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Using Data Visualization to Meet Compliance and Drive Internal Engagement with EHS Data

A Case Study Featuring an Energy Generation Company



This case study is part of NAEM’s report on “Approaches to EHS & Sustainability Data Management.” This series of case studies explores how organizations from different industries meet their unique data management challenges. To read the full series, visit www.naem.org.

Letter from the Executive Director

If NAEM's benchmarking research has taught us anything, it's that no two companies solve the same problem the same way. Even in a field where environment, health and safety, and sustainability programs often have similar elements, individual leaders need to understand how to adapt core concepts to the particularities of their own company's organizational structure, operations and culture. This is nowhere truer than in the area of EHS&S data management, where commercial software systems offer centralization and automation, as long as practitioners understand their organizations well enough to configure these systems to their needs.



And there is no one practice or approach for solving a complex problem like that.

To understand a challenge like data management, it's useful to hear from a variety of peers, to learn what worked and didn't work so well, and allow their experiences to inform your own. That is what this report is intended to do. As the latest installment in NAEM's research on EHS&S Software and Data Management, this report gives you a peek inside how a diverse group of companies use software tools to organize their EHS&S information and communicate their performance.

In reading through these case studies and interviews, I was struck by what a creative a problem-solver you need to be to find the best solution for your company. Insofar as no two companies are alike, one system does not always fit all. I was also reminded of a maxim that seems to emerge at every NAEM Software and Data Management conference we've hosted since 2001: Data Management is a long-term journey that requires vision, leadership commitment and continuous improvement.

We hope that this report helps you understand how your experiences compare to those of your peers and gives you some ideas you can use to help you refine your path forward.

Sincerely,

A handwritten signature in black ink that reads "Carol Singer Neuvelt". The signature is fluid and cursive, written in a professional style.

Carol Singer Neuvelt
Executive Director, NAEM

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Case Study on Data Management



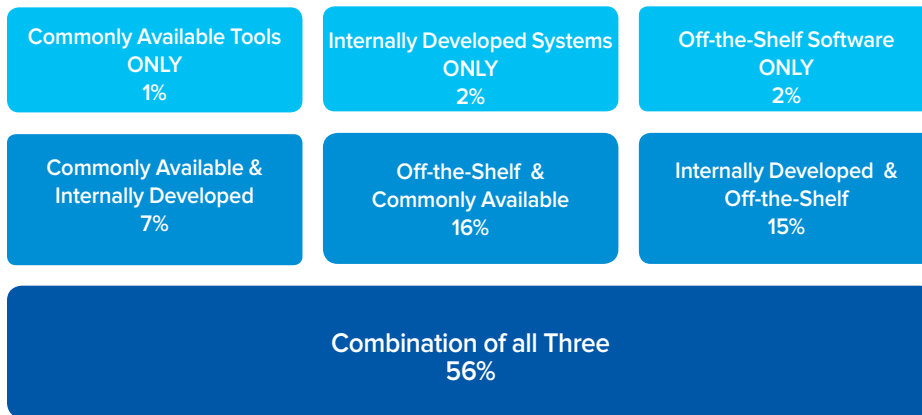
For any EHS and Sustainability leader who has had to manage vast amounts of data, it's tempting to think that there might be a software tool, or one strategy out there, somewhere, that could meet all of your needs. Unfortunately, the experience of those who have selected, implemented and managed these systems suggests this is not the case.

Indeed, a number of variables help shape a company's EHS&S data management strategy, including organizational design, internal culture, types of operational risks and the level of external scrutiny to internal operations.

It's perhaps not surprising then, that among the 165 software users NAEM surveyed about their company's data management approach, 56 percent are using a combination of commercial systems, internally developed software and commonly available tools, such as Microsoft Excel.

Current Data Management Approach

Figure 1



N=164

As the EHS&S software offerings become increasingly sophisticated, more companies are adopting commercial systems to centralize data collecting and reporting.

Common Reasons Why Companies Use More than One System

While software tools for the environmental, health and safety, and sustainability professional have rapidly matured over the past decade, more than half of those surveyed by NAEM still use a combination of commonly available tools, internally-developed software and commercial systems to manage their data. The reasons, according to research participants, may include:

- Decentralized structures may not lend themselves to a centralized reporting systems
- Diverse operations may produce a variety of data types
- Individual operations may have unique risks that require targeted solutions
- Internal culture may value decentralized decision-making
- Acquired businesses may have their own software tools
- Legacy tools may be better aligned with organizational needs



Even so, the scope of these implementations vary widely from company-to-company. A single company may use an enterprise-wide system to manage its corporate standards, for example, while its individual business units use different combination of software systems to meet their own unique needs.

This is often the case for companies that have gone through a merger or acquisition, where the new business entities bring new assets but also their own approaches to data management.

All this makes standardizing corporate processes, or adopting any single system, exceedingly difficult. But as Jason Schmitz, Director of Trinity Consultant's T3 Group points out, perfect integration and standardization may be an unattainable ideal.

“It’s very easy for the human brain to say, ‘We’d really like to have everything in one nice, neat, tiny bow. The fact of the matter is that these organizations are diverse; they grow; they contract; people come; people go; the organization restructures; people get new roles and responsibilities.”

“It’s okay to not have perfect data because you’re not going to have perfect data...you’ve got to figure out what you can tolerate,” he said.

Regardless of a company’s EHS&S program maturity, business objectives or budget, software tools remain just that—a conduit for collecting information. It’s how well an organization aligns around a vision and commits itself to continuous improvement that truly holds the key to success for any data management program.

“The hope is that you master one area and then you go onto the next top priority and master that,” Mr. Schmitz said. “Data management is an evolution.”

In the interviews and case studies that follow, we will examine how different companies evaluated unique data management challenges, and identified solutions to address their business needs. We’ll also explore how they solved problems today while positioning their programs on a long-term path for growth.



Using Data Visualization to Meet Compliance and Drive Internal Engagement with EHS Data

The real opportunities for EHS&S data collection are for the information to identify risks, provide insight into areas for improvement and to substantiate a company's external communications about its efforts. In this case study, an EHS Leader from the energy industry explains how a new regulatory requirement created an opportunity to better communicate the company's environmental impacts to its stakeholders.



Q: Can you briefly describe your company and the nature of your EHS risks?



A: My company operates nuclear power plants for electric generation, so our EHS risks are unique, relative to other industries. While our facilities produce negligible levels of greenhouse gases, our EHS department focuses on the management of radioactive materials that are produced as waste. Specifically, these materials appear in trace amounts in the environment and ground water surrounding the plant but have calculated dose impacts to the public.



Q: Could you please explain the data management challenge your company faced? How did this issue come up?



A: To comply with our federal, state and industry data needs for the major effluent and environmental monitoring program we needed software to reduce time and errors in collection and reporting. Specifically, for groundwater which has become contaminated we need to know the extents, the concentrations and flow. This requires lots of samples and records. We needed to get more education in hydrology at the sites, and, in turn, communicate results and findings to executive management. Understandably, this event became a significant public interest item so we also needed to be able to communicate clearly with regulators and stakeholders. Groundwater protection, therefore, became a very visual study for both regulators and investigators to find the source of leaks and correct them.



Q: What were the options or solutions you considered? What did your exploration of these options reveal?



A: Before we introduced a software solution, this process was largely manual and very time-consuming. Additionally, it was fraught with error because of manual transposition which was required from hard-copies of lab reports into an email to a contractor to develop a map (which was only done once per year due to expense).



Q: What was the solution or approach you came up with? What steps did you go through to implement that solution?



A: Our company decided to use a software-driven solution to minimize error and enhance visualization to enable clearer understanding of the extent of condition and extent of cause. Further, we had a few plants pilot a Radiological Environmental Monitoring Program (REMP) expansion which began to collect all environmental sampling (e.g. vegetation from farms, milk samples, air and water sampling, sediment samples from the river, etc.).

Location of local residents is also added to the mapping such that routine releases from plants will also permit more accurate dose assessments of a member of the public as additional assurance that the nuclear power plant's dose impact remains less than regulatory limits.



Q: What has been the impact of the solution you introduced or the decision you made? How did this information changed how you manage your programs?

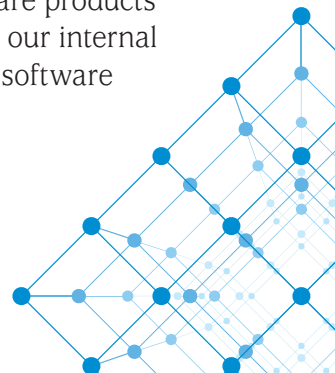


A: The software solution we chose was robust and could concentrate data for executive management consumption. The wide use of visualization was useful and provided lots of insight to multiple stakeholders.

With a simple addition of GPS coordinates to our REMP sampling stations, they could be shown on a map available in the program. I took this tool further by conferring with the software designers about superposition of meteorological data onto the map.

This is important because prevailing winds about a nuclear power plant can (and do) change year-over-year and decade-over-decade. The selection of sites for sampling are critical to proper management of a REMP at a nuclear power plant because NRC requires that REMP validates a licensee's effluent release model assumptions. As a result, release of gaseous radioactive waste in a known wind pattern would suggest a higher probability of collection and therefore validation of that model.

After adopting this software, another benefit became evident. Cloud-based computing, despite cyber security risks, solves a major problem that is increasing in all industries relying on software: multiple updates. With cloud-based software, while not perfect, data centers are managed professionally offsite and are therefore more reliable and require much less time to maintain, which means that my effort is more on the data review and reduction than software and IT – related work. Our company model also has our internal IT manage software products which, for my group, was usually ineffective and unhelpful. This is mostly because our internal IT organization is busy with many other projects and there are too many different software programs to manage.





Lessons Learned

No matter the maturity of your data management program, there are certain lessons that seem universal to all companies. These include:

1. **Data management begins with establishing a basic set of standardized work flows:** “If you don’t have the processes where we have a common definition and terminology for how we do things and what information we collect, and what exactly that information means, you can’t deploy any software much less an off-the-shelf version.”

2. **Every EHS&S data management system will need cooperation from other functions to be effective:** “The art of organizational change management is huge for putting in new data management systems, especially if you’re relying on a network of people or upstream business processes.”

3. **A data management system is only as accurate as its users:** “If executed properly, [most business processes] produce high-quality information. The problem is that without the knowledge, the skill and the capability, people sometimes just get it wrong.”

4. **Each solution has its quirks:** “There’s no system that users say: ‘It’s so great, I really love it,’ People always have their complaints.”

5. **Data Management is a journey of continuous improvement:** “Sometimes you’ve got to put a stake in the ground and move forward and use that mark as your starting point for [further improvement]”



6.

Don't rush into a decision: "Take your time to review what is out there because an EHS software platform is a long-term commitment. It's not a project that you do for one or two years: This becomes a corporate solution."

7.

Know your Audience: Work for the target audience or customer base. Know who will be using the system and what it will be used for. Organize data or information that makes sense to the user and helps them make decisions in a timely manner and take action.

8.

A complicated problem doesn't require a complicated solution: "It is best to match your organizational requirements and assess as to what solution works for you. The solution must be cost-effective relative to the compliance risk. Don't buy "Cadillac" if the need is not there."

9.

Progress is not always a straight line: "As you continually improve, you get the curveballs of change that may take you two steps forward, one step back. Whenever you're in the middle of that, it might not look so pretty but as long as you're vectoring in the right direction, I think that's the most important thing when it comes to data management."

10.

The more data, the more work: "Once you create more data for yourself, you create more problems for yourself. You never used to know about those incidents that occurred. Now that you've got that granularity, you've got a problem that you've got to deal with. The overwhelming amount of data that you're going to create might actually make your job harder, so you've got to be cognizant of that."



Read the Full Case Studies Series

Download NAEM's Approaches to EHS & Sustainability Data Management report or read a case study from the series by visiting www.naem.org

Approaches to EHS&S Data Management
 How Corporate Leaders are Setting Priorities and Leveraging Software to Advance Program Performance

DECEMBER 2016

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Finding Common Ground within a Decentralized Company
 A Case Study Featuring Amphenol Group

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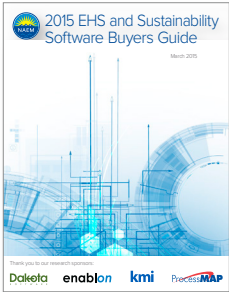
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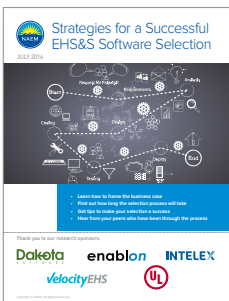
NAEM provides valuable resources for corporate EHS and sustainability leaders and IT professionals who are responsible for selecting, implementing and maintaining software systems, and who are looking to better manage and report their data.



2015 EHS&S Software Buyers Guide

This report, which includes data from 165 in-house EHS and sustainability leaders, addresses common questions from a peer perspective, including: business objectives for software purchase, the desired software capabilities, peer spending and expected maintenance costs. The detailed analysis also incorporates the perspective of past purchasers to provide shoppers with a comparison between their expectations and the experiences of those who have recently gone through the process. An update to this report will be published in March 2017.

Download Free Report: www.naem.org/?survey_2015_ehsmis



2016 Strategies for a Successful EHS&S Software Selection

A successful selection begins with a well-managed selection process. Download this free white paper to learn how to frame the business case for a new system, how to identify requirements and how to plan for long-term success.

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2017 EHS & Sustainability Software Ratings Report

NAEM's Software Ratings Report is the only third-party evaluation of satisfaction with specific software capabilities, user adoption, customer service from the perspective of in-house EHS and sustainability leaders. Download the free report to learn how users rated leading software providers, or take the survey today to rate your software system.

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Since 2001, NAEM's EHS and Sustainability Software and Data Management Conference has been the premier software event designed to meet the needs of corporate EHS and sustainability leaders. NAEM's conference is the best opportunity to meet with the leading solution providers at the same place and to hear from fellow users who utilize these systems on a daily basis.

For More Information: www.ehsmis.naem.org/



Acknowledgments

Publisher

The National Association for Environmental Management (NAEM)

1612 K St., NW Suite 1002
Washington, DC 20006
(202) 986-6616
www.naem.org

Series Contributors

Asif Ansari

Environmental Compliance and Risk Management
The United States Postal Service

Martha Coopersmith-Gray

Director of Environmental Health and Safety and Sustainability
Amphenol TCS

Lisa Marx

Principal EHS Specialist
Abbott Labs

Thochan Nguyentan

Corporate EHS&S Manager
Lam Research Corp.

Jay Roussel

Project Manager
Chevron Corp.

Jason Schmitz

Director of T3Group
Trinity Consultants

Eric Schwartz

Report Sponsors

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Analyst

Elizabeth Ryan

Director of Communications, NAEM

Report Design

Ellie Diaz

Chaos Studios

Media Inquiries

For more information about this report or to request an interview with an NAEM analyst, please contact NAEM at (202) 986-6616.



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