measuring? Why? How are we collecting the data? How are we compiling it? How are we reporting it? What are our targets?

Companies frequently rush out and identify all environment, health and safety (EHS) data that are easy to measure, and then collect the data without considering why they are gathering it. There's a lot of data out there, and with the support of software tools it's getting easier and easier to collect more and more of it; too easy, perhaps, as we may not have fully considered the value of this data.

Once the data begins to flow in, we compile it, verify it and analyze it. We discuss whether they are leading or lagging metrics, whether the metrics are complete or accurate enough, and whether they are fair or accurately weighed. But, at a certain point, we EHS leaders are often left scratching our heads and wondering what the heck we're going to do with all this EHS performance data stuff. The most important decision we need to make on metrics is not around what is easy to collect, properly weighted or readily available; rather, the most important question to consider is what indicators best reflect EHS system and business performance. In other words, what are the key performance indicators (KPIs)?

KPIs are more than just metrics – they are indicators of where the company and EHS program are headed. Of course, they can't tell the full story; rather, they serve as the "check engine" light of business systems. They reduce the complex nature of organizational performance to a small number of key indicators that make performance more understandable and digestible.

KPIs can cover many areas, and there might even be different measures for different departments or levels in the organization. However, all KPIs are held together by one principle: they are shaped by a company's strategy and operations and linked to the overall goals. Howard Brown recently posted on this topic and had some great suggestions on aligning EHS KPIs with business KPIs.

It's also important to remember that KPIs and metrics are not the same as goals. KPIs are tools that we can use to not only monitor progress towards goals, but also monitor the process or system for achieving those goals. The KPI should be linked to the corporate goal, but the KPI should not be the goal. For example, the goal might be "zero spills," but the specific activities that are tracked should monitor whether the processes and systems for spill avoidance and/or prevention are in place and functioning.

Finally, KPIs should be constantly monitored and shared with those to whom they are relevant. If these numbers are only monitored on a quarterly or annual basis, they become more like an exam. As such, they actually become extraneous to the business, and employees start to feel that they are extraneous to the job they are doing. KPIs then become onerous things that people are being checked on, and the very purpose of collecting this data is undermined.

When it comes to measuring progress at your company, what do you do with the data? To whom do you report the results?

> " KPIs are more than just metrics – they are indicators of where the company and EHS program are headed. "

Setting the Sights on Forward-Looking Metrics

By NAEM Staff

The problem with most environment, health and safety (EHS) performance metrics is that they fail to predict potential risks. To prevent incidents before they occur, the team at Cummins Inc. uses leading indicators.

Michelle Garner-Janna, Director of Corporate Health and Safety said her team first started thinking about leading indicators when the company's recordable incident rates fell to statistical lows. "Once you get to the 1.0 incident-level, things get a lot more difficult from a metrics standpoint," she said. "It gets exponentially harder to move the needle."

In the first year, the company simply picked two metrics and launched a pilot program.

"Those were two that were easy to get to, it didn't require a lot of burden on the sites, but the problem that it didn't really tell us much," she said. "It gave us an idea of whether or not we were making improvements, but it didn't necessarily give us strong correlation with our lagging indicators."

Still, the team was undeterred. Based on the insights from the first year, they added four additional indicators and tracked the data anew. When the team conducted a correlation analysis of those results, Ms. Garner-Janna says she was surprised at what she found.

"One of them in particular, had by far the highest correlation with incident rates. And that happened to be training hours," she said.

Upon investigation, she discovered that the training emphasized a 'find-it, fix-it' approach, which taught employees how to reduce risks in the workplace. A strong safety culture at the site-level in turn contributed to reduced workplace incidents. The company then used that insight to set new targets for training, which had not previously been part of its performance goals.

"That was really eye-opening for us," Ms. Garner- Janna said. "We were in the dark until we had that information in front of us. And then once we had that evaluation, it was really easy to see: 'Ok, this is where we need to focus.'"

This thoughtful approach to experimentation is likewise how Toyota Motor Sales develops the forward-looking EHS metrics it uses to keep its eyes on the horizon, according to Ryan McMullan, Environmental, HazMat & Safety Programs Administrator.

As part of its five-year strategic planning cycle, Toyota's EHS team develops what it calls 'strategic indicators,' a set of targets that support the company's long-term goals.

Similar to leading indicators, strategic indicators are specific to each business and even to a particular business goal. As such, no one size fits all, Mr. McMullan says. Unlike leading indicators, strategic indicators are less predictive than prescriptive.

"It's looking for strategic direction," he said. "Given that we want to be an environmental role model in 2021, how do we need to think about the topics differently? And backing into how do we need to measure them differently?"

One example of how Toyota uses strategic indicators is in advancing its waste management program. When the company was focused on increasing its recycled waste from 30 to 90 percent, a recycling rate metric was a useful measure to track, Mr. McMullan said. Once recycling approached the 90 percent mark, however, the metric stopped accurately reflecting progress.

> " If you really want to have indicators that are effective, and that will drive down your lagging indicators, then it's really important that they be tailor-made and customized to what your individual issues are. "

"We started encountering cases where if we reduced a waste that we used to recycle, we're taking it out of the recycling bin and our recycling rate went down," he said. "We know that reduced [waste] is better than [recycled] waste, but our indicator was saying, 'No, put that back in the recycling bin because we need it there.'"

Coming up with a new metric to replace recycling rate, though, required a few tries.

"That's where we started to do what I call 'kissing frogs' and in a spreadsheet trying out a whole bunch of different metrics [while] trying to be mindful of 'What data do we have now, what data could we get without requiring too much burden on the business unit?'" he said.

Mr. McMullan's team also ran a number of scenarios to see if the indicator accurately aligned what they knew actual progress looked like. In other words, one that would show them that recycling is good, but reducing waste is better.

"We tried to pick the indicator that gave us the 'right' compass reading for our conceptual understanding of the issue," he said.

Going beyond lagging indicators is a one part art, the other part science, though, Mr. McMullan says.

"A lot of this is uncharted territory. We can't just go and copy some other company and say, 'Oh well, here's the easy roadmap," he said.

Ms. Garner-Janna agrees that the uncertainty associated with creating new, forward-looking metrics requires a more creative approach to data collection.

> " A lot of this is uncharted territory. We can't just go and copy some other company and say, 'Oh well, here's the easy roadmap. "

"That's probably why a lot of companies are struggling a little bit on the leading indicator side because there's not a template or a format or 'Here are your instructions for implementing leading indicators,'" she said.

To be done correctly, she says each company needs to focus on its unique EHS challenges.

"If you really want to have indicators that are effective, and that will drive down your lagging indicators, then it's really important that they be tailor-made and customized to what your individual issues are," she said.

The same holds true for strategic indicators, Mr. McMullan says.

"It's really tempting to say, 'We're going to tackle every environmental issue now," he said. "I think a much better way of starting is to say, 'What's one to maybe three of the most important issues to our company? Where do we want to have the biggest impact? Where can we make the highest benefit? And just focus on understanding those first."

And no matter where you start the metrics development journey, Ms. Garner-Janna says, it's important to continue refreshing those indicators over time.

"What's working today may not necessarily work tomorrow. You've got to really stay on top of that and continually evaluate the process," she said.

After all, no one number will answer all the questions, she says.

"Had we understood that there is no holy grail of leading indicators in the beginning, we could have saved a lot of time," she said.

Acknowledgments

NAEM's Research Resources

Ready, Set, Implement: How to Successfully Deploy an EHS&S Software System

This report distills the observations, recommendations, and "lessons learned" from in-depth interviews with EHS&S professionals and implementation partners into six steps that will help you start - and stay - on the right track as you introduce an EHS&S application that can deliver tangible benefits to your organization.

Leading GHG Management Strategies and Metrics

NAEM's Leading Greenhouse Gas Management Strategies and Metrics report provides a benchmark for the strategies companies are using to reduce their carbon emissions, the scope of their programs and provide a snapshot of leading practices.
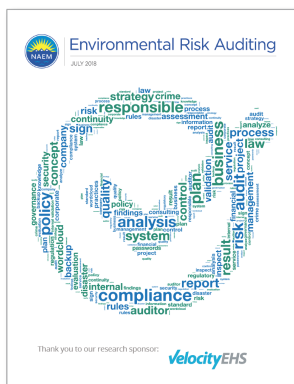
Environmental Risk Auditing

This report explores the strategies companies are using to proactively audit environmental risks, providing a benchmark of how leading companies are auditing risk as well as ideas readers can use to evolve their own programs.
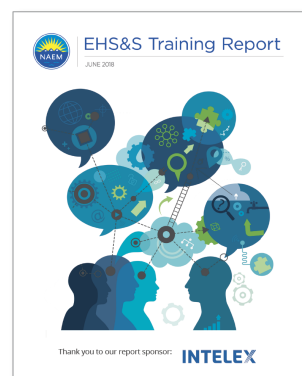
EHS Training Report

What are the strategies your peers are using to engage employees and build EHS culture? What training methods are the most effective? And how do you measure whether your training is working? Join this FREE webinar to hear results from NAEM's benchmark on EHS training and to hear how your programs stack up.